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# 紐約市 特殊高中入學測驗 (SHSAT)

## 2024年入學

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本指南的資訊確保在刊出時是準確的，但之後可能會有所變動。請到以下網站查閱最新資訊：[schools.nyc.gov/SHS](https://schools.nyc.gov/SHS)、[schools.nyc.gov/High](https://schools.nyc.gov/High)及[MySchools.nyc.gov](https://MySchools.nyc.gov)。

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# 目錄

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<b>1.0 為特殊高中入學測驗作準備</b> .....	4
1.1 了解測驗是怎樣的 .....	4
1.2 參加模擬測驗 .....	4
1.3 檢查樣本試題中你的答案 .....	5
1.4 如何為英文部分備考 .....	6
1.5 如何為數學部分備考 .....	18
<b>2.0 為測驗日作好準備</b> .....	30
2.1 攜帶哪些物品進入考場 .....	30
2.2 不得攜帶哪些物品 .....	30
2.3 測驗日的要求 .....	31
2.4 填寫答題紙 .....	31
2.5 學生不端行為 .....	32
<b>3.0 我在參加了特殊高中入學測驗之後，接下來怎樣？</b> .....	33
3.1 對於測驗不當情況進行投訴 .....	33

<b>SAMPLE TEST A</b> .....	34
General Directions .....	34
Sample Test .....	36
<b>Form A</b> Sample Test – English Language Arts Explanations of Correct Answers .....	92
<b>Form A</b> Sample Test – Mathematics Explanations of Correct Answers .....	131
<b>Form A</b> Sample Test – Answer Key .....	148
<b>SAMPLE TEST B</b> .....	149
General Directions .....	149
Sample Test .....	151
<b>Form B</b> Sample Test – English Language Arts Explanations of Correct Answers .....	209
<b>Form B</b> Sample Test – Mathematics Explanations of Correct Answers .....	241
<b>Form B</b> Sample Test – Answer Key .....	257
<b>Grade 9</b> Mathematics Sample Questions .....	258
<b>Grade 9</b> Mathematics Explanations of Correct Answers .....	263
<b>Grade 8</b> Grid-In Sample Problems .....	267
<b>Grade 8</b> Grid-In Explanations of Correct Answers .....	269
<b>SHSAT</b> Sample Answer Sheets .....	275
<b>SHSAT</b> Blank Grid-ins to be Used with Sample Items .....	277

# 1.0 為特殊高中入學測驗作準備

家長應與子女一同閱讀本章節，讓子女能為測驗做好準備。

## 1.1 了解測驗是怎樣的

- 閱讀本手冊下面幾頁，讓自己熟悉測驗的形式：
  - 關於測驗的說明
  - 兩個完整長度的樣本試題
  - 每個樣本試題的答案和說明
  - 額外的數學填空樣本試題
  - 特定的9年級樣本試題(如你打算用9年級學生身分參加這個測驗)
- 熟悉樣本試題。
  - 英文樣本試題從第7頁開始。
  - 數學樣本試題從第20頁開始。
- 熟悉每個部分的相關指示，這樣你就可以：
  - 全面了解在測驗的每個部分，你要做些什麼：修訂/校訂A和B部分、閱讀理解、數學填空、數學選擇題
  - 可以集中時間回答問題，而不用在測驗當天閱讀有關說明
- 熟悉模擬測驗中所包括的答題紙，以便你可以：
  - 在測驗當天你開始測驗前，就很容易地填寫你的名字、年級、出生日期
  - 在測驗當天，測驗一開始，就很容易地、精確地、迅速地標示你的答案

## 1.2 參加模擬測驗

- 制訂計劃。
  - 本套資料有兩套樣本試題，你可以按照你想用的方式使用它們；建議你用至少一套，練習在限時情況下參加完整測驗。
  - 你有180分鐘時間完成測驗；英語學習生或經核准獲得加時特別照顧的學生有360分鐘時間完成測驗。
  - 你可以從你想先做的測驗部分開始，因此請你提前決定測驗時你的做題順序。
  - 你可以按照你的喜好，在英文和數學之間分配時間。
- 打印出這套SHSAT答題紙樣本
- 使用手錶或時鐘，掌握你的180分鐘測驗時間。
- 回答問題時，可以從英文部分或者數學部分開始。
  - 請記住，你自己決定從哪個部分開始！
  - 小心地答題，但要以自己感覺適當的速度，保持繼續做題。
  - 不要在任何一道題目上花超過幾分鐘的時間。

做每一道題時，塗黑答題紙上的相應答案圓圈。

答案必須完全填好。

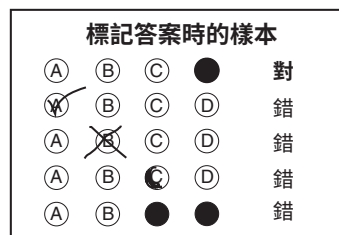
- 所有答案必須在宣佈測驗時間結束之前記錄到答題紙上。記住：你不會有額外時間將答案轉寫到答題紙上。

憑經驗猜出的答案可能會是正確答案。

- 方法是去掉絕對錯誤的答案選擇，然後從剩下的選擇中選出一個答案。
- 你的測驗分數取決於你在答題紙上所標記的**正確**答案的數目。由於答錯不扣分，因此不作答沒有任何好處。

如果你還有剩餘時間，檢查你的答題。

- 如果你在測驗時間結束之前答完所有問題，請檢查一遍你的答題，以確保你遵守了相關說明，沒有遺漏任何問題，而且沒有犯粗心的錯誤。請記住：由於答錯不扣分，請你一定不要給任何題目留空白答案！
- 請注意，在測驗當天，你必須在整個測驗期間(180分鐘)一直留在測驗教室裏。



### 1.3 檢查樣本試題中你的答案

完成樣本試題後，對照正確答案表檢查你的答案。

- 閱讀對正確答案的解釋，了解你可能會犯哪些類型的錯誤。
- 檢查並看看你的錯誤是否存在一個模式。
  - **英文例子：**你是否做錯許多有關中心思想或作者的寫作目的的題目？
  - **數學例子：**你是否由於計算錯誤而做錯許多題？
- 尋找機會，針對你覺得有難度的領域多做練習！

## 1.4 如何為英文部分備考

英文部分包括57道選擇題，評估修訂/校訂和閱讀理解技巧。這些問題符合紐約州下一代英文和數學學習標準。下面各頁提供關於回答修訂/校訂題和閱讀理解題的小建議。

### 修訂/校訂A部分概述

這部分試題評估的語言技能是根據7年級「紐約州學習標準」語言部分，以及在此前的年級所引入的技能或標準。每個問題指示你讀一個句子、一些句子或一個自然段（句子標有號碼）。然後要求你回答與語言或標點規範相關的問題。

例子包括：

- 選出對於一個錯誤的最佳更正
- 找出有錯誤的句子
- 把句子合併或修改句子的一部分，改善寫作



### 小建議：修訂/校訂A部分

首先，看提問部分。

- 多數而言，先看提問部分，而不是先看文章。這樣你就知道看文章時，應當找哪一類的問題。

然後，閱讀方框裡的文章，標記你察覺到的問題，同時注意時間。

- 有沒有因語言運用錯誤或標點錯誤而造成文理不通的單詞、短語或句子？
- 文章中有沒有哪個部分可以寫得更清晰、凝練或精確？
- 當你注意到一處問題時，馬上在文中做記號。這可以幫你選出答案選項。
- 謹記：應圍繞提問中的特定主題做記號。

計劃你的時間。



- 在測驗日之前，計劃好你將在A部分花多少時間；這將幫助你在測驗當天高效地回答每個問題。

## 修訂/校訂A部分試題樣本

### Sample 1: Select the sentence that needs a revision.

Which sentence in the paragraph should be revised to correct an inappropriate shift in verb tense?

(1) For 14 years, James and his dad have had a tradition of attending Yankees games together, but James is leaving for college next week, and he is agonizing over the fact that attending school in Pennsylvania and working there over the summer meant no more games with his dad. (2) One night, as James is packing his clothes into boxes, he hears a soft knock on his bedroom door. (3) As soon as he opens the door, James sees what is in his dad's hands and feels a rush of joy. (4) His dad is holding a bus ticket for a trip home on a weekend in the spring so that father and son can attend a Yankees game together!

- A. Sentence 1
- B. Sentence 2
- C. Sentence 3
- D. Sentence 4



要確定這一段落的最佳修訂，請閱讀段落中的第1句。如果不需要修訂，則繼續閱讀每個句子和答案選項直至你找出正確答案。

### Sample 1 Explanation

**(A)** The sentence is written in the present tense; the verb “meant” shifts incorrectly into past tense. This verb should instead appear in the future tense, “will mean,” since the verb refers to how things will be in the future. The corrected sentence will then read, “For 14 years, James and his dad have had a tradition of attending Yankees games together, but James is leaving for college next week, and he is agonizing over the fact that attending school in Pennsylvania and working there over the summer will mean no more games with his dad.” The present tense, “means,” could also be used, as James appears to be coming to this realization in present time. The use of “means” would make the corrected sentence read as follows: “For 14 years, James and his dad have had a tradition of attending Yankees games together, but James is leaving for college next week, and he is agonizing over the fact that attending school in Pennsylvania and working there over the summer means no more games with his dad.”

## Sample 2: Identify a sentence with an error.

Which sentence in the paragraph contains an error in its construction and should be revised?

(1) In 2007, visitors to San Francisco, many of whom were attending an international design conference, had booked almost all of the city's hotel rooms. (2) Looking for a way to earn some extra money, three air mattresses were rented out by roommates Joe Gebbia and Brian Chesky. (3) The 27-year-olds put the mattresses in the loft of their apartment and charged \$80 a night, for which guests received a bed, breakfast, and internet access. (4) Soon the entrepreneurs realized that they could capitalize on their idea in a much bigger way, and they established Airbnb, a company that offers around 6 million rental listings in more than 100,000 cities worldwide.

- E. sentence 1
- F. sentence 2
- G. sentence 3
- H. sentence 4



為了辨識出這個句子，仔細閱讀，同時注意時間；不要只是略讀。錯誤可能在該段的任何地方。



請注意，該錯誤是針對句子結構，即它是關於怎樣在句中置放單詞和短語從而表達（體現）意思之間的關聯。

### Sample 2 Explanation

(F) In sentence 2, the modifier “Looking for a way to earn some extra money” incorrectly modifies “three air mattresses” when it should modify “roommates Joe Gebbia and Brian Chesky.” This error in construction can be corrected by making “roommates Joe Gebbia and Brian Chesky” the subject of the main clause and using the active voice. The corrected sentence will read “Looking for a way to earn some extra money, roommates Joe Gebbia and Brian Chesky rented out three air mattresses.”



### Sample 3: Improve the writing by combining sentences or revising part of a sentence.

What is the **best** way to combine these sentences to clarify the relationship between ideas?

(1) In 2019, 15-year-old Cori “Coco” Gauff defeated Venus Williams in the first round of Wimbledon.

(2) Wimbledon is the world’s most prestigious tennis tournament.

(3) Gauff made history as the youngest player in almost 30 years to win a women’s singles match at Wimbledon.

- A. Making history at the world’s most prestigious tennis tournament in 2019, 15-year-old Cori “Coco” Gauff defeated Venus Williams, in the first round, making Gauff the youngest player in almost 30 years to win a women’s singles match at Wimbledon.
- B. At the world’s most prestigious tennis tournament, Wimbledon, 15-year-old Cori “Coco” Gauff made history in 2019 by defeating Venus Williams in the first round, making the teenager the youngest player in almost 30 years to win a women’s singles match.
- C. In 2019, 15-year-old Cori “Coco” Gauff made history when she defeated Venus Williams in the first round of Wimbledon, becoming the youngest player in almost 30 years to win a women’s singles match at the world’s most prestigious tennis tournament.
- D. In 2019, history was made at the first round of Wimbledon, the world’s most prestigious tennis tournament, when 15-year-old Cori “Coco” Gauff defeated Venus Williams to become the youngest player in almost 30 years to win a women’s singles match.



想要合併句子，問問你自己

1. 有沒有任何重複的單詞或意思，可以取而代之只用一次？
2. 怎樣將不同的意思聯結起來？句子體現的是原因和結果、相反意思、連續等等嗎？

#### Sample 3 Explanation

(C) This revision clarifies the idea that Gauff made history by becoming the youngest player in decades to win a women’s singles match at Wimbledon and that she did so when she beat Venus Williams. The revision also explains that Wimbledon is the “world’s most prestigious tennis tournament” in a way that is clear and logical.

## 修訂/校訂B部分概述

B部分試題評估你對文章的閱讀能力，以及看完後提高寫作整體質量的決策能力。這些文章展現的主題包括歷史事件和時事，人物、地方和技術，以及生物學、物理學和社會學現象。每個句子都標有號碼，以便你迅速找到並參考文中相應部分。

文章中可能有錯誤，如

- 語言運用不當
- 缺少支持說法的細節，或文中支持的細節實無必要
- 缺少過渡詞、短語或句子，或運用不當
- 缺少開端的引導或總結陳述，或這類陳述不清晰
- 混亂的或不合邏輯的文章組織結構
- 與語言和寫作標準相關的其他錯誤



### 小建議：修訂/校訂B部分

**首先，仔細閱讀文章，同時注意時間；不要略讀。**

- 你需要理解作者的目的、中心思想和文中的支持說法的細節，以便回答怎樣更好地行文和組織文章的相關問題，這要求細讀。
- 你可能注意到了文中似乎有混亂的、不合邏輯的、沒有必要的、組織結構不當的或總體來講文理不通的句子和段落。
- 首先閱讀文章部分。請注意：做B部分時，閱讀文章和提問部分的順序有別於做A部分。做A部分時，你應先閱讀**提問**部分。做B部分時，你應先閱讀**文章**。

**然後，仔細閱讀每個問題，同時注意時間。**

- 回到文中查閱，並重讀提問部分提及的相關句子或段落。
- 你可能也需要略讀提問中所涉句子的前一句和後一句。
- 考慮每個答案選項，有必要（且時間允許）時重讀文章。決定那個選項是否代表最佳修訂。

**計劃你的時間。**



- 在測驗日之前，計劃好你將在B部分花多少時間；這將幫助你在測驗當天高效地回答每個問題。

## Learning to Embrace the Gap Year

(1) The traditional academic plan for college-bound students in the United States is to complete high school in June and begin college courses in August or September, but some experts wonder whether this plan is appropriate for all students. (2) Young adults are still exhausted from attending secondary school. (3) They are sent to college with little to no transition time. (4) They struggle with a lack of direction, have minimal life experience, and are not adequately prepared to succeed. (5) Many students are simply starting college before they are ready.

(6) A gap year is when a student takes a one- year hiatus from schooling for nonacademic activities. (7) This break in the academic track gives young adults a chance to explore possible program options, gain volunteer experience, and achieve personal growth. (8) Through a variety of opportunities, gap year participants can develop new skills and interests. (9) The break can also help prepare students for the challenges of college coursework by giving them additional time to mature. (10) Succeeding at the college level can be challenging at first, but when determined students adjust and employ good study habits, they will thrive.

(11) Earning money can be a tempting choice, and some young adults may find that they no longer desire a college degree after entering the workforce. (12) While gap year critics do have a valid concern, a 2010 Wall Street Journal article cited research that found that “90% of students who took a gap year had returned to college within a year.” (13) And the Gap Year Association, a worldwide accredited nonprofit that promotes the benefits of a gap year, maintains that “taking a structured gap year invariably serves to develop the individual into a more focused student with a better sense of purpose and engagement in the world.”

(14) The choice to take a gap year may not be for all students, but it could be the best path for some. (15) Students need to know that this is a good choice that will be supported if it is what they want. (16) Taking a gap year could help students become more successful as adults in their community.

1. Which sentence should follow sentence 5 to introduce the main claim of the passage?
  - A. Taking a gap year away from formal education to determine their personal aspirations is the answer for these students.
  - B. For some students, the benefits of taking a gap year after high school could significantly increase their chances of achieving collegiate success.
  - C. When students are academically and emotionally prepared, they are guaranteed to experience greater success in their higher education endeavors.
  - D. Students who take the time to mature and gain knowledge outside of the classroom will experience more satisfaction, purpose, and accomplishment in their life.

2. Which revision of sentence 8 uses the **most** precise language?
- E. Through different experiences and discoveries, gap year participants can develop new skills and interests.
  - F. Through a range of opportunities and training, gap year participants can develop new skills and interests.
  - G. Through internships, work, travel, or volunteerism, gap year participants can develop new skills and interests.
  - H. Through a variety of jobs, programs, and charities, gap year participants can develop new skills and interests.
3. Which sentence should be added before sentence 11 to introduce the ideas in the third paragraph (sentences 11 - 13)?
- A. Some gap year opponents worry that young adults who take a break from academia for activities such as a job may never return.
  - B. In addition to helping students become better prepared for college, a gap year could be useful to those with financial constraints.
  - C. Students complain that there is not enough time between high school and college to earn money for college.
  - D. There is growing concern among some experts that a gap year may be too expensive for many students to even consider.

### Sample 1 Explanation

**(B)** Option B is the best sentence to follow sentence 5 and supports the main claim. This sentence clearly states the claim in that the gap year can lead to success in college for some, but not all, students (as revealed in sentence 14). This idea is developed throughout the passage by explaining what a gap year is and how it benefits students.

### Sample 2 Explanation

**(G)** Option G uses the most precise language and is the correct response. The imprecise reference in sentence 8 to “a variety of opportunities” is replaced with the more specific and precise reference to what these opportunities entail. They may be “internships, work, travel, or volunteerism.”

### Sample 3 Explanation

**(A)** Option A is the correct sentence to add before sentence 11. The third paragraph introduces, and then refutes, a counterclaim about gap years in that they may encourage young people to forgo college entirely. This sentence clearly introduces this counterclaim that the paragraph elaborates on and then refutes with evidence.

## 閱讀理解概述

這個部分評估你對文章的閱讀和理解能力，至多六篇文章，文學類和資訊類都有，可能包括下列任何文章類型。

### 資訊類體裁可包括

說明文

議論文

功能性文章，形式有：

- 個人小論文
- 演講
- 觀點性短文
- 關於藝術或文學的小論文
- 傳記
- 回憶錄
- 新聞
- 歷史、科學、技術或經濟類科普文章

### 文學類體裁可包括

詩歌

探險故事

歷史小說

推理小說

神話

科幻

寫實小說

寓言

滑稽模仿作品

諷刺作品

創意非虛構



## 閱讀理解小建議

**首先，仔細閱讀文章，同時注意時間；不要略讀。**

- 仔細閱讀文章，肯定自己對主旨和重要細節有精確的、以文本為根據的理解。
- 閱讀時，監督自己的理解力；如果一個句子或自然段令你費解，則迅速重讀此處。

**記筆記。**

- 在通讀文章時，快速記簡單筆記，以辨識重要細節、撮要觀點等。

**仔細閱讀問題。**

- 仔細閱讀問題，這樣你才能清楚地理解問題問的是什麼。例如，你需要著重於僅僅一個自然段中的細節，還是多個自然段中的細節？
- 如果時間允許，重讀文中相關的一部分或幾部分。

**要力爭在看完各個答案選項之前確定答案。**

- 在看完各個答案選項之前想出答案。然後閱讀每個答案選項，去掉絕對錯誤的，選擇與你的想法最相符的。
- 答案只以文章內容（和相關圖像或圖案）為基礎。不要依賴於你對這個主題的已有知識。

**計劃你的時間。**



- 在測驗日之前，計劃好你將在閱讀理解部分的每篇文章和問題上花多少時間；這將幫助你在測驗當天高效地回答每個問題。

### Snoozing While Soaring

- 1 Certain types of birds soar for hundreds of miles, over land, over sea—and never stop to rest. That kind of endurance seems impossible to us, since we as people need time to rest and sleep. Researchers set out to learn how birds could fly for such long distances without restorative rest. They found that for some birds, settling in for a good night’s rest is not always a necessity.
- 2 In 2013 Felix Liechti and his research colleagues at the Swiss Ornithological Institute published results of a study about the flight habits of Alpine swifts, small birds that migrate annually between Europe and Africa. Liechti and his team fitted the birds with small electronic tags that recorded the birds’ acceleration and their pitch, or angle relative to the ground. The data revealed that the birds remained completely airborne during their time in Africa, a period of over 200 days. Since all animals require sleep, the researchers inferred that the birds slept from time to time on their long journey. However, since the electronic tags recorded only movement such as gliding or flying, and not brain waves, the question of whether birds sleep during flight remained unanswered.
- 3 Researcher Niels Rattenborg from the Max Planck Institute for Ornithology also delved into this question. In a 2006 article Rattenborg explained that it was theoretically possible that birds could undergo a certain type of sleep while flying. Like mammals, Rattenborg explained, birds experience different types of sleep, including slow-wave sleep (SWS). Rattenborg argued that SWS during flight is plausible because SWS can happen in one hemisphere of the brain at a time, leaving half of the brain essentially awake while the other half sleeps. The eye associated with the “awake” hemisphere can still function, allowing a bird to see where it is going. Rattenborg decided that electroencephalogram (EEG) recordings of birds’ brain waves would ultimately be necessary to determine whether a bird can actually sleep in flight.
- 4 Eventually, Rattenborg and his team were able to create an experiment to prove this theory by studying frigatebirds from the Galápagos Islands. These enormous birds are good subjects for avian-sleep research because they fly far out to sea to hunt fish. However, unlike many seabirds, they cannot land on the water to rest because the physical build of their body—long wings, poorly webbed feet, and minimal feather waterproofing—makes them unable to take off again from the surface of the water. Rattenborg concluded that they must remain in flight for up to two months at a time.
- 5 In an article from 2016, Rattenborg outlined the team’s research methods and conclusions. The team humanely implanted EEGs on the skulls of several frigatebirds. After analyzing the EEG readings of the birds while in flight, the team determined that the frigatebirds slow-wave slept for about ten seconds at a time at points when the birds were gliding upward via warm air currents, typically the safest part of the flight. While in flight the birds slept for only 45 minutes a day, which is just enough rest for the birds to function during these long flights. They later recovered from the stress of going with very little sleep when they rested for approximately twelve hours each day back on land.
- 6 Using EEG recordings, Niels Rattenborg solved the puzzle of when birds sleep while traveling long distances. His evidence proved that his theory was correct, and the birds proved themselves to be the ultimate multitaskers as they manage sleep and flight at the same time.

1. Read this sentence from paragraph 1.

**That kind of endurance seems impossible to us, since we as people need time to rest and sleep.**

The words “endurance” and “impossible” in the sentence convey

- A. amazement about the physical capability of birds to remain in flight for extended periods of time over long distances.
  - B. uncertainty about the conditions that allow birds to stay in flight for extended periods of time without rest.
  - C. excitement about the opportunity to share research into how birds fly for extended periods of time.
  - D. skepticism about discovering how birds can fly for extended periods of time with little or no rest.
2. Which sentence from the passage **best** supports the idea that birds seem to be capable of making prolonged flights without sleeping?
    - E. “The data revealed that the birds remained completely airborne during their time in Africa, a period of over 200 days.” (paragraph 2)
    - F. “In a 2006 article Rattenborg explained that it was theoretically possible that birds could undergo a certain type of sleep while flying.” (paragraph 3)
    - G. “Rattenborg decided that electroencephalogram (EEG) recordings of birds’ brain waves would ultimately be necessary to determine whether a bird can actually sleep in flight.” (paragraph 3)
    - H. “While in flight the birds slept for only 45 minutes a day, which is just enough rest for the birds to function during these long flights.” (paragraph 5)



3. Which statement **best** summarizes the conclusions of the studies presented in the passage?
- A. Scientists used monitoring devices to determine that the seconds when migratory birds glide upward in warm air currents are safest for slow-wave sleep.
  - B. Using monitoring devices, scientists confirmed that migratory birds sleep for an extremely short amount of time while in flight and recuperate by sleeping for an extended period of time after they land.
  - C. Scientists used monitoring devices to determine that migratory birds require significantly less sleep than many other animals and to show that the birds use only one hemisphere of their brain while flying.
  - D. Using monitoring devices, scientists confirmed that some types of migratory birds rely on slow-wave sleep cycles in order to stay in flight for extended periods of time.
4. The overall organizational structure of the passage allows the author to
- E. contrast the significance of research findings related to small migratory birds with those related to large migratory birds.
  - F. compare the in-flight sleep patterns of the various types of birds examined in several studies.
  - G. emphasize the role of technology in studying sleep patterns of birds in flight.
  - H. illustrate how researchers acquired a better understanding of the sleep patterns of birds in flight.

#### Sample 1 Explanation

(A) Option A is the correct response because it explains that the words “endurance” and “impossible” convey amazement at the birds’ ability to remain in flight for so long without resting—as opposed to human beings, who “need time to rest and sleep” (paragraph 1). Specifically, the word “impossible” implies a sense of wonder or disbelief at the birds’ endurance, which allows them to continue flying for hundreds of miles without stopping. The words “endurance” and “impossible” support the idea expressed later in the passage that these birds are the “ultimate multitaskers” (paragraph 6).

#### Sample 2 Explanation

(E) Option E best supports the idea that birds seem to be capable of making prolonged flights without sleeping, because it expresses the idea that the birds “remained completely airborne” during “a period of over 200 days” (paragraph 2). This information is significantly more precise than the information in the other answer options. Therefore, option E provides more compelling evidence to support the idea in the question than the other answer options provide.

#### Sample 3 Explanation

(D) Option D best summarizes the conclusions of the studies presented in the passage. While all the options include some important details about the study of migratory birds, option D accurately states the key conclusion of these studies, which is that these birds “rely on slow-wave sleep cycles in order to stay in flight for extended periods of time” (paragraph 5). Option D’s emphasis on the key conclusion rather than on key details makes it the correct response.

#### Sample 4 Explanation

(H) Option H best explains the effect of the overall structure of the passage. The passage presents an unresolved question in paragraph 2, while paragraph 3 explains one researcher’s attempt at seeking an answer to the question. Paragraph 4 describes the bird the researchers chose due to its physical makeup and feeding habits. Paragraphs 5 and 6 illustrate the details and outcome of the study, revealing the researchers’ conclusion. Therefore, the overall structure of the passage illustrates how researchers improved their understanding of the sleep patterns of birds in flight.

## 1.5 如何為數學部分備考

數學部分包含填空形式或選擇題形式的應用題和計算題。有5道數學填空題和52道選擇題。數學問題涉及數學技能、數學術語和「紐約州下一代英文和數學學習標準」中一般概念的應用。SHSAT數學考題將要求你把熟悉的數學技能應用到複雜、多步驟的問題中。

下面各頁列出了幫助你備考特殊高中入學測驗數學部分的各種小建議。包括以下各項：

- 對於有待你進一步練習的數學主題，提高相關數學技能的小建議
- 讓自己熟悉特殊高中入學測驗所專有的期許標準（該期許可能有別於你參加過的其他數學測驗）的小建議
- 關於回答數學選擇題的小建議
- 關於回答數學塗黑填空題的小建議

**請注意：**所有數學樣本試題的答案和答案解釋可以在第23頁至第25頁找到。

8年級試卷上的數學試題根據的是到7年級為止的「紐約州學習標準」。9年級試卷上的數學試題根據的是到8年級為止的材料。



### 小建議：提高你的數學技能

#### 查看數學資源。

- 使用數學教科書，在學校或你的本地圖書館尋找其他數學資源，或讓老師推薦資源供你使用。

#### 每天練習解數學題。基礎題和難題都要做。

- 基礎題強化諸如簡化分數和運用統計概念之類的數學技能。
- 較難的題要求列多步驟的複雜方程式。還可能要求使用各類數學技能。例如，你可能用分數解方程式，並用你的統計學知識回答問題。
- 如果你不確定怎樣解答一道題，先跳過，做完其他題之後再回頭做這道題。在做完其他題之後，你可能知道如何更好地解答這道題。



## 為數學部分備考時需要記住的內容

使用班上所用到的數學術語、符號和公式，直至你能自如地應用。

- ▶ 你必須知道符合你年級水平的數學術語的含義，例如「平行」和「垂直」，以及代表那些術語的符號。
- ▶ 你可以從你的數學課堂材料以及7年級和8年級「紐約州下一代英文和數學學習標準」網上資料中找到數學術語、符號和公式（例如用於不同圖形的周長和面積的這些項目）。
- ▶ 試卷上**不會**給出這些術語、符號和公式的定義和解釋。練習用他們解題，直到你記住他們並且能應用自如。

在解題時不要使用計算器。

- ▶ 參加特殊高中入學測驗時，考場**不得**使用計算器。

計劃你的時間。



- ▶ 在測驗日之前，計劃好你將在數學部分花多少時間；這將幫助你在測驗當天高效地回答每個問題。

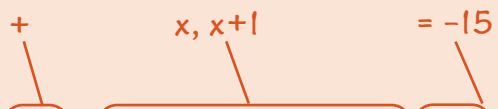


## 小建議：解數學題

### 請仔細閱讀每一道題。

- 仔細讀題，這樣你就能用題目中的**所有**重要信息精確地釐清複雜題目的題設。
- 標記問題，確保包括了所有解題訊息。如例1所示。
- 將題中的詞改寫為數學符號（如例1、例2所示）。

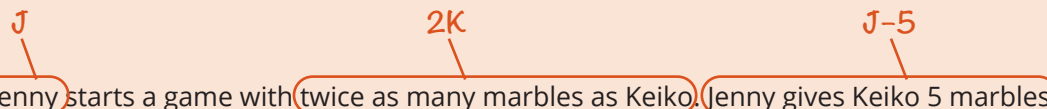
### Sample 1


 The **sum** of **two consecutive integers** **is -15**. If 1 is added to the smaller integer and 2 is subtracted from the larger integer, what is the **product** of the two resulting integers?



將題中的詞改寫為數學符號。

### Sample 2


**Jenny** starts a game with **twice as many marbles as Keiko**. **Jenny gives Keiko 5 marbles** but she still has 10 more than Keiko. How many marbles did Jenny have to start with?

- A. 25
- B. 30
- C. 35
- D. 40

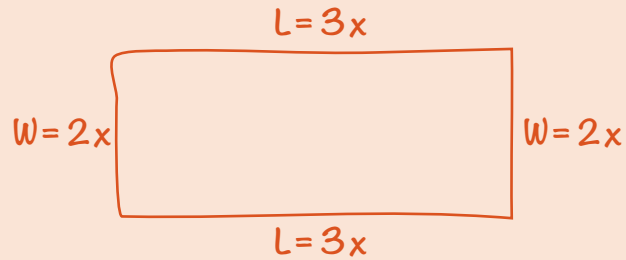


標註題目，準備解題。

對於沒有圖或表的題，畫圖或表。

► 畫圖或表，幫你將題目所描述的內容視覺化。如下例所示。

### Sample 3



The perimeter of a rectangle is 510 centimeters. The ratio of the length to the width is 3:2. What are the dimensions of this rectangle?

- E. 150 cm by 105 cm
- F. 153 cm by 102 cm
- G. 158 cm by 97 cm
- H. 165 cm by 90 cm



標註圖和表。

每次解一步。

► 有些題目要求你合併一系列的步驟。每次寫出一個步驟，進而解多步驟題。如下例所示。

#### Sample 4

1 dollar = 7 lorgs  
1 dollar = 0.5 dalts

Malik has 140 lorgs and 16 dalts. If he exchanges the lorgs and dalts for dollars according to the rates above, how many dollars will he receive?

- A. \$28
- B. \$52
- C. \$182
- D. \$282

$$\frac{140}{x} = \frac{7}{1}$$

$$7x = 140$$

$$x = \$20$$

$$\frac{16}{x} = \frac{0.5}{1}$$

$$0.5x = 16$$

$$x = \$32$$

$$20 + 32 = \$52$$



第1步：將lorgs轉化成 dollars。



第2步：將dalts轉化成 dollars。



第3步：將你所轉化的lorgs和dalts相加。



## 關於數學選擇題的小建議

大部分選擇題應算出答案再選擇。

- ▶ 先解題再看答案選項更有效，相比於先看答案選項再試著估量每個答案的準確度繼而得出正確答案。

最好是在紙上解題（而不是心算），著重於解題而不是選答案。

- ▶ 當你得出一個答案時，看列出的選項。如果你的答案在選項之列，標記它。如果不在，則重讀題目再解一次。
- ▶ 如果答案選項中沒有你算出的答案，則應考慮用其他方式寫出你的答案。例如， $\frac{5}{9}(3+x)$ ，下面都是與之等同的寫法：

$$\frac{5(3+x)}{9} \text{ 和 } \frac{5}{3} + \frac{5}{9}x \text{ 和 } \frac{5}{3} + \frac{5x}{9}。$$

- ▶ 如果你的答案仍然不在答案選項之列，盡你最大努力猜一個答案，或者之後有時間回頭重新再算一次。

### Sample 1 Explanation

If  $x$  is the smaller consecutive integer, then  $x + 1$  is the larger consecutive integer. Use their sum  $-15$  to find  $x$ :

$$x + (x + 1) = -15$$

$$2x + 1 = -15$$

$$2x = -16$$

$$x = -8$$

The two consecutive integers are  $-8$  and  $-7$ .

One is added to the smaller integer:  $-8 + 1 = -7$ .

Two is subtracted from the larger integer:  $-7 - 2 = -9$ .

Find the product:  $-7 \times -9 = 63$ .

### Sample 2 Explanation

(D) Set up some equations.

Jenny ( $J$ ) has twice as many marbles as Keiko ( $K$ ):  $J = 2K$

Jenny gives Keiko 5 marbles, so now they each have:  $J - 5$  and  $K + 5$  marbles.

Jenny still has 10 more than Keiko:

$$J - 5 = (K + 5) + 10$$

To find how many marbles Jenny had to start with, solve  $J = 2K$  for  $K$  and substitute that into the second equation:

In equation  $J = 2K$ , solve for  $K$ :  $K = \frac{J}{2}$ .

Substitute  $\frac{J}{2}$  in for  $K$ .

$$J - 5 = (K + 5) + 10$$

$$J - 5 = \left(\frac{J}{2} + 5\right) + 10$$

$$J - 5 = \frac{J}{2} + 15$$

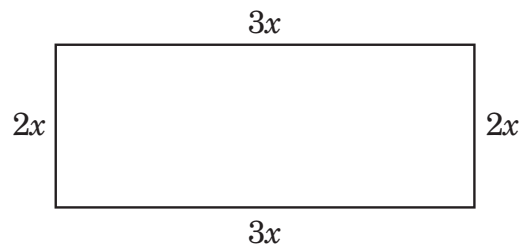
$$\frac{J}{2} = 20$$

$$J = 40 \text{ marbles}$$

### Sample 3 Explanation

(F) Let  $2x =$  the width and  $3x =$  the length.

Draw the rectangle to help visualize.



Since  $2w + 2l = P$ , we get

$$2(2x) + 2(3x) = 510$$

$$4x + 6x = 510$$

$$10x = 510$$

$$x = 51$$

$$2x = 102\text{cm and } 3x = 153 \text{ cm}$$



**Sample 4 Explanation**

(B) Use proportions to make the conversions:

**Lorgs to dollars:**

$$\frac{140}{x} = \frac{7}{1}$$

$$7x = 140$$

$$x = \$20$$

**Dalts to dollars:**

$$\frac{16}{x} = \frac{0.5}{1}$$

$$0.5x = 16$$

$$x = \$32$$

$$\text{Total dollars} = 20 + 32 = \$52$$

## 怎樣完成數學填空題

數學部分包括五道填空題。對於這些題，學生必須解計算題並提供正確的數值答案，而不是從多個選項中選出答案。

- ▶ 每個題要填的空由五欄總成。當你在填空處寫下答案時，從左邊開始。
- ▶ 對於每個填空題，在填空處的方框中寫下你的答案。
- ▶ 在每個方框中只清楚填寫一個數字或一個小數點。如果你的答案包含一個小數點，則用「.」。
- ▶ 方框下方有圓圈，把與你所寫答案的數字或符號相對應的圓圈塗黑。

EXAMPLE A  
(Answer: 5)

Write the answer in these boxes.

	5			
⊖	⊙	⊙	⊙	⊙
0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
●	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

Fill in the circles that correspond to the answer written in the boxes.

EXAMPLE B  
(Answer: 3.2)

	3	.	2	
⊖	⊙	●	⊙	⊙
0	0	0	0	0
1	1	1	1	1
2	2	●	2	2
●	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

Negative sign

Decimal point

## 怎樣回答填空题(續)

- ▶ 填空處的左邊第一欄僅用以標寫負數符號，如**例C**所示。  
如果你的答案是正數，請將第一欄留白，而從第二欄開始標寫你的答案。

EXAMPLE C  
(Answer: -1.5)

-	1	.	5	
<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
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<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Negative sign →      ← Decimal point

- ▶ 當你的答案含有小數點時，一定要塗黑你答案所有部分相對應的圓圈。例如，如果你的答案是0.78，則塗黑0、「.」、7和8下面的圓圈，如**例D**所示。請注意，我們也接受寫成.78的答案，視為正確，如**例E**所示。

EXAMPLE D  
(Answer: 0.78)

0	.	7	8
<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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EXAMPLE E  
(Answer: .78)

.	7	8
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**例D**和**例E**展示了填寫同一答案的可接受的方式。

## 怎樣回答填空题(續)

- ▶ 請不要在答案中間留空白。如果在答案中間留空白，將被記為答錯。例如，如果你的答案是308，以**例F**這種方式填空是可以接受的。在**例G**中，3和8之間有空白但它不是0，這種填空方式是不被接受的，並將被記為答錯。

EXAMPLE F  
(Answer: 308)

	3	0	8
-	.	.	.
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

EXAMPLE G  
(Answer: 38)

	3		8
-	.	.	.
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

- ▶ 不要在沒有使用的方框下塗圈，如**例H**所示。例H所標記的答案將按照3,080判分，因為最末一欄的0被填塗，即便打算寫的答案是308。

EXAMPLE H  
(Answer: 3080)

	3	0	8
-	.	.	.
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

## 關於填空題的重要提示

- ▶ 填空處的圓圈必須塗黑，你的答案才會計分。
- ▶ 如果你在方框裏寫了答案，但沒有塗黑圓圈，你的答案會被記為答錯。
- ▶ 如果你寫在方框中的答案與你塗黑的圓圈不相符，我們會根據你塗黑的圓圈判分，如例H所示。
- ▶ 如果一欄中超過一個圓圈被塗黑，你的答案會被記為答錯。
- ▶ 一個正確的完整數值答案將被記為答對，即便你一不小心從錯誤的一欄開始填寫你的答案。
- ▶ 如果你一不小心在一個整數後加了一個小數點（沒有額外值或零），你的答案將按照那個整數判分。例如，如果你的答案是5，如例A所示，而答案填塗的是5.或5.0，判分時你的答案會被視為5。

## 2.0 為測驗日作好準備

### 2.1 攜帶哪些物品進入考場

**你必須攜帶下列物品進入考場：**

- ✓ 你和你的家長/監護人簽名的SHSAT准考證
- ✓ 削好的2號鉛筆(你不可以使用圓珠筆或鋼筆等其他筆類)
- ✓ 橡皮擦
- ✓ 輔助技術——如果你的個別教育計劃(IEP)和准考證上已註明

**學生可以帶,但不是必須帶：**

- ✓ 傾斜板
- ✓ 握筆器
- ✓ 調頻裝置
- ✓ 亮顯筆
- ✓ 靜音且不帶計算器功能的手錶
- ✓ 食用時不發出聲音的、包裝已拆除的零食(測驗開始前,學生可以吃他們的零食,學生不得在測驗期間吃零食。)
- ✓ 水(裝在軟身的或塑料的容器內,若容器翻倒也不會發出聲音)

### 2.2 不得攜帶哪些物品

**不准許**

- ✗ 照相機/錄像機
- ✗ 計算器
- ✗ 智能手錶
- ✗ MP3播放機/iPod
- ✗ 平板電腦/iPad、電子書閱讀器
- ✗ 耳機/AirPods
- ✗ 外部書面材料
- ✗ 汽水、果汁或任何水之外的飲品;水是測驗地點唯一允許的飲品

**關於手機的說明**

考點允許帶手機,但：

1. 必須關機
2. 在測驗過程中,你不得隨身帶手機,即手機不得在你的口袋、手中或桌上。

在測驗開始之前,考場會指導你怎樣存放你的手機。根據考場制定的規則,你會被指引把手機、相機和其他電子用品關掉,並存放好。

## 考場將提供

- ✓ 試卷
- ✓ 答題紙
- ✓ 草稿紙(附在冊子裏),可用於做記錄或數學計算,在測驗結束時將收回。
- ✓ 只有英語學習生(ELL)才會收到教育局提供的以下九種語言之一的雙語數學詞彙表:阿拉伯文、孟加拉文、中文、法文、海地克里奧爾語、韓文、俄文、西班牙文和烏爾都語。

## 2.3 測驗日的要求

- 請務必按照特殊高中入學測驗准考證上的時間準時到達考場。請注意,這是到達時間,不是測驗開始時間。測驗將在准考證上註明的時間之後儘快開始。在有些情況下,測驗可能在准考證上註明的到達時間一小時之後或更長時間之後開始。你的考場可為你提供預計測驗開始和結束的時間的資訊。
- 測驗開始之前,我們的考場工作人員將在每個考場給學生照一張照片或錄一段錄像。這些影像只用於考試保安目的。
- 除了需要去洗手間之外,在整個標準測驗時間(180分鐘)內,所有參加特殊高中入學測驗的學生都必須一直待在測驗教室裡。
- 標準測驗時間(180分鐘)一旦結束,凡有特別照顧的測驗延長時間的學生,如果已完成考試,都可以離開。決定在首次的標準測驗時間(前180分鐘)結束後離開的學生必須簽退,表明他們知道:他們放棄使用他們獲得的特殊高中入學測驗餘下時間。180分鐘結束時,獲得這項特殊照顧的學生會有休息時間,然後繼續考試,90分鐘之後又會有一次休息。

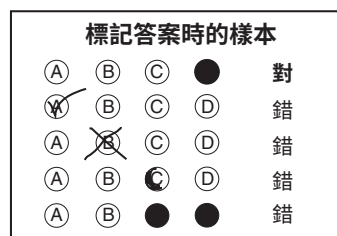
## 2.4 填寫答題紙

參加測驗前,你將在答題紙的第一部分(Side 1)填寫重要資訊。首先,我們會要求你閱讀並簽署一份聲明,這份聲明表示你是紐約市的居民,且身體狀況良好可以參加測驗,並且你參加的正是你年級水平的測驗。

- 如果你覺得身體不適,你應立即告知監考官;你不應該開始做題,也不應該簽署該聲明。你一旦撕開封印、開始測驗,就不能提出因病而要求補考的申請。
- 請確認,你所參加的測驗對應的年級信息準確無誤。

當你被告知可以開始答題時,在答題紙上標記答案,即完整地塗黑相應圓圈。請務必用力塗黑答案圈。請小心,不要在答題紙上劃上任何散亂的標記。如果你要變更答案,先將之前的答案擦淨。每道題只有一個正確答案。如果你在答題紙上針對某道題填寫的答案標記超過一個,該題即評為錯誤。

在解答英文或數學題目時,你可以在考卷或草稿紙上書寫答案,但你的答案必須記錄在答題紙上才能計入成績。時間到了之後就不能再在答題紙上寫答案了。寫在考卷或草稿紙上的答案將不計入成績。



## 2.5 學生不端行爲

測驗安保對於特殊高中入學測驗至關重要。有鑒於此，將嚴格執行下列規定，以確保所有學生都有一個公平的考試過程。

- 在測驗期間，你不能以任何方式試圖與其他學生交流。這包括但不限於：
  - 說話、書寫和傳遞紙條
  - 共用/分享試卷或答題紙
  - 看其他學生的答案
  - 記錄考題
  - 有手機、相機或其他電子用品 (即便處於關機狀態)
- 考試結束時，會要求你停止並放下鉛筆，會提供有關你測驗材料的指示。一旦考官要求你放下鉛筆，你不得在任何測驗材料上繼續寫/塗，這包括但不限於：
  - 塗黑圓圈
  - 圈圓圈
  - 擦掉答案
- 不得與考場外的任何人分享試題和答案。

學生如被發現從事這些行爲中的任何一個，其測驗將被作廢。

- 如果是8年級學生，則直至下一學年之前被禁止再次參加該測驗。
- 如果是9年級學生，則將不再有任何機會在9年級之後再參加測驗。

任何學生若拒絕將禁止帶入的用品放到一邊或上交，則不得參加測驗。如果學生在測驗進行中的任何時候帶有被禁的物品 (即使處於關機狀態)，其測驗將被作廢。學生將不能獲得在之後參加補考的機會。



## 3.0 我在參加了特殊高中入學測驗之後， 接下來怎樣？

### 3.1 對於測驗不當情況進行投訴

紐約市教育局致力確保給所有學生參加的SHSAT，程序都是公平和一致的。但是，如果你認為在特殊高中入學測驗期間受到了干擾或有測驗異常情況的出現，請立即向監考人員報告情況。這可能是試卷印錯、出現不應有的分散注意力的事物或者學生行為不當。監考人員將努力彌補這一情形，可能在測驗結束時需要獲得你的書面聲明。

你和你的家長/監護人亦可採取以下一種方式舉報任何可疑的監考或測驗異常情況：

- 1) 遞交一份電子版申請至 [HSEnrollment@schools.nyc.gov](mailto:HSEnrollment@schools.nyc.gov)，或
- 2) 以掛號郵件 (有送達證明) 郵寄一份書面申請至：

**Office of Student Enrollment**  
**52 Chambers Street, Room 415**  
**New York, NY 10007**

所有請求必須在測驗舉行日期後**一個星期**之內遞交。

對於所有的舉報，請一定要寫上家長/監護人和學生姓名以及電話號碼和/或電子郵箱聯絡資訊。所有關於測驗異常情況的舉報，郵戳日期遲於測驗日期之後一個星期以上的將不予受理。有關投訴均將按個別具體情況處理。

**額外的補救：**如果您不滿意我們對您上訴的回覆，您可以根據《紐約州教育法310》，就紐約市教育局的決定向紐約州教育廳廳長提出上訴。請在教育廳廳長的網站上了解如何提交該上訴，網址是 [counsel.nysed.gov/appeals](http://counsel.nysed.gov/appeals)。

The New York City Department of Education

**2023 Specialized High Schools Admissions Test****GENERAL DIRECTIONS****Student Name:** \_\_\_\_\_**Identifying Information**

Turn to Side 1 of the answer sheet.

**Notify the proctor immediately if you are ill or should not be taking this test. Do not sign the statement or begin the test. Return your answer sheet to the proctor.****Line 1:** Read the statement and sign your name in the space following the word “signature.” Do not print your name.**Line 2:** Print today’s date, using the numbers of the month, the day, and the year. For example, the date September 21, 2023, would be 9-21-23.**Line 3:** Print your birth date, using the numbers of the month, the day, and the year. For example, a birth date of March 1, 2006, would be 3-1-06.**Grid 4:** Print the letters of your first name, or as many as will fit, in the boxes. If you have a middle initial, print it in the box labeled “MI.” Then print the letters of your last name, or as much as will fit, in the boxes provided. Below each box, fill in the circle that contains the same letter as the box. If there is a space or a hyphen in your name, fill in the circle under the appropriate blank or hyphen.**Make dark marks that completely fill the circles.** If you change a mark, be sure to erase the first mark completely.**Grid 5:**

1. Print the name of the school where you are now enrolled in the space at the top of the grid.
2. In the boxes marked “SCHOOL CODE,” print the six-digit code that identifies your school. Below each box, fill in the circle that contains the same letter or number as the box. (You can find your school code on your Test Ticket. If it is not there, tell the proctor, and the proctor will get the school code for you.)
3. If you attend a private or parochial school, fill in the circle marked “P.”

**Grid 6:** Complete the grid with your date of birth. Print the first three letters of the month in the first box, the number of the day in the next box, and the year in the last box. Then fill in the corresponding circles.**Grid 7:** Print your student ID number in Grid 7. You can find your student ID number on your Test Ticket. In the boxes, print your nine-digit student ID number. Below each box, fill in the circle containing the same number as in the box.**Grid 8:** In most cases, Grid 8 is already filled in for you. If it is not, copy the letter and numbers shown in the upper-right corner of your test booklet into the boxes. Below each box, fill in the circle containing the same letter or number as the box.

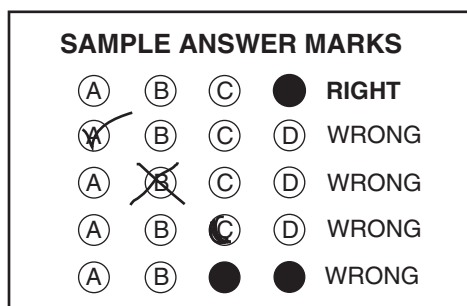
Now review Side 1 to make sure you have completed all lines and grids correctly. Review each column to see that the filled-in circles correspond to the letters or numbers in the boxes above them.

## GENERAL DIRECTIONS, continued

Print your test booklet letter and numbers, and your name, first name **first**, in the spaces provided at the top of Side 2 of the answer sheet.

### Marking Your Answers

- Mark each of your answers on the answer sheet in the row of circles matching the question number printed in the test booklet.
- Use only a Number 2 pencil.
- If you change an answer, be sure to erase it completely.
- Be careful to avoid making any stray pencil marks on your answer sheet. **Do not make any marks on your answer sheet other than filling in your answer choices.**
- Each question has only one correct answer. If you mark more than one circle in any answer row, that question will be scored as incorrect.



- You can use your test booklet or the provided scrap paper to take notes or solve questions; however, your answers must be recorded on the answer sheet in order to be counted.
- **You will not be able to mark your answers on the answer sheet after time is up, and answers left in the test booklet will not be scored.**

### Planning Your Time

- You have 180 minutes to complete the entire test. **How you divide the time between the English Language Arts and Mathematics sections is up to you.**
- If you begin with the English Language Arts section, you may go on to the Mathematics section as soon as you are ready. Likewise, if you begin with the Mathematics section, you may go on to the English Language Arts section as soon as you are ready.
- Be sure to read the directions for each section carefully.
- Each question has only one correct answer. Choose the best answer for each question.
- When you finish a question, go on to the next, until you have completed the last question or run out of time.
- Your score is determined by the number of questions you answer correctly. **Answer every question, even if you may not be certain which answer is correct.**
- Don't spend too much time on a difficult question. Come back to it later if you have time.
- If you complete the test before the test time (180 minutes) is over, you may go back to review questions in either section.
- Students must stay for the entire test session (180 minutes).

**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO**



# A



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# PART 1 — ENGLISH LANGUAGE ARTS

57 QUESTIONS

## REVISING/EDITING

### QUESTIONS 1-9 (PART A AND PART B)

#### REVISING/EDITING PART A

**DIRECTIONS:** Read and answer the following questions. You will be asked to recognize and correct errors so that the sentences or short paragraphs follow the conventions of standard written English. You may write in your test booklet as needed to take notes. You should reread relevant parts of the sentences or paragraphs, while being mindful of time, before marking the **best** answer for each question.

1. Which edit should be made in the sentence?

On May 8, 2018, Boston University student Zach Prescott ran a mile in 4 minutes 43.2 seconds while juggling three lacrosse balls, breaking the 32-year-old world record in jogging a sport that combines jogging and juggling.

- A. Delete the comma after **2018**.
  - B. Insert a comma after **student**.
  - C. Delete the comma after **lacrosse balls**.
  - D. Insert a comma after **jogging**.
2. How should the paragraph be revised?

(1) Danielle spent several hours preparing for an upcoming audition for a play at the community theater. (2) First she did vocal exercises to practice her diction and projection so that her words would carry clearly throughout the large auditorium. (3) Then she studies the text of the monologue to better understand the emotions, and motivations of the character she plans to portray. (4) Finally she recited her monologue in front of a mirror many times, making slight adjustments and improvements to her performance each time.

- E. Sentence 1: Change **spent** to **had spent**, AND insert a comma after **play**.
- F. Sentence 2: Change **did** to **does**, AND insert a comma after **projection**.
- G. Sentence 3: Change **studies** to **studied**, AND delete the comma after **emotions**.
- H. Sentence 4: Change **recited** to **recites**, AND delete the comma after **times**.

3. How should this sentence be revised?

To promote their club, a bake sale will be sponsored by members of the debate team on Wednesday.

- A. To promote their club, on Wednesday a bake sale will be sponsored by members of the debate team.
- B. On Wednesday, to promote their club, a bake sale will be sponsored by members of the debate team.
- C. To promote their club, members of the debate team will sponsor a bake sale on Wednesday.
- D. Members of the debate team, on Wednesday to promote their club, will sponsor a bake sale.

4. Which revision corrects the error in sentence structure in the paragraph?

In September 2016 the National Museum of African American History and Culture opened as part of the Smithsonian Institution, the museum is already the Smithsonian's third most popular site. Experts say that they expect this newest Smithsonian facility to welcome nearly 4 million visitors a year. The museum features more than 30,000 objects, including Muhammad Ali's boxing gloves and a dress sewn by Rosa Parks. A commemorative copy of the Emancipation Proclamation, written in 1863 during the presidency of Abraham Lincoln, is also on display at the museum.

- E. Institution, and the
- F. year, and the
- G. objects, which include
- H. Proclamation, which was written

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## REVISING/EDITING PART B

**DIRECTIONS:** Read the text below and answer the questions following it. You will be asked to improve the writing quality of the text and to correct errors so that the text follows the conventions of standard written English. You should reread relevant parts of the text, while being mindful of time, before marking the **best** answer for each question.

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### The Benefits of Indoor Plants

- (1) In an age of endless media content, it is easy to see why people might prefer to stay inside. (2) According to a study sponsored by the Environmental Protection Agency, Americans spend an average of 87 percent of their time indoors. (3) Scientists say that this separation between people and nature puts people at risk for physical and psychological issues.
- (4) During the process of photosynthesis, plants convert carbon dioxide into oxygen and remove many harmful toxins from the air. (5) Spending prolonged periods of time indoors, away from plants, deprives people of these benefits. (6) Air that is not regularly detoxified can lead to a condition known as sick building syndrome. (7) This disorder first came to light in the 1970s when many office workers in the United States began to complain of unexplained flu-like symptoms. (8) Researchers determined the cause to be volatile organic compounds, or VOCs. (9) VOCs are harmful chemicals that are emitted by everyday objects such as carpet, furniture, cleaning products, and computers. (10) The NASA Clean Air Study found a simple way to remove a significant number of VOCs within a 24-hour period: add plants to indoor spaces.
- (11) Adding plants to indoor spaces has psychological benefits too. (12) Research has long linked time spent in natural environments with increased energy and feelings of contentment. (13) While being outdoors is an excellent option for improving a person's mental health, recent research has indicated that encountering natural elements while indoors can also help. (14) To experience the maximum benefit of natural elements, experts suggest placing at least one live plant per 100 square feet of home or office space.
- (15) Connecting with nature, even just by being near an indoor plant, is a significant factor in a person's well-being. (16) Sitting in front of an electronic screen all day isn't natural, and today's workers need to get up and get outdoors. (17) Richard Ryan, a psychology professor at the University of Rochester, puts it this way: "Nature is something within which we flourish, so having it be more a part of our lives is critical, especially when we live and work in built environments."

5. Which sentence should follow sentence 3 to **best** introduce the topic of the passage?
- A. Placing plants in homes and offices can provide a healthy bridge between nature and the indoors.
  - B. It is important for people to realize that they need to spend more time near plants, whether indoors or out in nature.
  - C. For their personal health and well-being, people need to spend more time outdoors or bring the outdoors in.
  - D. Individuals with little connection to nature can experience illness, depression, and higher levels of stress.
6. Which transition word or phrase should be added to the beginning of sentence 5?
- E. As a result,
  - F. Primarily,
  - G. In contrast,
  - H. Unfortunately,
7. Which sentence could **best** follow sentence 13 to support the ideas in the third paragraph (sentences 11–14)?
- A. A global study of 7,600 workers from sixteen countries revealed that employees who worked in spaces with natural elements, such as indoor plants, were more creative and productive than employees who worked in spaces without natural elements.
  - B. Specifically, a study suggests that one well-known hotel is popular among guests because its owners have made a significant investment in landscaping and indoor plants known to have a relaxing effect.
  - C. In fact, one recent study suggested that people who are routinely exposed to natural elements seem to increase their compassion for others, perhaps because that exposure generates compassion for the environment in which they live.
  - D. According to a study that was conducted in 2003, plants can reduce the amount of noise that people perceive in indoor spaces with hard surfaces, just as adding carpet can make a room seem quieter.

8. Which sentence presents ideas irrelevant to the topic of the passage and should be deleted?
- E. sentence 11
  - F. sentence 14
  - G. sentence 15
  - H. sentence 16
9. Which concluding sentence should follow sentence 17 to **best** support the information presented in the passage?
- A. Because indoor plants absorb the carbon dioxide in our air and release the oxygen we need to breathe, they are vital to our wholeness and wellness.
  - B. Experts say that adding a Boston fern, a spider plant, or an aloe vera plant is a good place to start if you want to begin to incorporate nature into your home or office.
  - C. More people should consider bringing natural elements inside to improve general wellness and reverse some of the negative effects of an indoor-centered society.
  - D. As one study has confirmed, houseplants are a wise investment because they can remove almost 90 percent of the toxins in the air within the span of 24 hours.



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# READING COMPREHENSION

## QUESTIONS 10–57

**DIRECTIONS:** Read each of the following six texts and answer the related questions. You may write in your test booklet as needed to take notes. You should reread relevant parts of each text, while being mindful of time, before marking the **best** answer for each question. Base your answers only on the content within the text.

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## A Memory Revolution

1 A high school senior logs on to a computer at the library to double-check the application due date listed on a college admissions website. Nearby, a librarian helps a group of biology students use a database to search for recent studies about mammals. In the past few decades, the Internet has become an integral component of daily life for many people. The seemingly limitless power of search engines made the Internet search extremely common, and today people increasingly rely on the Internet's vast accumulation of sources to access all types of information. Scientists are beginning to examine how this reliance is modifying the strategies people use to store and prioritize information in their mind.

### **A Dependable and Valuable Asset**

2 Psychologist Benjamin Storm from the University of California, Santa Cruz, and researchers Sean Stone and Aaron Benjamin devised an experiment to study students' tendency to depend on the Internet for facts. To begin, the scientists divided sixty participants into multiple groups, including an "Internet" group and a "memory" group, and placed them in front of computers. The Internet group was required to use the search engine Google to answer eight challenging trivia questions. In contrast, participants in the memory group were permitted to use only their personal knowledge to answer the questions. In the second round, the researchers administered notably easier questions. This time, they allowed each group the option of using Google as they answered. Their results showed that 83 percent of the Internet group continued to consult Google in the second round, while only 63 percent of the memory group chose to do so.

3 People's growing inclination to rely on the Internet in order to retrieve information, particularly facts and figures, is called cognitive offloading. Canadian researcher Evan F. Risko and British researcher Sam Gilbert, who have written extensively about the topic, say a similar process has been taking place for centuries. In the past, people used resources like encyclopedias to assist their memories; however, today the Internet, serving as a vast extended memory, allows people to digitally access and retrieve much larger volumes of information. Consequently, people's minds are free for other cognitive feats, such as connecting data, learning new information, or solving problems.

### **Filing Information Away**

4 The use of the Internet also appears to be modifying the strategies people use to store information in their mind. Researchers Betsy Sparrow from Columbia University, Jenny Liu from the University of Wisconsin-Madison, and Daniel Wegner from Harvard University conducted several studies to discover how people efficiently manage their information intake.

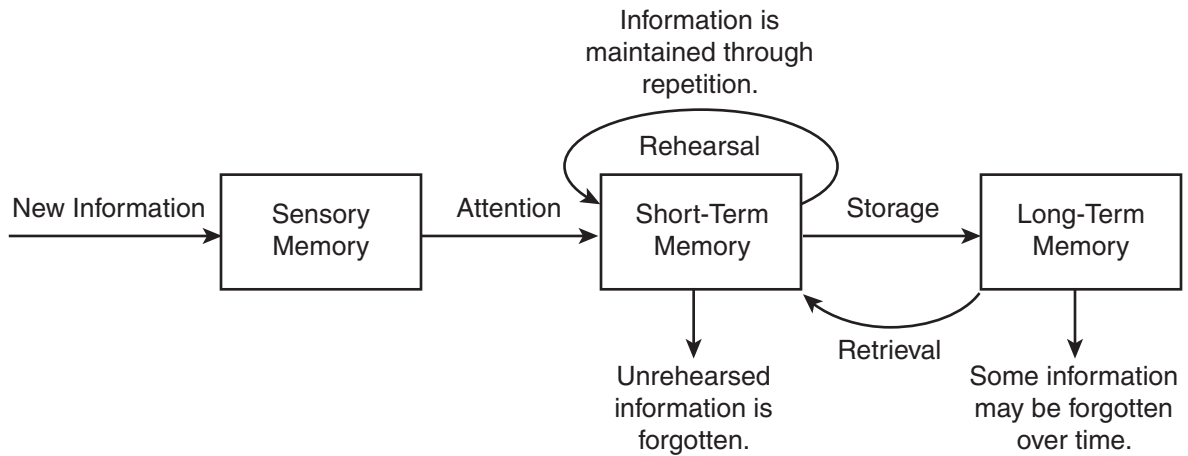
5 To begin, the researchers examined how people evaluate which information deserves their effort to remember. For this experiment, participants read forty trivia facts, such as "An ostrich's eye is bigger than its brain," and typed the statements into a computer file. Half the participants had been previously told the file would be saved, while half believed it would be erased. Next, the participants wrote down every fact they could recall. Those who believed the information would be erased and no longer available could recall 40 percent more facts than those who thought the information would be saved.

6 In another experiment, the same researchers tested the ability of study participants to remember where to access information. For this trial, participants read and typed trivia statements, which they saved in folders with generic names such as "Facts" and "Items." After spending ten

minutes writing down all the facts they could recall from memory, participants were asked which folder contained a particular fact based on a keyword. For example, “Which folder has the fact about ostriches?” Overall, participants recalled the information’s location more often than the content itself, correctly identifying 49 percent of the folders for specific facts while remembering only 23 percent of the actual trivia. The researchers concluded that our memory is adapting to the Internet age by prioritizing where to locate information even when the specific details are forgotten. According to Sparrow, the Internet has become an important form of transactive memory, an external source of the recollections and associative networks that constitute memory.

- 7 As the Internet’s resources continue to expand our “external” memory, some question whether the process may cause people to depend too heavily on technology. However, Steven Pinker, a professor of psychology at Harvard University, says, “Knowledge is increasing exponentially; human brainpower and waking hours are not. Fortunately, the Internet and information technologies are helping us manage, search and retrieve our collective intellectual output at different scales, from Twitter and previews to e-books and online encyclopedias. Far from making us stupid, these technologies are the only things that will keep us smart.”

HOW MEMORY WORKS



10. The details in paragraph 3 about cognitive offloading convey a central idea of the passage by
- E. suggesting that reliance on the Internet for information is inevitable.
  - F. demonstrating how the methods used to store and find information have changed over time.
  - G. explaining how encyclopedias and the Internet are similar sources of information.
  - H. implying that more information can be understood now than ever before.

11. How do the details about the experiment described in paragraph 5 convey a central idea of the passage?
- A. They suggest that the act of repeating information by typing it on a keyboard may improve a person’s memory.
  - B. They explain that a person will forget information faster if the information is considered unimportant.
  - C. They indicate that a person may start to forget details when the amount of information becomes overwhelming.
  - D. They suggest that memory is affected by whether a person expects to have access to the information in the future.
12. Read this sentence from paragraph 7.

**As the Internet’s resources continue to expand our “external” memory, some question whether the process may cause people to depend too heavily on technology.**

How does the sentence contribute to the structure and development of ideas in the passage?

- E. It presents a claim about the risks of relying on the Internet that prompted the research described in paragraphs 2 and 6.
- F. It contrasts a disadvantage of relying on the Internet with the benefits of Internet use that are described in paragraphs 2 and 6.
- G. It signals a shift from a neutral viewpoint in paragraphs 2 and 6 to a presentation of an argument and a counterargument.
- H. It introduces a counterargument and marks a transition from an optimistic tone in paragraphs 2 and 6 to a cautious tone as the counterargument is developed.

13. The study described in paragraph 6 influenced researchers' ideas about memory in the digital age by
- A. highlighting instances when organizing detailed information made it easier to remember.
  - B. confirming that keywords can be remembered more easily than large amounts of information.
  - C. identifying a shift in focus from remembering specific information to knowing where to find it.
  - D. emphasizing that remembering a basic idea is more important than storing detailed information.
14. Which evidence from the passage is **most** relevant to the claim in paragraph 7 that " 'far from making us stupid, these technologies are the only things that will keep us smart' " ?
- E. the revelation that most people opted to use the Internet to answer relatively easy trivia questions rather than relying on their own brainpower (paragraph 2)
  - F. the assertion that the storage of information on the Internet frees people to focus on higher-order tasks such as problem solving (paragraph 3)
  - G. the connection between how people organize information in their mind and their ability to recall that information (paragraph 5)
  - H. the description of transactive memory as an expansive external source that people can use to store information (paragraph 6)

- 15.** Which sentence from the passage suggests that using Internet search engines may lead people to rely less on their own ability to recall information?
- A.** "In the past few decades, the Internet has become an integral component of daily life for many people." (paragraph 1)
  - B.** "The Internet group was required to use the search engine Google to answer eight challenging trivia questions." (paragraph 2)
  - C.** "Their results showed that 83 percent of the Internet group continued to consult Google in the second round, while only 63 percent of the memory group chose to do so." (paragraph 2)
  - D.** "For this experiment, participants read forty trivia facts, such as 'An ostrich's eye is bigger than its brain,' and typed the statements into a computer file." (paragraph 5)
- 16.** The effect of the Internet on a person's memory is illustrated in the passage through the presentation of studies that
- E.** examine how the use of search engines changes the way people evaluate and store information for future access.
  - F.** highlight the difference between the capacity of the Internet and the ability of the human brain to locate information.
  - G.** compare the type of information that can be obtained from the Internet with the type of information that is stored in the human brain.
  - H.** emphasize the ease of obtaining information through search engines rather than remembering it without assistance.
- 17.** How does the diagram provide additional support for the topic presented in the passage?
- A.** It reveals why human brains must adapt to obtaining information from the Internet as opposed to other sources.
  - B.** It indicates how people can use the Internet to help improve their long-term recollection of information.
  - C.** It shows how study participants' brains distinguished between important and unimportant details.
  - D.** It depicts the idea that repetition and rehearsal are necessary to recall information when tools such as search engines are unavailable.

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# Letter from Brooklyn

by Jacob Scheier

I can already see how this will end.  
How I will grow tired of the bridge's  
steep incline, and the absent-minded tourists  
wandering into the bicycle path.  
5 The weather will turn cold.  
But that all happens later.  
For now it is the early edge of fall,  
leaves green still while the air narrows,  
is slightly crisp, almost grazing  
10 the hair of my arm like a passing stranger,  
as though the air has been forced into intimacy  
by the brevity<sup>1</sup> of daylight.  
But when it starts darkening at 4,  
this closeness, I know, will be a felt distance,  
15 like someone drawing your attention  
to their lack of intimacy.  
These days I am still walking at a cathedral<sup>2</sup> pace  
beneath the branches bending across avenues,  
brownstones like rows of lived-in chapels,<sup>3</sup>  
20 like a pop-up picture book I could have had as a child,  
but didn't. How Brooklyn makes me nostalgic<sup>4</sup>  
for the moment I am walking inside of.  
These late afternoons filled  
with a loneliness that makes me feel  
25 distinctly myself, and an awareness  
of how rare that is.

"Letter from Brooklyn" from LETTER FROM BROOKLYN: POEMS by Jacob Scheier, published by ECW Press.  
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<sup>1</sup>**brevity:** briefness

<sup>2</sup>**cathedral:** meditative

<sup>3</sup>**chapels:** private places of prayer or worship

<sup>4</sup>**nostalgic:** yearning for the past



18. How does the structure of the poem affect the poem’s meaning?
- E. The lack of a rhyming pattern suggests that the beauty of each passing day is unique.
  - F. The lengths of the sentences represent the complexity of the thoughts being represented.
  - G. The use of complete sentences implies the speaker’s appreciation for the clear beginning and ending of each season.
  - H. The single long stanza reflects the continuous flow of the speaker’s thoughts.
19. Which lines support the idea that a change in the weather will lessen the speaker’s appreciation for the city?
- A. “as though the air has been forced into intimacy / by the brevity of daylight.” (lines 11–12)
  - B. “But when it starts darkening at 4, / this closeness, I know, will be a felt distance,” (lines 13–14)
  - C. “like someone drawing your attention / to their lack of intimacy.” (lines 15–16)
  - D. “These days I am still walking . . . / beneath the branches bending across avenues,” (lines 17–18)
20. Read lines 5–6 from the poem.

**The weather will turn cold.  
But that all happens later.**

How do the lines develop a central theme of the poem?

- E. They highlight a contrast between the different seasons.
- F. They show the sequence of the changes that are expected to occur.
- G. They warn about a problem that requires thoughtful preparation.
- H. They emphasize the importance of valuing the present.

21. Read lines 7–9 from the poem.

**For now it is the early edge of fall,  
leaves green still while the air narrows,  
is slightly crisp,**

The word choice in the lines helps convey the speaker’s belief that

- A. the beauty of the current season should still be appreciated.
- B. the changes in the weather signify the end of the most pleasant season.
- C. the transition from one season to another happens swiftly and without warning.
- D. the change in the weather is so subtle that people rarely observe or feel it.

22. The details in lines 9–12 convey a central idea of the poem by

- E. showing that the cool weather makes the speaker reflect more deeply on life.
- F. suggesting that the speaker feels uncomfortable with what the coming weather signifies.
- G. implying that the sensations the speaker experiences during the fall season are fleeting.
- H. suggesting that the thought of fall approaching increases the loneliness the speaker feels.

23. Which idea does the comparison of the brownstone houses to “a pop-up picture book I could have had as a child, / but didn’t” in lines 20–21 convey?

- A. It reveals that some people are still influenced by powerful images from childhood.
- B. It indicates that the neighborhood the speaker is walking through is charming and appealing.
- C. It suggests that the speaker has wanted to live in the neighborhood since childhood.
- D. It suggests that people often experience lingering regret from their past.

24. Read these lines from the poem.

**I can already see how this will end.** (line 1)

**How Brooklyn makes me nostalgic  
for the moment I am walking inside of.** (lines 21–22)

The lines develop a central idea of the poem by

- E. suggesting the speaker’s desire to find a way to break free from the repetitive pattern of daily life.
- F. revealing the speaker’s feelings of disappointment over the predictable change in season.
- G. emphasizing the speaker’s awareness of the future significance of the present moment in the setting.
- H. showing the speaker’s anticipation of specific emotions caused by an intimate knowledge of the setting.

25. The speaker’s thoughts throughout the poem develop a theme by showing that

- A. although people may hold expectations for the future, some people long for present experiences while they are still happening.
- B. though people come from different places, most people feel drawn to the special charm a city holds.
- C. although people can make decisions about their life, there will always be some things beyond their control.
- D. though general expectations exist, people have no way of knowing what a given day will actually bring.

26. The poet develops the speaker’s point of view by

- E. providing details about the speaker’s longing to be in a different place.
- F. showing the speaker’s sense of unease about the passing seasons.
- G. including details about the speaker’s hope that life will remain unchanged.
- H. showing the speaker’s desire to treasure and appreciate the changes taking place.

*This narrative is about the Nez Perce, an American Indian tribe, in what is now northern Idaho. The tribe is preparing for a gathering before the coming winter.*

## Excerpt from *Do Them No Harm!*

by Zoa L. Swayne

- 1 In the moon of Ta-Yum, the hottest days of summer, when salmon spawn in the little streams and huckleberries ripen in the high mountains, people from many villages of the Chopunnish Nation gathered in the Oyaip Prairie for the work and festivities of their annual camas<sup>1</sup> harvest.
- 2 From far and near The People came. . . .
- 3 Should a stranger enter their homeland and ask, “Where are you from?” the reply was always, “We are Nee-mee-poo, The People who live here in this place.”
- 4 It was a time of Lawtiwa-mah-ton—a time of being friends together—when The People came for this last chance to enjoy being together before the Cold Moons kept them close to their fires. The visiting and trading, the foot racing and horse racing, and the gambling and stick games would be remembered and talked about long after they had forgotten the drudgery of digging and roasting camas, picking berries, or drying meat and fish. Lawtiwa-mah-ton! It was good to be friends together.
- 5 As was their custom since wahk-kee-ma, a time far back beyond the memory of man, they set up their camps in the same locations their parents and grandparents had occupied before them. Red Bear’s people, from Kamiah, made their camp near the trail that came out of the mountains. Their neighbors in Kamiah Valley, The People from Tee-e-lap-a-lo, had their camp close by. Across the wide meadow, by the great roasting pits, the camps of the Te-wap-poo and Ask-kah-poo were located. The tepees and ish-nash, brush shelters, of other groups nestled in their accustomed areas in and among the pines in such numbers that they encircled the entire meadow land.
- 6 Red Bear’s people had traveled all summer with neighboring bands, gathering and preparing roots, picking and drying berries, drying and smoking meat and fish for their winter food supply. Now they were at the Oyaip camp. The women worked hard to dig and cure as many bags of roots as they could during the warm, sunny days, for the sharp night air brought warnings that WARM was going and COLD was coming.
- 7 Everyone helped in some way. Most of the men fished or hunted for meat. While many of the women dug and roasted camas, other women and older children picked and dried berries.
- 8 And the younger children played. They played at hunting. They played with the babies. They played with their horses and puppies. They learned how to live through their play.
- 9 This sun, happiness, peace, and quiet blessed the Red Bear camp. All were busy with their daily tasks, until sudden cries came from the children playing by the trail.

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<sup>1</sup>**camas:** a wild, edible plant

- 10 "People coming! People coming! People coming on the trail from the high mountains!" they called as they ran to their elders, who looked sharply at the figures of approaching horsemen.
- 11 Were they friends or enemies? Did they bring good news or bad?
- 12 "Who can it be? What brings them here?" were the questions in every mind.
- 13 "Could they be the four hunters who had gone to Buffalo Country two summers past? Would they have news of the families who had gone long ago to Buffalo Country and never returned?"
- 14 It was customary for a hunting party to be gone for more than one season.
- 15 "Looks like hunters," the older men agreed. "Looks like they had good hunting. Maybe our four hunters. [They have] been gone many moons."
- 16 "Looks like five people—not four," others observed.
- 17 Excitement grew as the riders came close enough to be recognized.
- 18 "A-a-a-a, they are our four hunters! But who is the fifth person?" they asked.
- 19 "Looks like a woman. Who is she?"
- 20 The hunters rode up to the welcoming crowd, proud to show off the loads of meat, hides, and other trophies of their hunt. They paraded around the encampment for all to see how strong their Hunting Power had been—what great hunters they, themselves, were.
- 21 Red Bear's people rejoiced at their hunters' success. Good hunters brought good to everybody. The meat meant plenty of food and the hides meant soft-tanned robes to give comfort through the Cold Moons. But it was the sight of the frail figure of the woman that aroused their curiosity. Who was she? Where had she come from? . . .
- 22 "Belongs to Red Bear people. Gone then come back," the hunters said, as they dismounted and unloaded their packs. . . .
- 23 Now they could see! She was the daughter of the family gone so long ago! The girl-child who had left came back now—a grown woman.
- 24 "Wat-ku-ese!" the women cried. "Gone-from-Home-then-Come-Back. Wat-ku-ese!" And Wat-ku-ese was her name from that time on.
- 25 Gentle arms lifted Wat-ku-ese from her horse. The women brought her food and made a place for her to rest. For many suns they cared for her until she became stronger.
- 26 One evening Wat-ku-ese told her story for all to hear.

From DO THEM NO HARM!: Lewis and Clark Among the Nez Perce by Zoa L. Swayne. Published by Caxton Press. Copyright © 1990 by Zoa L. Swayne Orofino, Idaho and Legacy House, Inc. Orofino, Idaho. All rights reserved.

27. Paragraph 1 contributes to the setting of the excerpt by establishing that
- A. the story’s location is a plentiful place that allows The People to enjoy a comfortable gathering.
  - B. the events in the story occurred in the past and are being remembered by The People.
  - C. the camp in the story is changing and that the changes are causing problems for The People.
  - D. the story’s plot begins as The People are observing their land and what it offers them.
28. In paragraphs 4 and 6, the beginning of the change in seasons affects the characters **mainly** by
- E. causing them to collect their bounty and feel eager to celebrate before it becomes cold.
  - F. making them want to rest and relax before the challenging work of the harvest begins.
  - G. forcing them to give up leisure time to prepare their camp for the coming winter.
  - H. allowing them to trade the goods they have prepared during the warm months.
29. How do paragraphs 7 and 9 convey a central idea of the excerpt?
- A. by explaining that The People often explore different areas, which shows the value of trying new things
  - B. by revealing that The People must complete many tasks, which shows the necessity of being organized
  - C. by suggesting that The People are influenced by the weather, which shows their close relationship with nature
  - D. by demonstrating that The People work together, which shows the importance of contributing to the community
30. In paragraph 8, the author repeats the word “played” **most likely** to
- E. emphasize how much the adults enjoy observing the children.
  - F. show how everyone finds a way to enjoy being at the gathering.
  - G. indicate the variety of activities available at the gathering.
  - H. characterize the manner in which the children master the work of adults.

- 31.** How do paragraphs 11–13 affect the plot of the excerpt?
- A.** They establish a feeling of mystery by presenting different points of view about the arriving people.
  - B.** They contribute to the rising action by developing the idea that the arriving people could present a problem.
  - C.** They lead to a turning point by describing the moment that the crowd realizes why the strangers have come.
  - D.** They explain the cause of the main conflict by providing background information about the strangers.
- 32.** In paragraph 20, the phrases “trophies of their hunt” and “paraded around” affect the paragraph by
- E.** suggesting that the hunters are rewarded for their leadership.
  - F.** emphasizing that The People are dependent on the hunters for food.
  - G.** revealing that the hunters are pleased with their success.
  - H.** indicating that The People have gathered specifically to welcome the hunters.
- 33.** Which quotation from the excerpt **best** supports the idea that The People feel a connection to members of their group in spite of distance?
- A.** “As was their custom since wahk-kee-ma, a time far back beyond the memory of man, they set up their camps in the same locations their parents and grandparents had occupied before them.” (paragraph 5)
  - B.** “ ‘Would they have news of the families who had gone long ago to Buffalo Country and never returned?’ ” (paragraph 13)
  - C.** “ ‘Looks like hunters,’ the older men agreed. ‘Looks like they had good hunting.’ ” (paragraph 15)
  - D.** “But it was the sight of the frail figure of the woman that aroused their curiosity.” (paragraph 21)

34. Read these sentences from paragraph 22.

**“Belongs to Red Bear people. Gone then come back.”**

How does this statement affect the villagers in the excerpt?

- E. It increases their concern about why the woman is in their camp.
- F. It makes them hopeful that more lost members will return before the winter.
- G. It causes shock, leading them to grieve for the loss of the woman and her family.
- H. It inspires amazement, making them want to reconnect with their returned family member.

35. The details in paragraph 5 about the locations of the camps and the details in paragraphs 23–24 about the reaction to the woman convey a theme of the excerpt by

- A. revealing the difficulties posed by moving often each year.
- B. showing the connectedness among The People through the years.
- C. indicating the value to The People of retelling stories about the past.
- D. demonstrating the importance of choosing appropriate names.



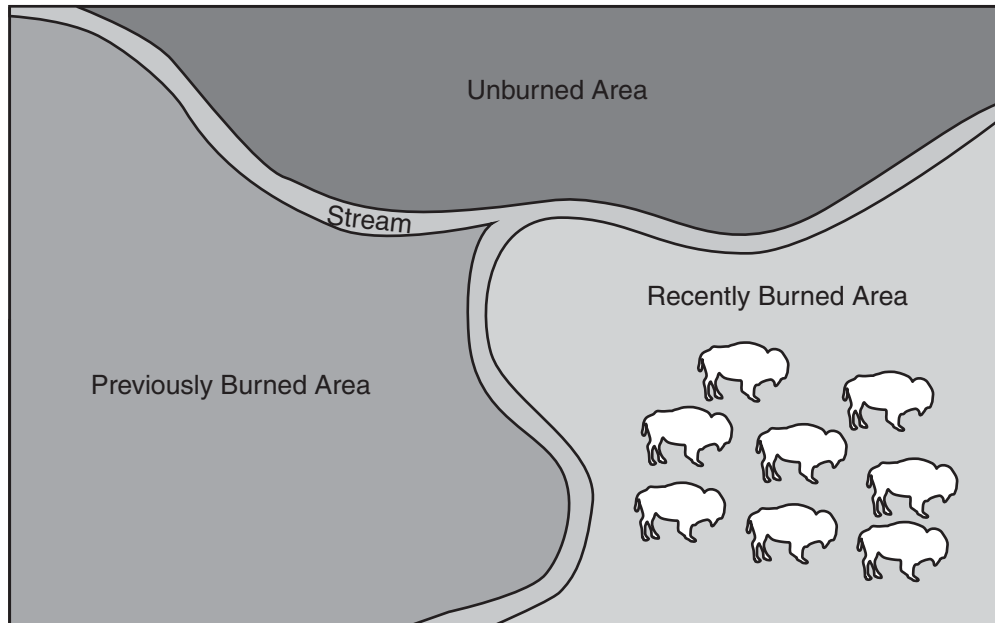
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## Using Fire to Keep a Prairie Healthy

- 1 Inside the 40,000-acre Joseph H. Williams Tallgrass Prairie Preserve in northern Oklahoma, herds of bison roam on the scenic land that is home to hundreds of different species of plants and animals. While one of the greatest threats to the prairie is wildfire, the use of controlled fires is actually an effective way to protect this idyllic landscape.
- 2 Fires that are started by lightning or other natural circumstances are inevitable, and the results can be disastrous. However, hundreds of years ago the American Indian people who inhabited the Great Plains area between Minnesota and Texas realized that these fires could also be helpful. The bison in the area seemed to prefer grazing on tender new grass on the recently burned land rather than on grass in the unburned areas. The American Indian people began to deliberately burn areas of land for bison to graze on, which enticed the herds away from the people's crops.
- 3 Today conservationists at the Tallgrass Prairie Preserve and farmers in the Great Plains continue to use controlled burns for land management. Intentionally burning a portion of land can dramatically improve the quality of the vegetation that regrows there. The fires burn away weedy undergrowth and help limit the overcrowding of shrubs and trees in the burn area, creating less competition for water and nutrients. Additionally, the process of burning excess plant matter adds nitrogen, an essential element for plant growth, to the soil.
- 4 One common target of controlled burns at the preserve and the surrounding area is the invasive red cedar tree. A single red cedar tree can consume up to 40 gallons of water per day, taking this vital resource away from other plant life. These tall trees also cast shade that prevents sunlight from reaching the plants beneath them. The fast-growing red cedar trees tend to crowd out prairie grasses, the primary food source for wild and domestic animals that make the prairie their home. An imbalance in one component of the prairie's ecosystem affects the entire web of life. Controlled burns help maintain this ecosystem's delicate balance.
- 5 Of course, these controlled fires are intended to burn only a portion of an area. A total burn, which is a risk with an uncontrolled wildfire, would destroy all wildlife as well as the crops farmers plant for income. The key to using controlled fires is knowing which areas of land to burn and when. Conservation experts at the preserve employ the "patch-burn" approach, meaning they rotate which portion of land is burned each year. They study the land to find out which areas would most benefit from being burned, and then they arrange about a dozen burns over one-third of the land. This patch burning contains the fire within a specific area and allows animals in the burn area to safely relocate. The following year, conservationists will burn a different section of the preserve, while the land burned the previous year regrows healthier than before.
- 6 Researchers have tracked and studied the variety of plant species and animals that live on the preserve, and their studies show that the patch-burn approach has restored biodiversity to the area by promoting the growth of species that were at risk of being crowded out. The patch-burn system is so successful that the conservationists at the preserve provide training to prairie farmers about conducting controlled burns on their own land. Burning land to make it healthy may seem counterintuitive, but strategic controlled fires have helped the prairie sustain life for hundreds of years and, with careful management, will continue to do so.

### OVERVIEW OF THE PATCH-BURN METHOD

By using a patch-burn method, conservationists and farmers can reduce the risk of unintentional fires and control where grazing animals, such as bison, roam.



The unburned area is overrun with weeds and has the greatest risk of catching fire.

The previously burned area is cleared of weeds, and young trees and crops grow freely and thrive.

The recently burned area has been cleared of all plants. Bison prefer to eat the fresh grass that will begin to grow in the recently burned area, and they will generally remain in that area until newer, fresher grass is available elsewhere.

- 36.** According to the passage, how did fires started by natural causes prompt American Indians to begin practicing controlled burns?
- E.** by drawing animals in to the area to feed on the new growth sprouting from the burned land
  - F.** by destroying tall trees and reducing the shade that had hindered the growth of planted crops
  - G.** by burning off excess vegetation and increasing the availability of nutrients for the remaining plants
  - H.** by causing changes to the bison's migration habits as bison herds fled from the wildfires on the prairie

37. Targeting red cedar trees in controlled burns affects the animals that live on the prairie mostly by
- A. ensuring that the animals' main food source has the conditions needed for it to thrive.
  - B. endangering the animals that live near the trees scheduled for removal.
  - C. making sure that the water supply for the animals is sufficient.
  - D. reducing the animals' natural source of shade and protection from the elements.

38. Read this sentence from paragraph 6.

**The patch-burn system is so successful that the conservationists at the preserve provide training to prairie farmers about conducting controlled burns on their own land.**

The author includes this sentence to show that

- E. the conservationists are better qualified to lead preservation efforts than farmers are.
  - F. the conservationists are eager to involve others in the preservation of the prairie.
  - G. the conservationists' efforts will restore the original beauty and biodiversity of the region.
  - H. the conservationists' training program should serve as a model for other conservation organizations.
39. Which details from the passage **best** convey the central idea that using the patch-burn method is an effective way to protect and manage prairie land?
- A. the explanation that conservationists use the alternating burn pattern of the patch-burn method in order to allow the animals in the area to avoid the fire
  - B. the information that conservationists evaluate which land would most benefit from a controlled burn before applying the patch-burn method
  - C. the information that conservationists have determined that the patch-burn method has promoted the growth of species that were at risk of being crowded out
  - D. the explanation that conservationists are able to control the fire in the patch-burn method by arranging separate burns across the designated portion of land

40. Which sentence supports the idea that farmers and people who manage land may be concerned about using fire as a way to benefit the land?

- E. "While one of the greatest threats to the prairie is wildfire, the use of controlled fires is actually an effective way to protect this idyllic landscape." (paragraph 1)
- F. "The American Indian people began to deliberately burn areas of land for bison to graze on, which enticed the herds away from the people's crops." (paragraph 2)
- G. "This patch burning contains the fire within a specific area and allows animals in the burn area to safely relocate." (paragraph 5)
- H. "The following year, conservationists will burn a different section of the preserve, while the land burned the previous year regrows healthier than before." (paragraph 5)

41. Read this sentence from paragraph 6.

**Burning land to make it healthy may seem counterintuitive, but strategic controlled fires have helped the prairie sustain life for hundreds of years and, with careful management, will continue to do so.**

The words "counterintuitive" and "strategic" in the sentence convey the idea that

- A. the safest methods are sometimes the least effective at solving complex challenges.
- B. thorough investigation of uncommon methodologies can lead to beneficial results.
- C. detailed planning can ensure that a potentially destructive action has a positive impact.
- D. plans that entail a certain amount of risk almost always result in success.

- 42.** With which statement would the author **most likely** agree?
- E.** It is important to explain the purposes and the risks of controlled burns to the people living near a proposed burn area.
  - F.** It is necessary to thoroughly examine a particular region in order to plan and execute a successful controlled burn.
  - G.** Monitoring animals' reactions after a controlled burn on the prairie is a minor part of scientists' research.
  - H.** Conservationists should consider the helpful aspects of invasive species before executing a controlled burn.
- 43.** How do the diagram and its text provide additional support for the topic presented in the passage?
- A.** by depicting how the landscape in a given area changes as the patch-burn method is applied
  - B.** by indicating that patch-burn fires are best suited for use in areas with certain features
  - C.** by revealing that the patch-burn method is used primarily on uninhabited areas of land
  - D.** by comparing the size of the area burned by the patch-burn method with that of unburned areas

CONTINUE TO THE NEXT PAGE ►

*Ellen, the narrator, is preparing to leave her parents and the family farm for college the next day.*

## Excerpt from *Winter Wheat*

by Mildred Walker

- 1 I love Dad’s way of talking that makes him seem different from other ranchers. He’s lived here twenty-three years, but he still says “back East where I come from.” He’s the one who gets excited when I do about spring coming or a serial<sup>1</sup> running in the magazine we’re both reading, but it’s what Mom says that I depend on. When Mom used to say “Don’t worry” about my pet chicken or dog or new calf, it always got well. Dad is always talking of going some place, not now, but next year, maybe. Mom seems to think of nothing farther away than today or perhaps yesterday or tomorrow morning.
- 2 Mom folded the ironing board and put it inside their bedroom that was just off the kitchen. She carried in the freshly ironed clothes. Dad went back to his paper. When Mom came back she took beans from the cupboard to soak for tomorrow. Dad always said Mom could make all the dishes he’d had back in Vermont as well as though she were a New Englander herself, instead of a Russian. All of a sudden, I realized that tomorrow when those beans would be ready to eat I’d be going away. It gave me a funny feeling.
- 3 “I’ll be taking the train tomorrow night,” I said aloud, more to hear it myself.
- 4 “We can drive you into town in the afternoon,” Dad said, dropping his paper on the floor.
- 5 “There’s no need to go to town; she can catch the train at Gotham just as well. We haven’t nothing to take us into town for,” Mom said.
- 6 “Well, we don’t have to decide tonight,” Dad said, but I knew he wanted to go into Clark City. It wouldn’t be so flat as just seeing me go off on the train from Gotham. My going away was hard on both of them; they were so different—and I was part of them both. It made me uncomfortable to think of leaving them.
- 7 While I was getting ready for bed in my room that’s off the front room, I saw how it would be if I left from town. We’d go in right after dinner and go around to the stores, Dad going one way and Mom and I another. Dad would probably have his hair cut at the barbershop and stop in the bank and meet someone he knew to talk to. Then we’d meet at the big store on the corner and go to the cafeteria for supper. The train stops ten minutes or so at the station in town and there are other people and excitement and you have time to wave from the platform and then again from your window by your seat. We went to the station in Clark City to see the Goodals off when they went back to Iowa.
- 8 If I left from Gotham, we’d just drive down in the truck and wait till the train came. It only stops long enough for you to get on and you hardly have time to taste the flavor of going away.

---

<sup>1</sup>**serial:** story published in short segments at regular intervals



- 9 I sat on the bed in my pyjamas with my arms around my knees. I couldn't keep from thinking of that time Dad went back East. I tried to, and then I just sat still and looked straight at it. Sometimes that's better than working so hard to keep from looking at what's in your mind.
- 10 Dad went all the way back to Vermont. . . . It was in November and it was already dark when the train came through Gotham. Even now, I could feel how cold and dark it was. I held Mom's hand. Dad was so dressed-up he seemed strange. . . . We stood there without saying anything until Dad told Mom to remember to call Mr. Bardich, our neighbor, if the cow didn't calve tomorrow.
- 11 "I'll manage," Mom snapped back.
- 12 "I wish you could go, Anna," Dad said to Mom, "and we could take Ellen." . . .
- 13 "Good-by, Anna Petrovna," he said, looking at Mom. I had never heard him call her by two names before.
- 14 "Good-by," Mom said, standing still, without smiling.
- 15 Then he was gone and the crossroads were darker than ever. The train light shone on the high window in the top of the grain elevator for a moment and then that too was dark. We got into our old Ford and Mom drove back to the house. My throat ached all the way. The name Dad had called Mom kept saying itself in my ears: "Anna Petrovna, Anna Petrovna." . . .
- 16 Our house seemed lonely when we came back to it. It seemed to be hiding under the coulee.<sup>2</sup> I went with Mom to put the truck in the barn that was bigger than the house. I think Mom was prouder of our barn than the house, anyway. We walked back to look at the cow that was going to calve. She was just a big light blob in the dark, waiting. I had thought she was exciting this morning, but now she seemed sad, too.
- 17 The wind blew when we walked across the open space to the house and I couldn't help shivering with the cold. Inside the house it was warm, but empty.
- 18 "Bring your nightgown in here and I heat you some milk," Mom said.
- 19 I drank the milk sitting on a stool in front of the stove. It tasted good, but the lonely ache in my throat was still there. I picked up my clothes and hung them neatly behind the stove and put my cup on the sink board. Mom was fixing oatmeal for tomorrow morning.
- 20 "Good night, Mom," I said almost timidly, standing beside her. She seemed wrapped around in a kind of strangeness. Then she turned around and drew me to her. The front of her dress was warm from the stove. I felt the comfortable heat through my gown. She laid her hand against my face and it felt rough and hard but firm. I dared ask her something I wanted to know.
- 21 "Mom, was that really your name—what Dad called you?"
- 22 Her voice sounded surprised. "Why, Yeléna, you know that; Anna Petrovna. You know I am born in Russia, in Seletskoe."

---

<sup>2</sup>**coulee:** small gulch or ravine

23 “Yes, but I didn’t know your other name,” I said.

24 “Anna Petrovna Webb.” She pronounced it slowly. “Once I think what a funny name Ben Webb is!” She laughed. Her laugh was warm and low like our kitchen, and comfortable. The house seemed natural and right again. . . .

25 But now that I am grown, I feel the wall of strangeness between them, more than when I was a child. I wondered how they would get along without me.

From WINTER WHEAT by Mildred Walker, published by University of Nebraska Press. Copyright © 1944 by Harcourt, Brace and Company, Inc. Copyright renewed 1971 by Mildred Walker. All rights reserved.

44. Read these sentences from paragraph 2.

**Dad always said Mom could make all the dishes he’d had back in Vermont as well as though she were a New Englander herself, instead of a Russian. All of a sudden, I realized that tomorrow when those beans would be ready to eat I’d be going away. It gave me a funny feeling.**

The sentences help develop a theme of the excerpt by

- E. suggesting that life presents people with many challenges.
- F. implying that the stress of major life events can cause confusion.
- G. demonstrating that moving on from the familiar is a common human experience.
- H. emphasizing the idea that people can easily learn the routines of being part of a new culture.

45. Read this sentence from paragraph 3.

**“I’ll be taking the train tomorrow night,” I said aloud, more to hear it myself.**

This remark contributes to the conflict in the excerpt by

- A. revealing Dad’s reasons for wanting to drive to the city.
- B. causing tension between Mom and Dad.
- C. leading Ellen to distance herself from both Mom and Dad.
- D. showing Mom’s reluctance to plan that far in advance.

46. Read this sentence from paragraph 9.

**I tried to, and then I just sat still and looked straight at it.**

How does the phrase “looked straight at it” contribute to the meaning of the excerpt?

- E. It shows that Ellen is willing to deal with a problem directly instead of ignoring it.
  - F. It suggests that Ellen studies all parts of an issue and not just its surface.
  - G. It illustrates that Ellen examines both sides of an argument.
  - H. It implies that Ellen is eager to seek wisdom from past experiences.
47. The words “cold” and “dark” affect the tone in paragraph 10 by
- A. highlighting the feeling of unpredictability among the family members.
  - B. showing the feelings of anger and resentment Ellen directs toward her parents.
  - C. exaggerating the feeling of regret Dad experiences when leaving his family.
  - D. emphasizing the feelings of separation and loss that Ellen feels.
48. Which sentence from the excerpt provides evidence that Ellen has a lot in common with her father?
- E. “He’s the one who gets excited when I do about spring coming or a serial running in the magazine we’re both reading. . . .” (paragraph 1)
  - F. “ ‘We can drive you into town in the afternoon,’ Dad said, dropping his paper on the floor.” (paragraph 4)
  - G. “ ‘Well, we don’t have to decide tonight,’ Dad said, but I knew he wanted to go into Clark City.” (paragraph 6)
  - H. “I wondered how they would get along without me.” (paragraph 25)

49. Read these sentences from the excerpt.

**Mom seems to think of nothing farther away than today or perhaps yesterday or tomorrow morning.** (paragraph 1)

**Mom was fixing oatmeal for tomorrow morning.** (paragraph 19)

The sentences help develop a central idea of the excerpt by

- A. suggesting that practical people focus on current needs rather than worrying about the future.
  - B. showing that parents tend to consider the needs of their children before thinking of themselves.
  - C. revealing that it is sometimes important to plan ahead.
  - D. illustrating that dreaming about the future is a waste of time.
50. The flashback in paragraphs 10–24 affects the plot by
- E. showing that the departure of one member of the family makes extra work for those left on the farm.
  - F. showing that the bond within the family persists even when its members are apart.
  - G. explaining why Ellen fears that leaving her parents will be too difficult.
  - H. illustrating the close connection Ellen has with both of her parents.
51. Which sentence from the excerpt provides evidence that Mom wants Ellen to understand the family’s heritage?
- A. “Mom folded the ironing board and put it inside their bedroom that was just off the kitchen.” (paragraph 2)
  - B. “ ‘There’s no need to go to town; she can catch the train at Gotham just as well.’ ” (paragraph 5)
  - C. “We’d go in right after dinner and go around to the stores, Dad going one way and Mom and I another.” (paragraph 7)
  - D. “ ‘Why, Yeléna, you know that; Anna Petrovna.’ ” (paragraph 22)

CONTINUE TO THE NEXT PAGE ►

## Wolves of the Sea

- 1 The cool and misty landscape of the Great Bear Rainforest can be found along the coast of British Columbia, Canada, and its nearby islands, from Vancouver Island to the Alaskan border. Within this protected area, wolves roam the forests, islands, and beaches. When biologist Chris Darimont began to study these wolves, he wanted to confer with local First Nations groups, as aboriginal Canadians are known, in order to learn what they knew about these wolves. He spoke with Chester Starr, an elder of the Heiltsuk Nation that has occupied the Great Bear Rainforest for thousands of years. What Starr had to say about the wolves changed Darimont’s perception of the animals.
- 2 Starr asked Darimont which wolves he and his team were going to study—the timber wolves (mainland wolves) or the coastal wolves on the islands. The question took Darimont by surprise. Biologists had always believed that the wolves that are sometimes spotted swimming between islands and eating salmon are the same wolves that live on the mainland. Darimont was intrigued by Starr’s classification of the wolves as two different groups. At first, he was hesitant to accept the idea. The distances between the mainland and the islands are small, less than a mile. Why would the wolves on the islands be any different from the wolves on the mainland? To find out, Darimont and his research team studied the wolves on the islands and in the densely forested territory of the Great Bear Rainforest for ten years.
- 3 Throughout the study, Darimont recorded several significant, observable differences between the “sea wolves,” as they are nicknamed, and the mainland wolves. Compared with the mainland wolves, the sea wolves are smaller in size and are strong swimmers. In 1996 sea wolves were spotted on an island nearly eight miles from any other land formation. While mainland wolves almost exclusively eat meat, such as deer and elk, and teach their young to hunt for land animals, sea wolves get as much as 90 percent of their nutrition from the sea and teach their young to dig for clams and to catch fish. Sea wolves regularly swim between islands and have been known to sneak up on a seal sunning itself on a rock and make a leaping attack from the water. Some salmon-eating mainland wolves come and go from the islands with the fish-spawning season, but the sea wolves are full-time island residents. Darimont suspects that some sea wolves live their entire life on the islands.
- 4 The sea wolves displayed not only physical and behavioral differences but also genetic variations from the mainland wolves. After collecting and analyzing the DNA in 800 samples of gray fur and wolf waste, researchers could produce hard biological evidence that sea wolves had genetic markers that made them distinct from the mainland wolves. A genetic marker is a variation in a DNA sequence that can be used to identify individuals or a species because it is passed down to offspring. Darimont hypothesizes that a change in habitat led to the eventual genetic differences between sea wolves and mainland wolves. Many years ago, loss of habitat and food sources forced some mainland wolves out to the islands. They learned to eat everything from kelp and fish eggs to the remains of sea creatures that washed up on the beach. Wolves living on the islands and mainland wolves became more isolated and rarely mated with each other. Over time the two types of wolves became more distinct.
- 5 It turned out that Chester Starr was right all along. “It sounded totally bizarre at first,” admits Darimont, “that there could be two versions of the species.” But he now realizes that this skepticism “definitely reflected my ignorance of indigenous knowledge at the time.” Learning to

trust the wisdom of the Heiltsuk people opened Darimont up to knowledge accumulated over millennia and positioned him so that he could gather new scientific evidence about one of British Columbia’s most elusive species, the sea wolf.

- 52.** The details in paragraph 1 contribute to a central idea of the passage by showing that Darimont
- E.** believed the Great Bear Rainforest was an ideal location to study wolves in their natural habitat because it is a protected area.
  - F.** values different perspectives, because the information that Starr provided influenced the focus of Darimont’s research.
  - G.** thought the Great Bear Rainforest would provide opportunities to study different groups of wolves because the area includes forests and islands.
  - H.** understands the importance of respecting local community members, because Darimont sought permission from an elder of the Heiltsuk Nation before starting his research.
- 53.** Why does the author include details about the conversation between Starr and Darimont in paragraph 2?
- A.** to explain why Starr had closely observed the relationship between the two groups of wolves Darimont wanted to study
  - B.** to show that Darimont was hoping to work with Starr and to study both groups of wolves in the area
  - C.** to highlight that Darimont was unfamiliar with the area and expected Starr to help him find wolves to study
  - D.** to emphasize that the question asked by Starr caused Darimont to review his initial assumption about the wolves

54. Read this sentence from paragraph 4.

**After collecting and analyzing the DNA in 800 samples of gray fur and wolf waste, researchers could produce hard biological evidence that sea wolves had genetic markers that made them distinct from the mainland wolves.**

The phrase “hard biological evidence” conveys that the goal of the research team was to

- E. develop a procedure in order to ensure their study yielded plentiful data about the wolves.
- F. seek definitive scientific proof of the number of wolf species present in the area of the study.
- G. conduct a study to evaluate multiple theories about the diets of different wolf species.
- H. discover if the new data would provide information different from that of previous studies.

55. The author uses the word “admits” in paragraph 5 **most likely** to

- A. note that Darimont’s genetic research verified a theory based solely on field observations.
- B. imply that Darimont’s study was disappointing because the conclusion that he reached was not original.
- C. emphasize that Darimont’s study ultimately confirmed an idea that he had initially doubted.
- D. highlight that Darimont’s results led him to draw a conclusion from his research that his team did not agree with.



- 56.** Which sentence from the passage **best** supports the idea that sea wolves had successfully adapted to living on the islands?
- E.** “While mainland wolves almost exclusively eat meat, such as deer and elk, and teach their young to hunt for land animals, sea wolves get as much as 90 percent of their nutrition from the sea and teach their young to dig for clams and to catch fish.” (paragraph 3)
  - F.** “Sea wolves regularly swim between islands and have been known to sneak up on a seal sunning itself on a rock and make a leaping attack from the water.” (paragraph 3)
  - G.** “Darimont suspects that some sea wolves live their entire life on the islands.” (paragraph 3)
  - H.** “Darimont hypothesizes that a change in habitat led to the eventual genetic differences between sea wolves and mainland wolves.” (paragraph 4)
- 57.** How did a change in habitat **most** affect the wolf population of the Great Bear Rainforest over time?
- A.** It caused some of the wolves to learn new hunting techniques in order to catch increasingly scarce prey.
  - B.** It caused the wolves to form smaller packs and eventually separate, establishing distinct territories.
  - C.** It caused some of the wolves to gradually become a new, genetically distinct species as they adapted behaviorally.
  - D.** It caused the wolves to adapt their diet as different food sources became available in the area.

# PART 2 — MATHEMATICS

57 QUESTIONS

## IMPORTANT NOTES

- (1) Formulas and definitions of mathematical terms and symbols are **not** provided.
- (2) Diagrams other than graphs are **not** necessarily drawn to scale. Do not assume any relationship in a diagram unless it is specifically stated or can be determined from the information given.
- (3) Assume that a diagram is in one plane unless the question specifically states that it is not.
- (4) Graphs are drawn to scale. Unless stated otherwise, you can assume relationships according to appearance. For example, lines on a graph that appear to be parallel can be assumed to be parallel. This is also true for concurrent lines, straight lines, collinear points, right angles, etc.
- (5) Reduce (simplify) all fractions to lowest terms.

## GRID-IN QUESTION NOTES

- (1) For each grid-in question, write your answer at the top of the grid.
- (2) Begin recording your answer in the columns on the far left.
- (3) Fill in the circle under the box that matches the number or symbol you wrote. Leave the negative sign bubble blank if your answer is positive.

(Answer:  $-1.5$ )

-	1	.	5	
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	0	0	0	
<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	2	2	2	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	3	3	3	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	4	4	4	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	5	<input checked="" type="radio"/>	5	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	6	6	6	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	7	7	7	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	8	8	8	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	9	9	9	

Negative sign →      ← Decimal point

(Answer:  $3.2$ )

	3	.	2	
<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	0	0	0	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	1	1	1	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	2	2	<input checked="" type="radio"/>	2
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	<input checked="" type="radio"/>	3	3	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	4	4	4	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	5	5	5	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	6	6	6	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	7	7	7	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	8	8	8	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	9	9	9	

Negative sign →      ← Decimal point

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# GRID-IN QUESTIONS

## QUESTIONS 58–62

**DIRECTIONS:** Solve each problem. On the answer sheet, write your answer in the boxes at the top of the grid. Start on the left side of each grid. Print only one number or symbol in each box. Under each box, fill in the circle that matches the number or symbol you wrote above.

- Do not fill in a circle under an unused box.
  - Do not leave a box blank in the middle of an answer.
- 

**58.** Ms. Li opened a retirement account with a deposit of \$2,500. This account earns 4% simple interest annually. How many years will it take her to earn \$500 on her \$2,500 deposit?

**59.**  $6 - 9 \div |-3| + (-2)^3 \times 1\frac{1}{2}$

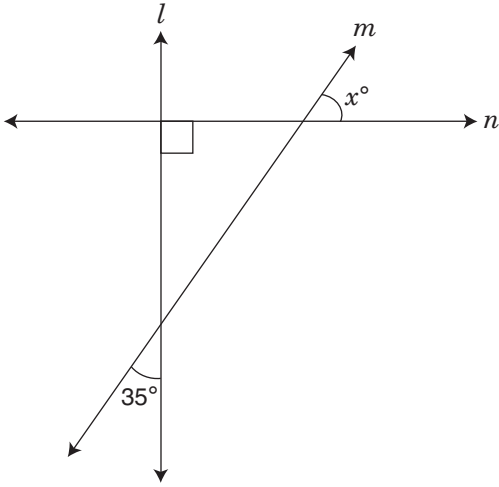
What is the value of the expression shown above?

---

**60.** Solve for  $x$ :

$$7x + 3 - 2(2x + 1) = 13$$

61.



In the figure above, line  $l$  is perpendicular to line  $n$ . What is the value of  $x$ ?

62. The mean value of 8 numbers is 17. Three of these numbers (9, 11, and 20) are discarded. What is the mean of the 5 remaining numbers?

---

# MULTIPLE CHOICE QUESTIONS

## QUESTIONS 63–114

**DIRECTIONS:** Solve each problem. Select the answer from the choices given. Mark the letter of your answer on the answer sheet. When you are solving problems, you can write in the test booklet or on the scrap paper given to you.

---

63.  $3^4 + 7^4 =$

- A. 40
- B. 370
- C. 2,482
- D. 10,000

---

64. In one week,  $1\frac{3}{4}$  inches of rain fell on Monday,  $2\frac{2}{3}$  inches fell on Tuesday, and  $\frac{7}{8}$  inch fell on Wednesday. How many inches of rain fell during those three days?

- E.  $5\frac{7}{24}$
- F.  $5\frac{1}{24}$
- G.  $3\frac{4}{5}$
- H.  $3\frac{1}{2}$

65. Jamel works at a computer store. He is paid an hourly rate plus a 15% commission on all computer products he sells. Last week, Jamel was paid \$802.50 for working 30 hours and selling \$1,250.00 worth of computer products. What is Jamel's hourly rate?

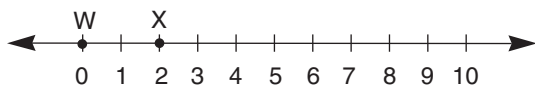
- A. \$20.50/hr
- B. \$26.75/hr
- C. \$33.00/hr
- D. \$37.65/hr

---

66. A revolving sign makes 1 complete revolution every 90 minutes. If the sign starts moving at 2:30 p.m., at what time will the sign complete 8 revolutions?

- E. 1:00 a.m.
- F. 2:30 a.m.
- G. 4:00 p.m.
- H. 12:00 midnight

67.



Points Y and Z are not shown on the number line above. If X is the midpoint of  $\overline{WY}$ , and Y is the midpoint of  $\overline{WZ}$ , where on the number line would point Z be located?

- A. 2
- B. 4
- C. 6
- D. 8

68.

$$\frac{81}{10} = \frac{9}{n}$$

What value of  $n$  makes the equation above true?

- E. 1
- F.  $1\frac{1}{9}$
- G. 5
- H.  $10\frac{1}{9}$

69. If  $n$  is an integer and  $3n + 3$  is an even number, which expression must also represent an even number?

- A.  $5n + 1$
- B.  $4n + 5$
- C.  $2n + 3$
- D.  $n + 2$

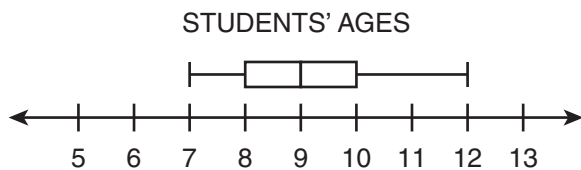
70. The product of two positive integers is 65. Which number could be the sum of the two integers?

- E. 5
- F. 18
- G. 24
- H. 52

71. If  $n$  is an odd integer that is less than  $-3.25$ , what is the **greatest** possible value of  $n$ ?

- A.  $-1$
- B.  $-2$
- C.  $-3$
- D.  $-5$

72. A swim instructor used the box plot below to display the distribution of the ages of students who signed up for swim lessons.



Which statement about the distribution of ages is true?

- E. The data contain an outlier.
- F. Approximately half the students are exactly 9 years old.
- G. Approximately one-fourth of the students are at least 10 years old.
- H. The interquartile range is 3 greater than the range of the data.

73. Between which two consecutive integers is the fraction  $\frac{29}{7}$ ?

- A. 2 and 3
- B. 3 and 4
- C. 4 and 5
- D. 5 and 6

74. A customer wants to buy a pair of hiking boots.

- The original price of the boots is \$85.75.
- The store is offering a 15% discount on all boot purchases.
- The customer has a coupon for an additional 25% off the sale price.
- The tax rate is 8.5%.

What is the final cost of the boots, including the tax, to the nearest cent?

- E. \$55.82
- F. \$59.08
- G. \$59.32
- H. \$63.17

---

**75.** Sheila is saving money for her summer vacation. She starts the summer with a balance of \$90.00 and plans to save 15% of her earnings each week. She earns the same amount each week. After 12 weeks, Sheila has saved a total of \$472.59. How much money does Sheila earn each week?

- A.** \$212.55
- B.** \$262.55
- C.** \$302.55
- D.** \$312.55

---

**76.**  $x:35 = 20:28$

For what value of  $x$  is the proportion shown above true?

- E.** 27
- F.** 25
- G.** 16
- H.** 13

---

**77.** 
$$\frac{3^2 + (-8)^2 + 2^2}{(3 - 8 + 2)^2} =$$

- A.** -60
- B.**  $-\frac{17}{3}$
- C.**  $\frac{77}{9}$
- D.** 68

---

**78.** A soccer coach purchased 15 pairs of cleats for team members and spent a total of \$805.95, including tax. If the tax rate is 8%, what is the price of each pair of cleats before tax?

- E.** \$49.43
- F.** \$49.75
- G.** \$53.73
- H.** \$58.03



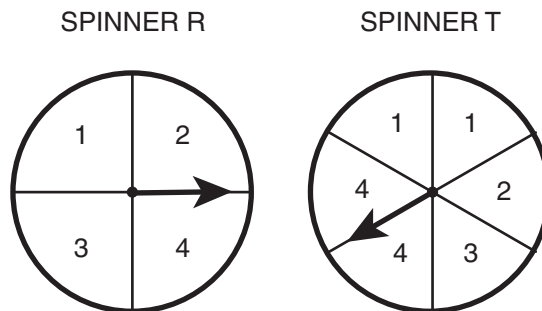
79. The numbers  $m$ ,  $n$ ,  $p$ , and  $q$  are different, and each is equal to one of the numbers 1, 2, 3, 6, or 12. If  $2m = 6q = \frac{1}{2}n = p$ , what is the value of  $p$ ?
- A. 2  
 B. 3  
 C. 6  
 D. 12

80.  $\{0.1, 0.01, 0.001, 0.0001, 0.00001\}$

If a person chooses a number at random from the set above, what is the probability that the number is less than 0.005?

- E.  $\frac{1}{5}$   
 F.  $\frac{2}{5}$   
 G.  $\frac{3}{5}$   
 H.  $\frac{2}{3}$

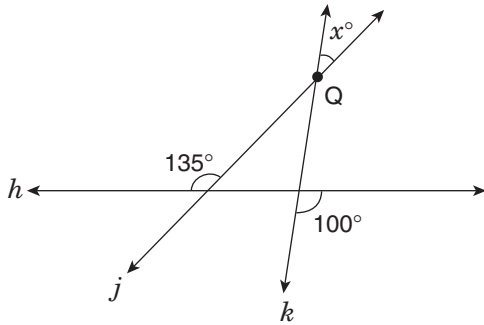
81. A student uses Spinner R and Spinner T to generate a list of two-digit numbers.



Spinner R determines the digit in the tens place, and Spinner T determines the digit in the ones place. What is the probability that the two-digit number determined by spinning each spinner one time is a prime number?

- A.  $\frac{3}{8}$   
 B.  $\frac{5}{12}$   
 C.  $\frac{3}{5}$   
 D.  $\frac{5}{8}$

82.



Lines  $j$  and  $k$  intersect at point  $Q$ , and  $h$  is a straight line. What is the value of  $x$ ?

- E. 55
- F. 45
- G. 35
- H. 30

83. Which statement **must** be true if  $x$  is a whole number greater than or equal to 1?

- A.  $\frac{1}{x+1} > \frac{1}{x+2}$
- B.  $\frac{1}{x+1} < \frac{1}{x+2}$
- C.  $\frac{1}{x+1} - \frac{1}{x+2} > 1$
- D.  $\frac{1}{x+1} - \frac{1}{x+2} > \frac{1}{x}$

84. A basket contains red balls, green balls, and white balls. There are 12 red balls in the basket. The probability of randomly choosing a red ball is 1 in 3. If the probability of randomly choosing a green ball is 1 in 4, how many green balls are in the basket?

- E. 3
- F. 8
- G. 9
- H. 16

85. It took Lars 2 hours to ride his bicycle 48 kilometers. What was his average speed in **miles per hour**? (Use the approximation 1 mile = 1.6 kilometers.)

- A. 1.5
- B. 15.0
- C. 30.0
- D. 38.4

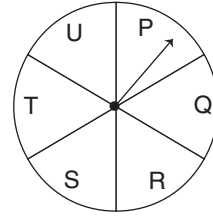
86. Integer  $x$  is evenly divisible by 3. Which expression below is also evenly divisible by 3?

- E.  $2x + 1$
- F.  $3x - 5$
- G.  $4x - 1$
- H.  $4x + 6$

87. Lamel has a jar containing 6 red chips, 10 blue chips, and 4 yellow chips. If he removes one chip at random, what is the probability that it will **not** be red?

- A.  $\frac{4}{5}$
- B.  $\frac{7}{10}$
- C.  $\frac{3}{10}$
- D.  $\frac{1}{5}$

88.



The arrow starts on Space P and moves clockwise around the circle. It moves through one space each minute. What space will the arrow point to in 100 minutes?

- E. R
- F. S
- G. T
- H. U

89. Mei-Ling is one of 6 members of a committee. If 2 members of that committee are selected to go to a conference, how many of the possible pairs of members would include Mei-Ling?

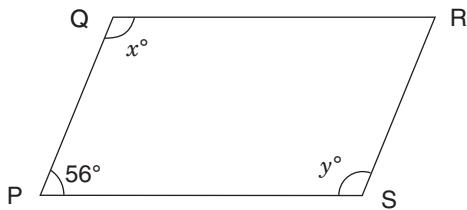
- A. 5
- B. 6
- C. 10
- D. 12

90. If  $m = 5$  and  $t = -1$ , what is the value

of  $\frac{6 - 8(2 - t)}{2m + 4(3 - m)}$ ?

- E. -9
- F. -1
- G. 1
- H. 9

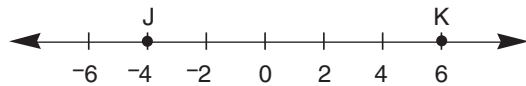
91.



In the parallelogram above, what is the value of  $x + y$ ?

- A. 112
- B. 124
- C. 148
- D. 248

92.



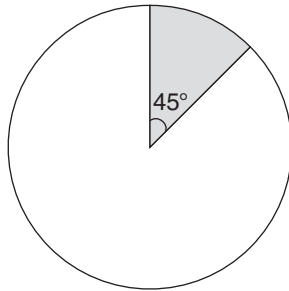
On the number line above, point L (not shown) is located on line segment JK so that  $JL = \frac{2}{3}LK$ . What is the position of point L?

- E. -2
- F. 0
- G. 2
- H. 4

93. Josef and Mai divided some stamps between themselves. Josef got 60% of the stamps. If Josef received 500 more stamps than Mai, how many stamps did Josef receive?

- A. 300
- B. 800
- C. 1,500
- D. 2,500

94.



The shaded sector of the circle shown above has an area of  $18\pi$  square feet. What is the **circumference** of the circle?

- E.  $144\pi$  ft
- F.  $24\pi$  ft
- G.  $18\pi$  ft
- H.  $9\pi$  ft

95. Which graph represents the solution to  $-3x - 7 > -4$ ?

- A.
- B.
- C.
- D.

96. A scientist mixed three chemicals, R, S, and T, in a glass container. The amount of R is 3 times the amount of S, and the amount of T is  $\frac{1}{6}$  the amount of S. What is the ratio of the amount of R to the amount of T?

- E. 1:18
- F. 2:1
- G. 3:1
- H. 18:1

97. Ken has  $k$  video games, and Jeff has  $j$  video games. If Ken gives 6 video games to Jeff, Ken will have twice as many video games as Jeff. Which equation shows the relationship between  $k$  and  $j$ ?

- A.  $k - 6 = 2(j + 6)$
- B.  $k - 6 = 2j + 6$
- C.  $2(k - 6) = j$
- D.  $2(k - 6) = j + 6$

---

**98.** Yesterday Sarah read 15% of her entire book. Today she read another 17% of the entire book. In lowest terms, what fraction of the book is left for her to read?

**E.**  $\frac{7}{25}$

**F.**  $\frac{3}{10}$

**G.**  $\frac{17}{25}$

**H.**  $\frac{7}{10}$

---

**99.**  $\{1,2,3,4,5,\dots,198,199,200\}$

How many members of the set shown above are multiples of 6 but **not** multiples of 9?

**A.** 11

**B.** 13

**C.** 20

**D.** 22

**100.** Kim jogs 8 kilometers in 1 hour 40 minutes. At that rate, how many **meters** does she jog per minute?

**E.** 0.08

**F.** 80

**G.** 800

**H.** 8,000

---

**101.** For what value of  $x$  is the equation

$$\frac{x}{5} - 4 = 3(4 - 2x) - 1$$
 true?

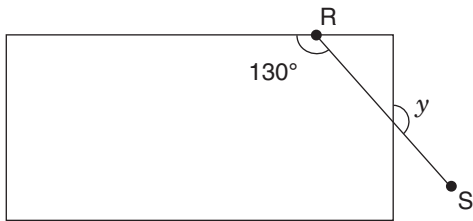
**A.**  $\frac{75}{11}$

**B.**  $\frac{75}{31}$

**C.**  $\frac{15}{7}$

**D.**  $\frac{65}{31}$

102.



The diagram above shows line segment RS intersecting a rectangle. What is the measure of angle  $y$ ?

- E.  $140^\circ$
- F.  $130^\circ$
- G.  $50^\circ$
- H.  $40^\circ$

103.

ESSAY LENGTH

Number of Words	Number of Essays
<100	6
100–250	4
251–500	11
>500	9

All 150 students in Grade 8 at a school are assigned to write an essay on the same topic. A teacher records the number of words in a random sample of the essays, as shown in the table above. Based on this sample, how many students in the entire grade would be expected to write essays with **at least** 100 words?

- A. 20
- B. 30
- C. 100
- D. 120

104. Which percentage is closest in value to 0.0099?

- E. 0%
- F. 0.1%
- G. 1%
- H. 100%

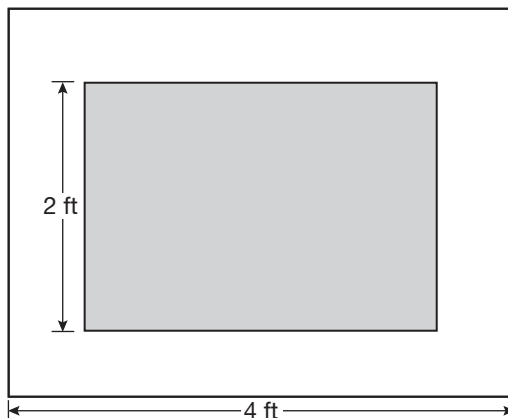
**105.** The manager of a shipping company recorded the weights, in pounds, of the last 9 packages the company shipped. The manager displayed the distribution of the weights in a box plot with the five-number summary shown below:

- minimum: 29
- first quartile: 31
- median: 42
- third quartile: 73
- maximum: 98

Which statement about the distribution of weights is supported by the box plot the manager created?

- A.** The minimum, 29, is an outlier.
- B.** The maximum, 98, is an outlier.
- C.** The interquartile range of the data is 11.
- D.** The interquartile range and the median are equal.

**106.**



In the figure above, the shaded rectangle is similar to the outer rectangle. The length of the outer rectangle is 4 feet, and the perimeter of the outer rectangle is 14 feet. If the width of the shaded rectangle is 2 feet, what is the area of the shaded rectangle?

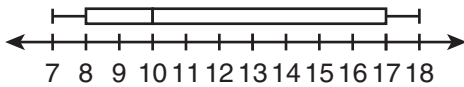
- E.**  $5\frac{1}{3}$  sq ft
- F.** 6 sq ft
- G.**  $9\frac{1}{3}$  sq ft
- H.** 12 sq ft



**107.** A rectangular concrete driveway is 30 feet long, 8 feet wide, and 6 inches thick. What is the volume of the concrete?

- A.** 44 cu ft
- B.** 48 cu ft
- C.** 120 cu ft
- D.** 240 cu ft

**108.** At a carnival, visitors can win a prize if an employee cannot correctly guess their age. The employee records the first 15 ages that he guesses one Saturday. The box plot shown below displays data about the ages he recorded.



What is the interquartile range of the box plot?

- E.** 7
- F.** 9
- G.** 10
- H.** 11

**109.** Vicente and Carla each ran 8 laps around a track. They started at the same time and place. If Vicente ran 1.5 times as fast as Carla, how many laps did Carla have left to finish when Vicente finished his 8th lap?

- A.**  $2\frac{1}{2}$
- B.**  $2\frac{2}{3}$
- C.**  $3\frac{1}{3}$
- D.**  $5\frac{1}{3}$

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**110.** At West College, students are randomly assigned to one of 20 dormitories and one of 6 dining rooms. Kharleen likes 6 of the dormitories and 2 of the dining rooms. What is the probability that she is assigned to both a dormitory and a dining room that she likes?

- E.** 10%
- F.** 12%
- G.** 19%
- H.** 38%

**111.** A train travels 2,200 miles from Phoenix to New York City. The train covers the first 240 miles in 5 hours. If the train continues to travel at this rate, how many **more** hours will it take to reach New York City? Round your answer to the nearest whole hour.

- A.** 46
- B.** 45
- C.** 43
- D.** 41

---

**112.** What is the **least** of four consecutive integers whose sum is 58?

- E.** 1
- F.** 2
- G.** 12
- H.** 13

113.



If all possible values of  $x$  are indicated by the shaded part of the number line above, which number line best shows all possible values of  $\frac{1}{x}$ ?

- A.   
B.   
C.   
D.

114. Chanelle selects a marble from a container and then returns it to the container. When she does this 3 times, the probability of choosing a red marble all 3 times is  $\frac{1}{216}$ . Based on this information, what is the probability of Chanelle choosing a red marble the **first** time she selects a marble?

- E.  $\frac{1}{72}$   
F.  $\frac{1}{36}$   
G.  $\frac{1}{8}$   
H.  $\frac{1}{6}$

THIS IS THE END OF THE TEST.  
IF TIME REMAINS, YOU SHOULD CHECK  
YOUR ANSWERS. BE SURE THAT THERE  
ARE NO STRAY MARKS, PARTIALLY  
FILLED ANSWER CIRCLES, OR  
INCOMPLETE ERASURES ON YOUR  
ANSWER SHEET. ■

## Form A

# Sample Test – English Language Arts Explanations of Correct Answers

### REVISING/EDITING PART A

1. The question asks which edit should be made to correct the sentence.
  - A. Incorrect. This edit incorrectly deletes the comma that is necessary to set off the year in a date from the remainder of the sentence.
  - B. Incorrect. This edit introduces an unnecessary comma into the sentence by needlessly separating the adjective phrase “Boston University student” from the noun it modifies, “Zach Prescott.”
  - C. Incorrect. This edit would delete the comma needed to separate the participle phrase “breaking the 32-year-old world record in juggling” and its companion appositive “a sport that combines jogging and juggling” from the rest of the sentence. This complete element is nonessential, which means it requires separation from the rest of the sentence with a comma because its removal would not fundamentally change the meaning of the sentence.
  - D. **CORRECT.** The appositive “a sport that combines jogging and juggling” further describes the word “juggling.” An appositive requires separation with a comma because it is nonessential, meaning that its removal would not change the overall meaning of the sentence.

2. The question asks how the paragraph should be revised.
- E. Incorrect. The revisions in this option introduce new errors. The word “spent” is correct in the simple past tense because it encompasses the actions described throughout the rest of the paragraph, all of which happened during those “several hours.” Additionally, adding a comma after the word “play” would be incorrect because it would unnecessarily separate the prepositional phrase “at the community theater” from the rest of the sentence.
  - F. Incorrect. The revisions in this option introduce new errors. The word “did” is correct as written in the past tense because the past tense is used throughout the paragraph. There is no comma needed after the word “projection” because “so” is functioning not as a conjunction but rather as part of the conjunction phrase “so that,” which does not take a comma.
  - G. **CORRECT.** Changing the word “studies” from the present tense to the past tense “studied” is necessary to match the past tense established in the paragraph (“spent,” “recited”). Additionally, the comma after the word “emotions” needs to be removed because the words “emotions and motivations” are part of a group (series) of two elements, and when there are only two elements in a series, a comma is not used.
  - H. Incorrect. The revisions in this option introduce new errors. The word “recited” is correct as written in the past tense because the past tense is used throughout the paragraph. Also, removing the comma after “times” is incorrect because the comma is needed in order to separate the modifying phrase “making slight adjustments and improvements to her performance each time” from the main clause.
- 

3. The question asks for the correct revision of the sentence in the box.
- A. Incorrect. The revisions do not fix the error that “to promote their club” modifies “a bake sale.”
  - B. Incorrect. The revisions do not fix the error that “to promote their club” modifies “a bake sale.”
  - C. **CORRECT.** The revision is correct because it includes the phrase “to promote their club” clearly modifying “members of the debate team.”
  - D. Incorrect. While the revision clarifies that “to promote their club” relates to the “members of the debate team,” the rest of the sentence is poorly written because the insertion of “on Wednesday to promote their club” in the middle of the sentence interrupts the main clause, “Members of the debate team will sponsor a bake sale.”

4. The question asks for the correction of an error in sentence structure in the paragraph.
- E. CORRECT.** The first sentence is a run-on sentence because both clauses—“In September 2016 the National Museum of African American History and Culture opened as part of the Smithsonian Institution” and “the museum is already the Smithsonian’s third most popular site”—are independent clauses, and independent clauses should not be combined without the use of a conjunction and a comma. The revision in this option adds the word “and” before the comma, which corrects the run-on.
- F.** Incorrect. The revision does not correct an error in sentence structure, since there are independent clauses on both sides of the period.
- G.** Incorrect. Adding the words “which include” rather than the word “including” after the comma does not correct an error in sentence structure. The sentence is correct as written.
- H.** Incorrect. Revising the wording in the underlined portion of the sentence to “which was written” from “written” does not correct a structural error. No edits are needed to correct the wording in the sentence.

## REVISING/EDITING PART B

### The Benefits of Indoor Plants

5. The question asks which sentence should follow sentence 3 to **best** introduce the topic of the passage.
- A. **CORRECT.** The sentence introduces the overall topic by previewing the main ideas in the passage. It introduces the connection between natural elements and well-being (“a healthy bridge”) and sets up the main argument of the passage (“Placing plants in homes and offices” can increase people’s well-being).
  - B. Incorrect. Although sentence 3 mentions the connection between “people and nature,” this sentence references the importance of spending time near plants while both indoors and outdoors. However, the passage focuses specifically on the benefits of having indoor plants.
  - C. Incorrect: Though the sentence describes a reason why indoor plants are important (“For [people’s] personal health and well-being”), the topic of the passage is related to the need for indoor plants, not the need for people to spend more time outdoors.
  - D. Incorrect. While the sentence refers to how time away from nature can affect health and well-being, the vague wording (“little connection to nature”) makes this sentence too broad to introduce the topic of the passage, and thus, it should not follow sentence 3.
- 
6. The question asks for the transition word or phrase that should be added to the beginning of sentence 5.
- E. Incorrect. The transition phrase “As a result” conveys a cause-and-effect relationship that does not exist between the ideas in sentence 4 and sentence 5. Although the plants’ conversion of carbon dioxide into oxygen removes harmful toxins from the air, the process of photosynthesis (sentence 4) does not deprive people of the plants’ benefits (sentence 5).
  - F. Incorrect. Although the passage describes why people should spend time in close proximity to plants, the idea in sentence 5 is actually in opposition to the idea in sentence 4 rather than an elaboration of it. The transition word “Primarily” incorrectly suggests that the sentences describe the same idea.
  - G. Incorrect. Although sentence 4 describes a positive idea (plants are beneficial) and sentence 5 describes a negative idea (deprivation), the transition phrase “In contrast” conveys an inaccurate relationship between the ideas in the sentences. Sentence 5 is not arguing against the beneficial effect of plants and should not begin with a transition that implies opposition.
  - H. **CORRECT.** The relationship between the ideas in the sentences is correctly conveyed with the transition word “Unfortunately,” which signals the shift from the positive effect described in sentence 4 (plants are helpful) to the emphasis in sentence 5 that the positive effect is dependent on proximity to plants.

7. The question asks for the sentence that could **best** follow sentence 13 to support the ideas in the third paragraph (sentences 11–14).
- A. **CORRECT.** The sentence could best follow sentence 13 because it directly supports the main idea of the third paragraph that indoor plants provide “psychological benefits” (sentence 11) by presenting the findings of a relevant research study. The details about the study provide a concrete example of the mental benefits of indoor plants: the employees in the study who worked near plants “were more creative” and accomplished more than those who worked in spaces without plants.
  - B. Incorrect. Although the sentence describes a study in which indoor plants were found to have a positive effect, it does not clearly support the ideas in sentences 11–14, because the sentence focuses on the popularity of the hotel rather than psychological benefits. Therefore, this sentence does not best follow sentence 13 to support the ideas in the third paragraph.
  - C. Incorrect. Although the sentence suggests that being “routinely exposed to natural elements” can increase the positive emotion of compassion, it could not best follow sentence 13, because the reference to “natural elements” is too vague to sufficiently support the ideas in the third paragraph. The sentence does not logically follow the idea from sentence 13, which refers specifically to “encountering natural elements while indoors.”
  - D. Incorrect. The sentence develops the idea that indoor plants are helpful by comparing them to carpeting and stating that they can reduce the amount of noise that people perceive. Noise cancellation, though convenient, is irrelevant to the topic of the third paragraph, which is specific to the psychological benefits of indoor plants. Therefore, this sentence does not best follow sentence 13 to support the ideas in the third paragraph.
- 
8. The question asks for the sentence that presents ideas irrelevant to the topic of the passage and should be deleted.
- E. Incorrect. Sentence 11 presents one of the key reasons why plants are so important in indoor spaces: they have a positive effect on mental health. The idea that plants provide psychological benefits is relevant to the topic of the passage, and the sentence should not be deleted.
  - F. Incorrect. Sentence 14 is relevant to the topic because it explains how many plants a person should add to a space in order to experience “the maximum benefit of natural elements.” This idea addresses the main topic of the passage, and the sentence should not be deleted.
  - G. Incorrect. Although “connecting with nature” is somewhat broader than the topic of the passage, sentence 15 is relevant and belongs in the passage because it specifically refers to using indoor plants as one way to connect with nature (“even just by being near an indoor plant”). Therefore, the sentence should not be deleted.
  - H. **CORRECT.** While the topic of the passage is the harm caused by the “separation between people and nature” (sentence 3), the reference in sentence 16 to “an electronic screen” is irrelevant to the topic of the passage. The idea that “today’s workers need to get up and get outdoors” (sentence 16) is, in fact, the opposite of what the passage argues, and the sentence should be deleted.



9. The question asks for the concluding sentence that should follow sentence 17 to **best** support the information presented in the passage.
- A. Incorrect. Although the sentence describes plants as “vital to our wholeness and wellness,” the detail about the absorption of carbon dioxide from the air is overly specific and does not capture the broader argument presented in the passage (that placing plants indoors “is a significant factor in a person’s well-being” [sentence 15]).
  - B. Incorrect. The sentence’s reference to particular types of plants suitable for indoor spaces supports the idea of incorporating nature into a home or office, but the sentence does not address the benefits people can experience for doing so and thus does not present a logical conclusion for the information in the passage.
  - C. **CORRECT.** The sentence directly presents the argument of the passage (“More people should consider bringing natural elements inside”) and supports the central ideas in the second and third paragraphs relating to the health and psychological benefits of having indoor plants.
  - D. Incorrect. Although the sentence notes the positive impact that houseplants can have on air quality, the sentence does not logically follow the preceding information about the overall benefits to a person’s health and well-being.

## READING COMPREHENSION

### A Memory Revolution

10. The question asks how the details in paragraph 3 about cognitive offloading convey a central idea of the passage.
- E. Incorrect. Although paragraph 3 describes the Internet as “a vast extended memory,” it does not discuss reliance on the Internet for information. The paragraph states that the Internet “allows people to digitally access and retrieve much larger volumes of information” and indicates that this benefit leaves people free to focus on “connecting data, learning new information, or solving problems.” However, these details about the benefits of the Internet do not express an opinion about the inevitability of Internet reliance.
  - F. **CORRECT.** A central idea of the passage is that the Internet is changing how people retain information. Paragraph 3 supports this idea by stating that “a similar process has been taking place for centuries” and that “in the past,” resources such as encyclopedias were used to store and find information. The details provided in paragraph 3 about encyclopedias and the Internet show that people have always used resources to remember information and that these resources change over time as people develop new ways to “assist their memories.”
  - G. Incorrect. While paragraph 3 does compare the use of encyclopedias to obtain information in the past with the use of today’s Internet, this comparison fails to convey the central idea of the passage that the Internet is changing how people remember information.
  - H. Incorrect. Although paragraph 3 states that “much larger volumes of information” are available on the Internet than what has been available in previous methods of information storage, such as encyclopedias, this fact does not relate to an increase in the ability to understand that information and is not a central idea of the passage.

- 11.** The question asks how the details of the experiment described in paragraph 5 convey a central idea of the passage.
- A.** Incorrect. Although paragraph 5 states that participants read the trivia facts and then “typed the statements into a computer file,” it does not explain the impact of repetition on memory, nor does this convey a central idea of the passage.
  - B.** Incorrect. Paragraph 5 acknowledges that people evaluate which information is important enough to remember, but it does not describe the rate at which people forget unimportant information. According to the paragraph, information is considered less important to remember if a person believes that he or she will be able to retrieve that information easily in the future. This does not mean the information is unimportant but rather that it is readily available for future access.
  - C.** Incorrect. Paragraph 5 specifies the number of trivia facts that study participants were given to read (forty), but it does not describe the amount of information as a factor in the participants’ memory performance. According to the paragraph, it was not the amount of information but rather the expectation of future availability that affected how much information participants were able to recall.
  - D. CORRECT.** A central idea of the passage is that the way the human memory stores information is changing because of the Internet. The details of the experiment support this idea by indicating that study participants remembered different amounts of information based on whether they “thought the information would be saved” (paragraph 5). Those who “believed the information would be erased and no longer available” (paragraph 5) remembered 40 percent more than those who expected to be able to access the information again in a saved computer file. Therefore, paragraph 5 conveys the central idea that the expectation of future access to information is a key element in “how people evaluate which information deserves their effort to remember.”

- 12.** The question asks how the sentence from paragraph 7 contributes to the structure and development of ideas in the passage.
- E.** Incorrect. Although the studies showed, in part, that reliance on the Internet is increasing (“participants recalled the information’s location more often than the content itself” [paragraph 6]), the studies were not conducted in order to determine the risks of Internet use. The claim in the sentence did not prompt the research described in paragraphs 2 and 6.
  - F.** Incorrect. While the sentence in paragraph 7 poses a question about the disadvantages of relying on the Internet, paragraphs 2 and 6 present the study data on Internet use and memory in a neutral tone (“correctly identifying 49 percent of the folders for specific facts while remembering only 23 percent of the actual trivia” [paragraph 6]). Neither study describes the availability of information on the Internet as an advantage or a disadvantage.
  - G. CORRECT.** Paragraphs 2 and 6 describe the results of experiments related to the Internet’s effect on memory without commenting on the advantages or disadvantages of relying on that technology, and the sentence in paragraph 7 presents a questioning viewpoint that moves away from the neutral perspective of the broader passage. The opinion in the sentence is directly argued against in the three sentences that follow it, which present an extended quote from Steven Pinker, a psychology professor at Harvard University. Pinker refutes the idea expressed by the sentence, stating that “knowledge is increasing exponentially; human brainpower and waking hours are not.” He adds that technologies such as the Internet “are the only things that will keep us smart.”
  - H.** Incorrect. Although the sentence in paragraph 7 expresses caution about the possible effects of the Internet on memory, the passage does not shift from an optimistic tone to a cautious tone. Actually, paragraph 6 provides the data on Internet use and memory in a neutral tone. The argument expressed by the sentence is also not elaborated on in the sentences that follow, but is immediately argued against by Steven Pinker, a professor of psychology. The last sentence of paragraph 7 in fact refutes the cullled sentence: “ ‘Far from making us stupid, these technologies are the only things that will keep us smart.’ ”

- 13.** The question asks how the study described in paragraph 6 influenced researchers' ideas about memory in the digital age.
- A.** Incorrect. The study required participants to organize information into folders, but the results suggest that organizing the information did not make the information easier to remember; instead, participants remembered the folder in which to find the information but forgot the information itself.
  - B.** Incorrect. Although the participants in the study were given a keyword, such as "ostrich," when asked to remember "which folder contained a particular fact," the study was significant for researchers because it demonstrated that "our memory is adapting to the Internet age by prioritizing where to locate information even when the specific details are forgotten" (paragraph 6). The study confirmed that participants were remembering where the information was stored, because they were able to provide the name of the folder (keyword) where the information was stored.
  - C. CORRECT.** The study in paragraph 6 demonstrated that participants were better able to recall where to find certain information than to recall the information itself. This influenced researchers' ideas about memory in the digital age: "Overall, participants recalled the information's location more often than the content itself, correctly identifying 49 percent of the folders for specific facts while remembering only 23 percent of the actual trivia" (paragraph 6).
  - D.** Incorrect. The study did not examine the relative importance of remembering basic information or storing detailed information. It examined the effect of the Internet on the information that people remember and concluded that human memory "is adapting to the Internet age by prioritizing where to locate information" (paragraph 6).

- 14.** The question asks for the evidence from the passage that is **most** relevant to the claim in paragraph 7 that “ ‘far from making us stupid, these technologies are the only things that will keep us smart.’ ”
- E.** Incorrect. Whether the participants decided to use the Internet to answer easy trivia questions varied based on the options that the participants were given during the first part of the experiment and, therefore, cannot be relevant to the claim in paragraph 7. Even when given the option of using the Internet, some participants chose to recall information from memory instead.
- F. CORRECT.** The assertion made in paragraph 3 that states that cognitive offloading allows for “people’s minds [to be] free for other cognitive feats, such as connecting data, learning new information, or solving problems” is relevant to the claim in paragraph 7 because it indicates that the ability to store large amounts of information within the brain does not necessarily make someone smart. It also suggests that if people did not have to use so much effort simply organizing and storing information, their brain would be free to conduct higher-order tasks: “the Internet, serving as a vast extended memory, allows people to digitally access and retrieve much larger volumes of information. Consequently, people’s minds are free for other cognitive feats, such as connecting data, learning new information, or solving problems” (paragraph 3).
- G.** Incorrect. The discussion in the passage connecting how people organize information in their mind and their ability to recall that information focuses on the process of organizing information within human memory rather than on how technology helps keep people’s minds available for complex thoughts.
- H.** Incorrect. Although the passage provides an accurate description of transactive memory, it provides no indication of how using such memory would advance a person’s ability to maintain or improve intelligent thought.

- 15.** The question asks which sentence from the passage suggests that using Internet search engines may lead people to rely less on their own ability to recall information.
- A.** Incorrect. While the sentence in paragraph 1 refers to the increase in use that has made the Internet “an integral component” of everyday life for many people, it does not address memory or explain the effect of Internet use on a person’s ability to recall information.
  - B.** Incorrect. Although the sentence in paragraph 2 refers to research that was conducted to determine how the use of the Internet affects a person’s memory, the sentence simply explains one guideline of the study. The fact that the study required one group of participants to use Google does not indicate whether using a search engine affects the degree to which people rely on their own ability to recall information.
  - C. CORRECT.** The sentence in paragraph 2 states that “83 percent of the Internet group continued to consult Google in the second round” and that “only 63 percent of the memory group chose to do so.” These statistics suggest that using Google in the first round resulted in participants in the Internet group relying more heavily on the Internet search engine to recall information in the second round, whereas participants who had not used Google in the first round were more likely to rely on their own ability to recall information.
  - D.** Incorrect. The sentence in paragraph 5 describes a task presented to participants in a research study. Although the study was designed to examine “how people evaluate which information deserves their effort to remember” (paragraph 5), the sentence does not indicate that use of Internet search engines prompted people to rely less on their own ability to recall information.

16. The question asks how the studies presented in the passage are used to illustrate the effect of the Internet on a person's memory.
- E. **CORRECT.** The study described in paragraph 5 examined the effect of computer use on the way people evaluate information, specifically "which information deserves their effort to remember," and determined that "those who believed the information would be erased and no longer available could recall 40 percent more facts than those who thought the information would be saved." The study described in paragraph 2 established that the use of Internet search engines increases the "inclination to rely on the Internet in order to retrieve information" (paragraph 3), and the study in paragraph 6 examined how this reliance on technology affects the way people store information: "Overall, participants recalled the information's location more often than the content itself."
  - F. Incorrect. Although a difference in the ability of the human brain and the capacity of the Internet to locate information might seem evident, the studies cited in the passage did not examine the ability or the capacity of either. The studies did not measure what the human brain is capable of but rather how memory is affected by the use of the Internet.
  - G. Incorrect. While the studies explored the Internet's effect on the way information is stored in human memory, the type of information was not described or compared. Instead, the studies indicated that location is the main difference between the information stored in the Internet and the information stored in human memory, noting that the Internet has become "an external source of the recollections and associative networks that constitute memory" (paragraph 6).
  - H. Incorrect. Although it is increasingly common to use the Internet to obtain information (paragraph 2) rather than try to memorize information (paragraph 5), the studies did not examine the difficulty or ease of obtaining/recalling information using either method.
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17. The question asks how the diagram provides additional support for the topic presented in the passage.
- A. Incorrect. While the diagram indicates that the human brain has the ability to maintain different types of memory, the diagram does not show the need for the brain to adapt to obtaining information from the Internet rather than from other sources.
  - B. Incorrect. The diagram enhances the reader's understanding of how long-term memories are formed, but it does not provide details about how the Internet can be used to improve long-term recollection of information.
  - C. Incorrect. The diagram provides an understanding of how details that are important to people can become stored because of an effort made to recall them. However, the diagram does not show how people decide which information is important and which is not.
  - D. **CORRECT.** The diagram depicts the connections that the human brain maintains between the different forms of memory. It also illustrates the idea that repetition and rehearsal are important steps in creating memories, as unrehearsed information will be forgotten. This supports the passage by highlighting the idea that access to search engines and other tools leads people to skip rehearsal and repetition steps that create memories, because people know that the information is readily accessible.



## Letter from Brooklyn

- 18.** The question asks how the structure of the poem affects its meaning.
- E.** Incorrect. Though the poem lacks a rhyming pattern, such a structure is not related to the uniqueness of the passing days. The speaker is savoring “the early edge of fall” (line 7) and describes walks taken on “these days” (line 17), but the beauty the speaker appreciates is attributed to the fall season rather than to a unique day. Further, the poem is primarily concerned with broad seasonal shifts, not the passing of each day, and the absence of rhyme does not suggest that each day is unique in its beauty.
  - F.** Incorrect. The poem includes both long sentences (such as the one in lines 7–12) and short sentences (such as those in lines 5 and 6). However, the sentence lengths are not connected with the complexity of the ideas expressed.
  - G.** Incorrect. A complete sentence serves to present the beginning and the end of a single thought, but the poem is not primarily concerned with the speaker’s thoughts on the “clear beginning and ending of each season.” Though it contrasts the speaker’s feelings and experiences during different seasons, the poem does not present descriptions focused specifically on the beginnings or ends of these seasons.
  - H. CORRECT.** Unlike poems that are broken into stanzas reflecting unified groups of thoughts, this poem is one long stanza. This structure serves to emphasize the uninterrupted flow of the speaker’s thoughts from time to time and experience to experience without a clear break between any specific thoughts.
- 
- 19.** The question asks which lines from the poem support the idea that a change in the weather will lessen the speaker’s appreciation for the city.
- A.** Incorrect. These lines focus on the positive way the air feels to the speaker during “the early edge of fall” (line 7). They suggest that the speaker appreciates this experience currently, while being aware that the feeling might not last.
  - B. CORRECT.** In these lines, the speaker describes the shift in the “closeness” of the air as the weather changes and “it starts darkening at 4.” The speaker clearly indicates that the positive emotions surrounding this closeness, with “leaves green still” and the air “slightly crisp” (lines 8–9), will soon be “a felt distance,” suggesting that the turn in the weather will make the city less appealing.
  - C.** Incorrect. Although these lines compare the darkening, changing weather to a person revealing a “lack of intimacy,” that specific comparison does not focus on a diminishing appreciation for the city.
  - D.** Incorrect. These lines describe the “cathedral pace” (line 17) at which the speaker walks, emphasizing a meditative or thoughtful experience. Such a description suggests the speaker still appreciates the city, not that the speaker’s appreciation will lessen.

- 20.** The question asks how lines 5–6 develop a central theme of the poem.
- E.** Incorrect. In this poem, the speaker describes the impressions of one day in one season: “For now it is the early edge of fall, / leaves green still while the air narrows, / is slightly crisp” (lines 7–9). Despite the reference in line 5 to the eventual arrival of cold weather, lines 5–6 primarily emphasize the speaker’s wish to stay focused on the present moment. A contrast between seasons is not a central theme of the poem.
  - F.** Incorrect. The words “The weather will turn cold” in line 5 refer to one change that is expected to occur, but lines 5–6 do not show a sequence of changes. The line that follows returns to the present: “For now . . .” (line 7).
  - G.** Incorrect. Although the statement that the weather “will turn cold” in line 5 could be construed as a warning, there is no support in lines 5–6 for the idea that some problems require thoughtful preparation. The speaker is reflecting on a fleeting experience, not preparing to solve a problem.
  - H. CORRECT.** Immediately after the line “The weather will turn cold” (line 5), the speaker returns to the current moment: “But that all happens later” (line 6). These lines help develop a central theme by emphasizing the speaker’s choice to value and focus on the present moment. The “But” at the start of line 6 shows the speaker pulling back from the future and refocusing on the present, thus emphasizing the importance of savoring “the moment I am walking inside of” (line 22).
- 

- 21.** The question asks what belief of the speaker is conveyed by the word choice in lines 7–9 of the poem.
- A. CORRECT.** Words and phrases in these lines, such as “leaves green still” and “slightly crisp,” have a positive connotation, indicating that the speaker believes in appreciating this season while it still lasts.
  - B.** Incorrect. Although imagery such as “leaves green still” and “slightly crisp” in these lines suggests that the speaker enjoys the season, the speaker never indicates that the present season is the most pleasant of all seasons.
  - C.** Incorrect. The phrases “the early edge of fall” and “the air narrows” in these lines imply that the season is just beginning to change, but there is no indication from these phrases that the changes will be swift and without warning. In fact, the narrowing of the air could be a warning of a greater, more gradual change in weather.
  - D.** Incorrect. The speaker experiences the change in weather as subtle: “the air narrows, / is slightly crisp.” However, the speaker does not refer to the viewpoints of others. The entire viewpoint in the poem is personal and introspective, as represented by the use of the pronoun “I” throughout.

- 22.** The question asks how lines 9–12 convey a central idea of the poem.
- E.** Incorrect. Although the speaker discusses the very beginning of cool weather in these lines, the speaker does not reflect on life in these lines.
  - F.** Incorrect. Although the description in these lines likens the movement of crisp air to “a passing stranger,” that comparison does not have a negative connotation in this context; it does not suggest that the speaker is uncomfortable. Rather, it is used to describe the subtle physical sensation of cool air on the speaker’s arm.
  - G. CORRECT.** By using a description of the crisp air as “a passing stranger” and the daylight as being brief, these lines express the poem’s central idea that the joy of early fall is temporary or fleeting.
  - H.** Incorrect. Although the speaker acknowledges the coming fall in these lines, there is no mention of loneliness. The speaker reveals a loneliness in lines 23–26 but gives no hint of that feeling in lines 9–12. Further, this loneliness is not a central idea of the poem.
- 
- 23.** The question asks what the comparison of the brownstone houses to “a pop-up picture book I could have had as a child, / but didn’t” conveys.
- A.** Incorrect. While the lines explain that the neighborhood reminds the speaker of images from childhood pop-up books, those images are not described as very powerful or influential.
  - B. CORRECT.** Pop-up picture books are likely to delight a child with their unique, often beautiful representations of buildings that pop up out of the page. The comparison in these lines helps explain how the speaker views these brownstones with a childlike wonder and appreciation.
  - C.** Incorrect. Though in these lines the speaker compares this neighborhood to scenes in children’s pop-up picture books, there is no clear evidence that the speaker wants to live there, only that the speaker appreciates its appeal.
  - D.** Incorrect. The lines state that the speaker did not have a “pop-up picture book” of the neighborhood’s brownstones as a child, but not in a way that emphasizes regret. Rather, the speaker compares the neighborhood to images from pop-up books *in general* to suggest that the neighborhood looks beautiful and delightful.

24. The question asks how line 1 and lines 21–22 develop a central idea of the poem.
- E. Incorrect. Although these lines suggest that life is governed by repetitive patterns, such as the change of seasons, they do not suggest that the speaker wishes to break free from these natural cycles of change, and a desire for freedom is not a central idea of the poem.
  - F. Incorrect. Although the speaker acknowledges that colder weather will inevitably bring disappointment, the speaker does not suggest in these lines that the predictability of changing weather is itself disappointing. Rather, the speaker recognizes the value of enjoying the present moment.
  - G. **CORRECT.** These lines connect the present warmer weather with the future colder weather and develop the central idea that the present “moment I am walking inside of” must be embraced because the speaker will be “nostalgic” for it in the future.
  - H. Incorrect. In these lines, the speaker is aware that specific emotions will occur in the future, during cold weather, but this awareness is only part of the more complex central idea of the poem, which is that current emotions and feelings must be recognized, experienced, and appreciated.
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25. The question asks how the speaker’s thoughts throughout the poem develop a theme.
- A. **CORRECT.** The speaker’s thoughts develop some tension because seasonal change will inevitably come: “The weather will turn cold” (line 5). However, the speaker is still able to enjoy the present experience because “that all happens later” (line 6). In lines 21–22, the speaker begins to describe experiences that create a longing for the present, even while it is still happening (“How Brooklyn makes me nostalgic / for the moment I am walking inside of”), developing a theme of the poem.
  - B. Incorrect. The speaker’s thoughts reveal an appreciation for the city, but this appreciation is highly personal and individual. These thoughts do not indicate that most people will feel drawn to cities.
  - C. Incorrect. Some things, such as seasons, are beyond human control, as the speaker concedes: “I can already see how this will end” (line 1). However, the theme of the poem is not that certain things are inevitable, but that one can live in the present moment and enjoy that experience before change occurs.
  - D. Incorrect. The speaker’s thoughts are not showing that people are surprised by what the days bring; the thoughts of the speaker suggest that people experience many seasons in Brooklyn and have reasonable expectations about what these days will bring.

- 26.** The question asks how the poet develops the speaker's point of view.
- E.** Incorrect. The speaker concedes that at some point, Brooklyn will become tiresome (lines 2–4). However, the bulk of the poem reveals the speaker's appreciation for experiencing Brooklyn, not a desire to be in some other place.
  - F.** Incorrect. Cold weather is inevitable, and the speaker is well aware of this future shift as well as the change in attitude it will bring. Nevertheless, the speaker does not focus on this future but rather embraces the current season, describing it in vivid detail.
  - G.** Incorrect. The speaker is not hopeful that life will remain unchanged. Rather, the speaker accepts and appreciates the seasonal changes that occur.
  - H. CORRECT.** The speaker's point of view is largely positive and appreciative of the shift in seasons. This point of view is developed by language that shows a close connection between the speaker and the setting. For example, the speaker uses words such as "intimacy" (line 11) and "closeness" (line 14) and the description of the "pop-up picture book" (line 20). Finally, the conclusion emphasizes the point of view: "These late afternoons filled / with a loneliness that makes me feel / distinctly myself, and an awareness / of how rare that is" (lines 23–26).

**Excerpt from *Do Them No Harm!***

27. The question asks how paragraph 1 contributes to the setting of the excerpt.
- A. **CORRECT.** Paragraph 1 describes summer “when salmon spawn,” “huckleberries ripen,” and The People gather for “their annual camas harvest.” These descriptions show the abundance of food in the place where the excerpt occurs.
  - B. Incorrect. Although the setting refers to past events, the narration is not by The People. In addition, the voice narrating the excerpt is not an element of the setting.
  - C. Incorrect. Nothing in paragraph 1 suggests that the camp is changing in any way. The People gather annually in this place. In addition, the language used to describe the setting does not suggest any problems.
  - D. Incorrect. The People are not making observations about the setting in paragraph 1. They are described as performing actions, such as gathering “for the work and festivities of their annual . . . harvest.”
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28. The question asks how the beginning of the change of seasons **mainly** affects the characters.
- E. **CORRECT.** Paragraph 4 describes the time as the last chance for The People to be together “before the Cold Moons kept them close to their fires.” Paragraph 6 tells about how the women were working hard to dig and cure roots, because “WARM was going and COLD was coming.” These paragraphs describe both celebration and preparation before the winter comes.
  - F. Incorrect. Paragraphs 4 and 6 describe the characters working hard, but there is no discussion of them wanting to rest and relax.
  - G. Incorrect. While both paragraphs describe some of the work involved in the harvest, paragraph 4 also lists a number of leisure activities, such as visiting, foot racing, horse racing, gambling, and stick games. The characters are still taking the time to relax.
  - H. Incorrect. While paragraph 4 mentions trading in a list of activities that the characters are doing, this is just one of many activities. Allowing the characters to trade goods is not the way the change in seasons mainly affects them.
- 
29. The question asks how paragraphs 7 and 9 convey a central idea of the excerpt.
- A. Incorrect. Paragraphs 7 and 9 describe activities that The People do at the Red Bear camp. They do not describe The People exploring new areas.
  - B. Incorrect. While paragraph 7 lists some of the activities that The People did to help, neither paragraph emphasizes that The People need to be organized.
  - C. Incorrect. Paragraph 9 mentions how the sun blessed the Red Bear camp. However, these paragraphs do not otherwise mention weather.
  - D. **CORRECT.** Paragraph 7 lists activities that The People do with one another. Paragraph 9 states that “all were busy with their daily tasks.” Everyone is contributing to the community in their preparation for winter.

- 30.** The question asks what is the **most likely** reason that the author repeats the word “played” in paragraph 8.
- E.** Incorrect. Paragraph 7 describes the different tasks that the adults were doing at this time. They were not watching the children play, because they were busy working.
  - F.** Incorrect. While everyone enjoys being at the gathering, the word “played” does not describe the activities of the adults. As described in paragraph 7, the adults are working together at various tasks.
  - G.** Incorrect. The word “played” is used before phrases describing what the children did. It is not used to list activities available for all at the gathering.
  - H. CORRECT.** The word “played” appears before different activities that the children did, such as pretending to hunt, take care of the babies, and take care of the animals. They played by pretending to do adult activities. The last sentence states that the children “learned how to live through their play.”
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- 31.** The question asks how paragraphs 11–13 affect the plot of the excerpt.
- A.** Incorrect. The paragraphs contain questions about the arriving people. They do not present differing points of view.
  - B. CORRECT.** The paragraphs ask questions in which the characters wonder whether the arriving people are friends or enemies, or whether they might be bringing good news or bad news. By suggesting that the arriving people could present problems such as these, the paragraphs contribute to the rising action.
  - C.** Incorrect. The paragraphs do not lead to a turning point. Instead, they lead to the climax—the moment the characters discover who the visitors are. This means the paragraphs contribute to the rising action.
  - D.** Incorrect. Paragraphs 11–13 ask questions. They do not provide background information about the strangers; instead, they ask for it.

- 32.** The question asks how the phrases “trophies of their hunt” and “paraded around” affect paragraph 20.
- E.** Incorrect. The phrase “trophies of their hunt” describes the animals that the hunters have successfully found. They have already received their rewards (the animals) and are showing them to The People.
  - F.** Incorrect. The excerpt describes many ways that The People find and prepare their own food. While they appreciate the extra food, they are not dependent on the hunters.
  - G. CORRECT.** The hunters “parade around” because they are proud of the animals they have been able to get while hunting. Since a trophy is a recognition of success, they consider these animals their trophies.
  - H.** Incorrect. The phrases show the pride the hunters feel. As paragraph 20 says, the hunters want “all to see how strong their Hunting Power had been.” The phrases are focused on the hunters rather than on those who have gathered around them.
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- 33.** The question asks which quotation from the excerpt **best** supports the idea that The People feel a connection to members of their group in spite of distance.
- A.** Incorrect. This quotation describes the fact that The People always return to the same camp to perform the same traditional tasks and enjoy the same festivities as their ancestors. This quotation highlights the customs The People continue from their ancestors, but it does not focus on their present personal connections.
  - B. CORRECT.** This quotation alludes to The People’s eagerness to hear about the families who had traveled away from their group. This eagerness shows that they still feel a connection to these families, even though they are far apart.
  - C.** Incorrect. This quotation describes The People’s analysis of the visitors—that they may be hunters. It does not show a connection to the visitors.
  - D.** Incorrect. This quotation shows that The People are curious about a stranger who has come into their camp. It does not show closeness to distant members of the group.



- 34.** The question asks how the statement in paragraph 22 affects the villagers in the excerpt.
- E.** Incorrect. In paragraph 21, the villagers question who the woman is and from where she had come, but they are merely curious about her and not necessarily concerned, as there is no indication in paragraph 22 that she might be a threat.
  - F.** Incorrect. This statement reveals that the woman is a member of the Red Bear people who has returned, and in paragraph 15 there is a reference to four hunters who have been gone a long time. However, this statement serves only to satisfy the villagers' curiosity about who this woman is; it does not make the villagers hopeful that other people will also return.
  - G.** Incorrect. Though paragraph 23 reveals that the villagers are somewhat surprised because the girl has grown into a woman, paragraph 24 suggests they are excited to receive her. There is no reason given in paragraph 22 for them to grieve for her loss, since she has returned.
  - H. CORRECT.** The hunters' words in paragraph 22 amaze the villagers, who did not at first recognize the woman. Once they know she is one of their own, they are eager to interact with her, as revealed in paragraphs 24 and 25, where they give her a new name and care for her.
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- 35.** The question asks how the details in paragraph 5 about the locations of the camps and the details in paragraphs 23–24 about the reaction to the woman convey a theme of the excerpt.
- A.** Incorrect. Paragraph 5 does not reveal that The People move often, only that they come together near each other at this particular time of year. Paragraphs 23–24 reveal a resolution to the difficulty of people who are absent for some time, but they do not relate to the difficulty of moving often each year.
  - B. CORRECT.** The details in paragraph 5 show that The People seek to come together in order to share in recreational activities, demonstrating their connectedness. Similarly, the details in paragraphs 23–24 reveal that The People quickly embrace a member of their group who had gone away but has since returned. Taken together, these sections reveal just how much The People rely on their connectedness, a theme of the excerpt.
  - C.** Incorrect. Although paragraph 5 suggests that The People keep the customs of their ancestors alive, it does not reference storytelling. Further, though paragraphs 23–24 suggest that The People had knowledge of this woman's absence, they do not indicate that this knowledge came from stories in particular.
  - D.** Incorrect. In paragraph 24, an appropriate new name, meaning "Gone-from-Home-then-Come-Back," is bestowed on the returned woman. However, the importance of appropriate names is not a theme of the excerpt. Rather, the theme that is emphasized is the importance of the connection among The People, exemplified by the annual gathering and the warm welcome of the woman who has returned after a long absence.

## Using Fire to Keep a Prairie Healthy

- 36.** The question asks how observing the effects of the fires started by natural causes prompted American Indians to begin practicing controlled burns.
- E. CORRECT.** In paragraph 2, the author states that American Indians observed bison “grazing on tender new grass on the recently burned land rather than on grass in the unburned areas.” These observations prompted the practice of controlled burns as a means of enticing “the herds away from the people’s crops.”
  - F.** Incorrect. Although the author mentions in paragraph 4 that the primary targets of a controlled burn are red cedar trees and that “these tall trees also cast shade that prevents sunlight from reaching the plants beneath them,” this detail supports why conservationists use controlled burns today, not what initially prompted the use of controlled burns.
  - G.** Incorrect. While the author states in paragraph 3 that “the process of burning excess plant matter adds nitrogen, an essential element for plant growth, to the soil” and that “intentionally burning a portion of land can dramatically improve the quality of the vegetation that regrows there,” these details do not explain the initial observations that prompted American Indians to practice controlled burning.
  - H.** Incorrect. While paragraph 2 mentions that bison moved to a new area to graze because they preferred the “tender new grass on the recently burned land,” there is no indication in the passage that bison changed their migration habits in order to flee wildfires.
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- 37.** The question asks how targeting red cedar trees in controlled burns affects the animals that live on the prairie.
- A. CORRECT.** According to information in paragraph 4, targeting invasive red cedar trees with controlled burns affects animals that live on the prairie by ensuring that these trees do not “crowd out prairie grasses, the primary food source for wild and domestic animals that make the prairie their home.” The paragraph also states that each red cedar tree consumes “up to 40 gallons of water per day, taking this vital resource away from other plant life.” Removing red cedars thus increases the amount of water available to the prairie grasses and helps maintain favorable conditions for the animals’ main source of food.
  - B.** Incorrect. Although the author mentions the potential danger to wildlife from an uncontrolled burn in paragraph 5, the author emphasizes that patch burning “allows animals in the burn area to safely relocate.” Therefore, the animals that live near trees scheduled for removal are not endangered by the controlled burns.
  - C.** Incorrect. In paragraph 4, the author states that “a single red cedar tree can consume up to 40 gallons of water per day, taking this vital resource away from other plant life.” However, the author does not suggest that reducing the number of red cedar trees through controlled burns ensures a sufficient water supply for animals that live on the prairie.
  - D.** Incorrect. In paragraph 4, the author states that “these tall trees also cast shade that prevents sunlight from reaching the plants beneath them.” However, the author does not suggest that using controlled burns to eliminate red cedar trees reduces a natural source of shade for prairie animals. The red cedar trees are invasive; therefore, the author does not consider them a “natural” part of the prairie ecosystem.

- 38.** The question asks what the author intends to show by using the second sentence in paragraph 6 in the passage.
- E.** Incorrect. Although the author refers to the conservationists as “experts” in paragraph 5 and states that conservationists “provide training to prairie farmers” (paragraph 6), the second sentence in paragraph 6 does not imply that the conservationists are better qualified to lead preservation efforts than farmers are. Instead, the sentence shows that conservationists believe that prairie farmers are capable of performing the controlled burns that contribute to overall conservation efforts.
  - F. CORRECT.** The conservationists are eager to involve others in the preservation of the prairie, because “studies show that the patch-burn approach has restored biodiversity to the area by promoting the growth of species that were at risk of being crowded out” and that the process has “helped the prairie sustain life for hundreds of years” (paragraph 6). The second sentence in paragraph 6 describes how conservationists are sharing their knowledge about preservation techniques with people who live on the prairie.
  - G.** Incorrect. Although the author points out in paragraph 6 that “studies show that the patch-burn approach has restored biodiversity to the area by promoting the growth of species that were at risk of being crowded out,” the idea that controlled burns may help restore the original biodiversity of the prairie is not the focus of the second sentence in paragraph 6, which notes only that conservationists are providing training to farmers about controlled burns.
  - H.** Incorrect. The author mentions in paragraph 6 that the patch-burn system has been “successful” and suggests in the last sentence of the paragraph that the use of controlled burns will continue to benefit the prairie ecosystem. These details imply that this system will continue to be used and may even become more widespread. However, the second sentence in paragraph 6 merely describes a patch-burn training program that already exists and does not suggest that this program should serve as a model for other organizations.

39. The question asks which details from the passage **best** convey the central idea that using the patch-burn method is an effective way to protect and manage prairie land.
- A. Incorrect. The author explains in paragraph 5 that “patch burning contains the fire within a specific area and allows animals in the burn area to safely relocate.” This explanation conveys two supporting ideas: the patch-burn method is controllable, and patch-burn fires do not pose a threat to animals. However, this explanation does not address the broader central idea that the patch-burn method is an effective way to protect and manage prairie land.
  - B. Incorrect. In paragraph 5, the author states that “the key to using controlled fires is knowing which areas of land to burn and when.” The author then provides information about how conservation experts “study the land to find out which areas would most benefit from being burned.” However, these details convey supporting ideas rather than the central idea that using the patch-burn method is an effective way to protect and manage prairie land.
  - C. **CORRECT.** In paragraph 3, the author states that “fires burn away weedy undergrowth and help limit the overcrowding of shrubs and trees in the burn area, creating less competition for water and nutrients.” Also, in paragraph 6, the author states that patch burning “has restored biodiversity to the area by promoting the growth of species that were at risk of being crowded out.” These details directly convey the central idea that using the patch-burn method is an effective way to protect and manage prairie land.
  - D. Incorrect. The author explains in paragraph 5 how conservationists “arrange about a dozen burns over one-third of the land,” which helps show how the patch-burn method is applied by conservationists. However, this is a supporting detail that conveys the idea that the burns are deliberately set and carefully controlled. This detail does not convey the central idea that using the patch-burn method is an effective way to manage and protect prairie land.

- 40.** The question asks which sentence supports the idea that farmers and people who manage land may be concerned about using fire as a way to benefit the land.
- E. CORRECT.** The sentence from paragraph 1 supports the idea that farmers and people who manage land may be concerned about using fire as a way to benefit the land because it acknowledges that “one of the greatest threats to the prairie is wildfire.”
- F.** Incorrect. Although the sentence from paragraph 2 relates how American Indians “began to deliberately burn areas of land for bison to graze on” and to protect people’s crops, the sentence does not support the idea that farmers and people who manage land may be concerned about using fire as a way to benefit the land. Instead, it focuses on the cause-and-effect relationship between bison and newly burned areas.
- G.** Incorrect. The sentence from paragraph 5 provides details about how “patch burning contains the fire” and “allows animals in the burn area to safely relocate,” but it does not adequately support the idea that farmers and people who manage land may be concerned about using fire as a way to benefit the land, because it does not mention that wildfires can be a threat to the prairie.
- H.** Incorrect. While the sentence from paragraph 5 does explain how “conservationists will burn a different section of the preserve” in order to rotate the process year after year so that the burned land has time to regrow, the sentence does not support the idea that farmers and people who manage land may be concerned about using fire as a way to benefit the land because it does not mention the potential for total burns.

41. The question asks which idea the words “counterintuitive” and “strategic” convey in the last sentence in paragraph 6 in the passage.
- A. Incorrect. Though the author states in paragraph 6 that conservationists have used safe and “strategic” methods, those methods have not been ineffective, since “the patch-burn system is so successful that the conservationists at the preserve provide training to prairie farmers about conducting controlled burns on their own land” (paragraph 6). Therefore, the words “counterintuitive” and “strategic” in the last sentence of paragraph 6 do not convey the idea that the safest methods are sometimes the least effective at solving complex challenges.
  - B. Incorrect. Although the author points out in paragraph 6 that researchers’ studies have shown “that the patch-burn approach has restored biodiversity to the area by promoting the growth of species that were at risk of being crowded out,” the author does not suggest that the methodologies conservationists used to conduct the patch burns are uncommon, since the methods were used by “the American Indian people [who] began to deliberately burn areas of land for bison to graze on” (paragraph 2). Therefore, the words “counterintuitive” and “strategic” in the last sentence of paragraph 6 do not convey the idea that thorough investigation of uncommon methodologies can lead to beneficial results.
  - C. **CORRECT.** In paragraph 1, the author states that “one of the greatest threats to the prairie is wildfire,” so the idea of conducting controlled burns suggests risk and runs “counter,” or contrary, to people’s common expectations, or “intuition,” about the dangers of fires. Thus, the words “counterintuitive” and “strategic” in the last sentence of paragraph 6 convey the idea that detailed planning can ensure that a potentially destructive action has a positive impact.
  - D. Incorrect. The author states in paragraph 6 that “the patch-burn system is so successful that the conservationists at the preserve provide training to prairie farmers.” This statement supports the idea of the action being “strategic” in order to achieve success. However, the statement does not suggest that because the process is “counterintuitive,” or unexpected, it involves a certain amount of risk to achieve that success. Therefore, the words “counterintuitive” and “strategic” in the last sentence of paragraph 6 do not convey the idea that plans that entail a certain amount of risk almost always result in success.

42. The question asks with which statement the author of the passage would **most likely** agree.
- E. Incorrect. In paragraph 5, the author states that “patch burning contains the fire within a specific area and allows animals in the burn area to safely relocate,” and paragraph 6 states that conservationists “provide [important] training to prairie farmers about conducting controlled burns on their own land.” However, the author does not explicitly take a position about the importance of explaining the purposes and the risks of controlled burns to the people living near a proposed burn area. Therefore, the evidence in the passage does not strongly suggest that the author would agree with this statement.
  - F. **CORRECT.** In paragraph 5, the author points out that conservationists “study the land to find out which areas would most benefit from being burned, and then they arrange about a dozen burns over one-third of the land” and “rotate which portion of land is burned each year” so that animals, such as bison, can “safely relocate.” Therefore, the author would most likely agree that it is necessary to thoroughly examine a particular region in order to plan and execute a successful controlled burn.
  - G. Incorrect. The author of the passage would be unlikely to agree that monitoring animals’ reactions after a controlled burn on the prairie is a minor part of scientists’ research. In paragraph 5, the author explains that patch burning “allows animals in the burn area to safely relocate” and that conservationists “burn a different section of the preserve” each year to ensure that animals have an abundant area to graze while other areas are being burned.
  - H. Incorrect. According to the information in paragraph 4, conservationists commonly target invasive red cedar trees because they are tall trees that “crowd out prairie grasses, the primary food source for wild and domestic animals that make the prairie their home.” Since the focus is on the harm that the invasive red cedar can cause, the author would be unlikely to agree that conservationists should consider the helpful aspects of invasive species before executing a controlled burn.

- 43.** The question asks how the diagram and its text provide additional support for the topic presented in the passage.
- A. CORRECT.** The text of the diagram states that “by using a patch-burn method, conservationists and farmers can reduce the risk of unintentional fires and control where grazing animals, such as bison, roam.” By showing the pattern of controlled burns and the resulting bison migration in a given area, the diagram depicts how the landscape changes as the patch-burn method is applied.
  - B.** Incorrect. Although the text mentions areas “where grazing animals, such as bison, roam,” the diagram does not depict distinctive features of the land such as trees or brush and therefore does not indicate that patch-burn fires are best suited for use in areas with certain features.
  - C.** Incorrect. While the text mentions “grazing animals, such as bison” and the diagram shows the bison grazing in only one area, the diagram and its text do not indicate that the patch-burn method is used on uninhabited land.
  - D.** Incorrect. While the areas of land depicted in the diagram do indicate that the sizes of the areas differ, the text provided does not compare the sizes of the areas burned by the patch-burn method with those of unburned areas or indicate that this factor is important in reducing the risk of uncontrolled fires or controlling “where grazing animals, such as bison, roam.”



**Excerpt from *Winter Wheat***

44. The question asks how the sentences in paragraph 2 help develop a theme of the excerpt.
- E. Incorrect. Although the sentences from paragraph 2 describe Ellen’s “funny feeling” upon realizing that she will no longer be home when the beans that her mother is making are ready to eat, the details do not show that life presents many challenges. Additionally, the theme that life presents people with many challenges is not a theme found in the excerpt.
  - F. Incorrect. The sentences from paragraph 2 state that Ellen has “a funny feeling” while awaiting a major life event, but they do not indicate that she is confused or stressed. The details in the sentences convey a sense of wistfulness, but the theme that the stress of major life events causes confusion is not found in the excerpt.
  - G. **CORRECT.** The sentences from paragraph 2 show that Ellen’s mother has moved on from the familiar and left her childhood home behind, just as Ellen is about to do. This information links the experiences of parent and child and helps develop the theme that moving beyond the familiar is a common human experience.
  - H. Incorrect. Although the sentences from paragraph 2 show that Ellen’s mother has learned to cook New England food very well (“as though she were a New Englander herself”), they do not provide information about how easy or difficult it was for Ellen’s mother to learn a new way of cooking. The theme that people can easily learn the routines of a new culture is not a theme found in the excerpt.
- 
45. The question asks how the sentence from paragraph 3 contributes to the conflict in the excerpt.
- A. Incorrect. Although Ellen’s father does want to drive to the city, this sentence does not reveal his reasons for wanting to do so. Ellen’s father’s wish to drive to the city is important to the conflict of the excerpt not because of his underlying reasons but because his wish differs from Ellen’s mother’s wish to take Ellen to the train at Gotham—a difference of opinion that introduces tension between the parents.
  - B. **CORRECT.** The sentence causes Ellen’s parents to propose competing options for taking her to the train, and the resulting conversation recalls fraught memories of an earlier leave-taking in the family. The disagreement between Ellen’s mother and father over where to take Ellen to catch the train heightens the tension between them. Because the primary conflict of the excerpt is Ellen’s anxiety about the effect her leaving will have on the relationship between her parents, this remark contributes to the conflict by bringing her parents’ disagreement into view.
  - C. Incorrect. Although Ellen will put physical distance between herself and her parents on the following day, the remark she makes does not lead her to emotionally distance herself from her parents. Moreover, the emotional distance between Ellen and her parents is not the primary source of conflict in the excerpt.
  - D. Incorrect. While paragraph 1 states that Ellen’s mother “seems to think of nothing farther away than today or perhaps yesterday or tomorrow morning,” the sentence in paragraph 3 does not show any reluctance to plan far in advance. Moreover, planning for the future is not a source of conflict in the excerpt.

46. The question asks how the phrase “looked straight at it” in paragraph 9 contributes to the meaning of the excerpt.
- E. **CORRECT.** The phrase shows Ellen deciding to directly confront the memory even though she initially wanted to ignore it (“I couldn’t keep from thinking of that time Dad went back East. I tried to” [paragraph 9]). Though the memory is emotionally fraught for Ellen, the phrase “looked straight at it” shows that she is willing to face problems—such as a painful family memory—head-on.
  - F. Incorrect. The phrase in paragraph 9 does not show Ellen studying all parts of an issue but rather forcing herself to focus on something she would have preferred not to think about.
  - G. Incorrect. In looking “straight at” the memory, Ellen is not considering both sides of an argument. Instead, she is making herself think about an uncomfortable memory that she had been trying to avoid revisiting. The phrase indicates that she is finally willing to directly confront an unsettling recollection.
  - H. Incorrect. Given the detail in paragraph 9 that Ellen initially attempted to keep from thinking about her father’s trip to Vermont, the phrase “looked straight at it” indicates a willingness, but not an eagerness, to seek wisdom from reflecting on past experiences.
- 
47. The question asks how the words “cold” and “dark” affect the tone in paragraph 10.
- A. Incorrect. The mood of paragraph 10 is primarily one of sadness as Ellen says goodbye to her father at the train station. The words “cold” and “dark” do not convey unpredictability but rather emphasize Ellen’s feeling of loss over the departure of her father.
  - B. Incorrect. Although the father’s departure causes tension with his wife (“ ‘I’ll manage,’ Mom snapped back” [paragraph 11]), Ellen does not display anger or resentment toward her parents.
  - C. Incorrect. Although Ellen’s father states that he wishes his family could come with him on the trip to Vermont (“ ‘I wish you could go, Anna,’ Dad said to Mom, ‘and we could take Ellen’ ” [paragraph 12]), the words “cold” and “dark” describe Ellen’s perspective on her father’s departure. They create a tone of sadness from Ellen at being left behind rather than a tone of regret from her father because he has to leave.
  - D. **CORRECT.** In paragraph 10, Ellen states, “I could feel how cold and dark it was.” The words “cold” and “dark” highlight her emotional response to the departure of her father, emphasizing the almost physical sense of grief she feels at being separated from someone so precious to her.

- 48.** The question asks which sentence from the excerpt provides evidence that Ellen has a lot in common with her father.
- E. CORRECT.** This sentence from paragraph 1 shows that Ellen and her father both get excited about the coming of spring and share an interest in reading magazine serials (stories published in serial installments). The sentence implies that Ellen and her father have shared likes and interests, and therefore, it provides clear evidence that they have a lot in common.
  - F.** Incorrect. While this sentence from paragraph 4 highlights the warm relationship between Ellen and her father and shows that he would like to take her to the train station in town, it does not provide clear evidence that they share a lot in common.
  - G.** Incorrect. Although this sentence from paragraph 6 implies that Ellen understands her father well enough to intuit his preference to go to the train station in town (“but I knew he wanted to go into Clark City”), their closeness is not clear evidence that Ellen and her father have a lot in common.
  - H.** Incorrect. While this sentence from paragraph 25 shows Ellen’s concern about the effect that her leaving the farm will have on her parents, it does not provide clear evidence that Ellen and her father have a lot in common.
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- 49.** The question asks how the sentences from paragraph 1 and paragraph 19 help develop a central idea of the excerpt.
- A. CORRECT.** The sentences illustrate a practical aspect of Ellen’s mother’s personality and show that she is concerned with an immediate task that needs to be completed. The details in these sentences help develop the central idea that practical people focus on current needs—such as preparing food for the following day—rather than worrying about the future.
  - B.** Incorrect. These sentences do not show Ellen’s mother focusing on her daughter’s needs before her own, and the idea that parents consider their own needs only after considering those of their children is not a central idea of the excerpt.
  - C.** Incorrect. Although the sentence from paragraph 19 shows Ellen’s mother planning a few hours ahead by preparing the next morning’s breakfast, the idea that it is sometimes important to plan ahead is not a central idea of the excerpt, nor is it supported by the sentence from paragraph 1.
  - D.** Incorrect. The details in the sentences do not show that it is a waste of time to dream about the future. The sentences highlight the tendency of Ellen’s mother to focus her attention on the practical necessities of the moment, but the idea that dreaming about the future is a waste of time is not a central idea of the excerpt.

- 50.** The question asks how the flashback in paragraphs 10–24 affects the plot of the excerpt.
- E.** Incorrect. The flashback does not show that Ellen and her mother faced extra work as a result of the father’s trip to Vermont. Although paragraph 19 describes Ellen’s mother making oatmeal for the next day’s breakfast, this task was not extra work.
  - F.** Incorrect. Although the flashback highlights Ellen’s fondness for each of her parents, it describes her father’s initial departure only and does not show what happened to the familial bond while he is away.
  - G.** Incorrect. Although Ellen describes the memory of her father’s departure as something she wanted to avoid thinking about, she does not fear that it will be too difficult to leave her parents. Instead, she is concerned about what will happen to her parents’ relationship when she is no longer there.
  - H. CORRECT.** The flashback illustrates the close connection that Ellen has with her parents by describing her sadness over the departure of her father (“My throat ached all the way” [paragraph 15]) and presenting a moment of comfort and reassurance between Ellen and her mother (“She laid her hand against my face and it felt rough and hard but firm” [paragraph 20]).
- 

- 51.** The question asks which sentence from the excerpt provides evidence that Mom wants Ellen to understand the family’s heritage.
- A.** Incorrect. Although this sentence from paragraph 2 describes a domestic moment that takes place within the family home, it does not relate to the heritage of either parent and therefore does not provide evidence that her mother wants Ellen to understand the family’s heritage.
  - B.** Incorrect. Although this sentence from paragraph 5 provides the name of the train station closest to Ellen’s family’s farm, the train stop at Gotham is not related to the family’s heritage. Therefore, this sentence does not provide clear evidence that her mother wants Ellen to understand the family’s heritage.
  - C.** Incorrect. Although this sentence from paragraph 7 describes an aspect of the family dynamic (Ellen predicts that while browsing in stores in town, “Dad [would go] one way and Mom and I another”), their shopping habits do not provide clear evidence that her mother wants Ellen to understand the family’s heritage.
  - D. CORRECT.** In this sentence from paragraph 22, Ellen’s mother addresses her by the Russian version of her name (Yeléna) and repeats her own Russian name (Anna Petrovna). The choice to call her daughter Yeléna instead of Ellen follows immediately after Ellen asks, “Mom, was that really your name—what Dad called you?” (paragraph 21), and the mother’s surprised response provides evidence that she both wants and expects Ellen to understand the family’s Russian heritage.

## Wolves of the Sea

- 52.** The question asks how the details about Darimont in paragraph 1 contribute to a central idea of the passage.
- E.** Incorrect. Although paragraph 1 includes the detail that the Great Bear Rainforest is a protected area, finding an ideal location to study wolves is not a central idea of the passage. Additionally, the paragraph does not describe Darimont’s beliefs about the Great Bear Rainforest.
  - F. CORRECT.** Paragraph 1 explains why Darimont wanted to consult with Chester Starr, an elder of the Heiltsuk Nation: “When biologist Chris Darimont began to study these wolves, he wanted to confer with local First Nations groups, as aboriginal Canadians are known, in order to learn what they knew about these wolves.” The details in paragraph 1 show that Darimont valued Starr’s perspective (“What Starr had to say about the wolves changed Darimont’s perception of the animals”), even though it was different from Darimont’s own perspective at that time.
  - G.** Incorrect. Paragraphs 1 and 2 show that Darimont did not initially believe that the mainland wolves and the coastal wolves were different groups. Therefore, the details in paragraph 1 do not provide evidence that Darimont chose Great Bear Rainforest because of an expectation that there were separate groups of island wolves and timber wolves. Instead, he chose the Great Bear Rainforest for the opportunity to study what he had presumed to be one group of wolves.
  - H.** Incorrect. Although Darimont sought out Chester Starr, an elder of the Heiltsuk Nation, before beginning his research, Darimont’s purpose in doing so was not to request Starr’s permission to study the wolves but to learn from Starr’s expert knowledge of the area and its wolves (“When biologist Chris Darimont began to study these wolves, he wanted to confer with local First Nations groups, as aboriginal Canadians are known, in order to learn what they knew about these wolves” [paragraph 1]).

- 53.** The question asks why the author includes details about the conversation between Starr and Darimont in paragraph 2.
- A.** Incorrect. The details in paragraph 2 do not explain why Starr had closely observed the two groups of wolves. Instead, they convey that Starr believed the wolves to be separate groups (“Starr asked Darimont which wolves he and his team were going to study—the timber wolves (mainland wolves) or the coastal wolves on the islands”), a supposition that intrigued Darimont and ultimately changed the course of his research study.
  - B.** Incorrect. Although paragraph 1 indicates that Darimont did hope to work with Starr (“he wanted to confer with local First Nations groups, as aboriginal Canadians are known, in order to learn what they knew about these wolves”), Darimont did not initially plan to study both groups of wolves in the area because, as the conversation in paragraph 2 indicates, he did not initially know they were two distinct groups of wolves.
  - C.** Incorrect. The details about the conversation in paragraph 2 highlight that Darimont was eager to learn from Starr’s knowledge of the wolves (“Darimont was intrigued by Starr’s classification of the wolves as two different groups”), but they do not indicate that Darimont expected Starr’s help to find the wolves.
  - D. CORRECT.** According to paragraph 2, Starr wanted to know which group of wolves Darimont planned to study—“the timber wolves (mainland wolves) or the coastal wolves on the islands.” The author states that the question “took Darimont by surprise,” adding that “Darimont was intrigued by Starr’s classification of the wolves as two different groups.” The author adds that Darimont was initially “hesitant to accept the idea” that the wolves were separate groups but ultimately spent years studying the two groups of wolves. These details indicate that the question Starr posed to Darimont forced Darimont to reevaluate his initial assumption “that the wolves that are sometimes spotted swimming between islands and eating salmon are the same wolves that live on the mainland” and investigate Starr’s observation that the wolves had separated into two distinct groups.

- 54.** The question asks what the phrase “hard biological evidence” in the sentence from paragraph 4 conveys about the goal of the research team.
- E.** Incorrect. Although the research team followed a labor-intensive procedure, the phrase “hard biological evidence” refers to the product of their scientific research (the genetic markers revealed within the DNA samples), not the process by which they collected it. Their goal was not to develop a procedure for data collection but to determine precisely how many species of wolf were present in the area.
  - F. CORRECT.** The research team wanted to prove or disprove the theory that two separate groups of wolves were present in the area, an idea that was already supported by the observations of scientists and local indigenous people. The phrase “hard biological evidence” conveys that the scientists wanted to bolster their observations of the wolves with concrete scientific data about the wolves’ biological makeup. The goal of the researchers was to use the data to prove how many species of wolf were present in the area of the study.
  - G.** Incorrect. The research team gathered extensive data during their study (“After collecting and analyzing the DNA in 800 samples of gray fur and wolf waste” [paragraph 4]), and their goal in doing so was to evaluate a single theory about the wolves: that the wolves had evolved into two separate and genetically distinct species. The research team did not conduct the study in order to evaluate multiple theories about the diets of the wolves.
  - H.** Incorrect. The phrase “hard biological evidence” does not suggest that the research team was hoping to discover if the new data would provide information that was different from previous studies. In fact, the goal of the research team was to use the genetic data to supplement their initial sources of information about the wolves and their own observations from the field.

55. The question asks for the **most likely** reason why the author uses the word “admits” in paragraph 5.
- A. Incorrect. The word “admits” highlights the surprising difference between Darimont’s initial idea and the conclusion he ultimately drew from the results of the study. Though Darimont’s genetic research did, in fact, verify the field observations of the wolves, this does not explain the author’s use of the word “admits” in paragraph 5.
  - B. Incorrect. The conclusion that Darimont reached was actually quite original, since biologists widely believed the two separate groups of wolves to be one (“Biologists had always believed that the wolves that are sometimes spotted swimming between islands and eating salmon are the same wolves that live on the mainland,” [paragraph 2]). The author uses the word “admits” in paragraph 5 to emphasize how unexpected Darimont found the conclusion to be (“The distances between the mainland and the islands are small, less than a mile. Why would the wolves on the islands be any different from the wolves on the mainland?” [paragraph 2]), not to indicate that the study was a disappointment.
  - C. **CORRECT.** The use of “admits” emphasizes that Darimont found the idea of two species of wolves “ ‘totally bizarre at first’ ” (paragraph 5) but ultimately proved it to be correct. Paragraph 2 suggests that Darimont, like other scientists, “had always believed that the wolves that are sometimes spotted swimming between islands and eating salmon are the same wolves that live on the mainland.” Therefore, the results of the study were likely to strike biologists as bizarre, and the use of the word “admits” in paragraph 5 highlights Darimont’s shift from doubt to confirmation.
  - D. Incorrect. Darimont’s team conducted the research that helped him confirm Starr’s idea and draw the conclusion that the wolves were separate species (“After collecting and analyzing the DNA in 800 samples of gray fur and wolf waste, researchers could produce hard biological evidence that sea wolves had genetic markers that made them distinct from the mainland wolves” [paragraph 4]). However, the opinions of Darimont’s research team are not described in the passage, and the word “admits” does not indicate that they disagreed with his conclusion.



56. The question asks for the sentence from the passage that **best** supports the idea that sea wolves had successfully adapted to living on the islands.
- E. CORRECT.** This sentence from paragraph 3 describes a significant difference in the diets of the mainland and sea wolves: the mainland wolves “almost exclusively eat meat, such as deer and elk, and teach their young to hunt for land animals,” whereas the sea wolves had adapted to the point where they derive “as much as 90 percent of their nutrition from the sea and teach their young to dig for clams and to catch fish.” This sentence emphasizes the dietary difference between the two groups of wolves and best supports the idea that sea wolves had successfully adapted to living on the islands.
- F.** Incorrect. Although this sentence from paragraph 3 describes one technique that the sea wolves used to hunt, it does not offer evidence as strong as that provided by the preceding sentence, which explains that sea wolves were able to derive “as much as 90 percent” (paragraph 3) of their sustenance from the sea alone (versus the mainland wolves, which “almost exclusively eat meat” from land animals [paragraph 3]).
- G.** Incorrect. Although this sentence from paragraph 3 states that “some sea wolves live their entire life on the islands,” it does not provide strong evidence of the necessary adaptations—namely, how these wolves were able to successfully live their whole lives on the islands. Living on the islands was not necessarily an adaptation in and of itself; the adaptation was the sea-based diet that enabled the sea wolves to live on the islands without access to land animals.
- H.** Incorrect. Although this sentence from paragraph 4 presents Darimont’s hypothesis that “a change in habitat led to the eventual genetic differences” between the wolves, the sentence does not describe any of the sea wolves’ adaptations nor best support the idea that the sea wolves successfully adapted to living on the islands.

57. The question asks how a change in habitat **most** affected the wolf population of the Great Bear Rainforest over time.
- A. Incorrect. Although the island wolves learned new hunting techniques (“dig for clams and to catch fish,” “sneak up on a seal sunning itself on a rock and make a leaping attack from the water” [paragraph 3]), there is no evidence in the passage that these hunting techniques were developed in response to scarcity of prey. The most significant effect of the change in habitat was not an influence on hunting techniques but the behavior differences that evolved because of the isolation of the groups of wolves from each other.
  - B. Incorrect. The change in habitat did not cause the wolves to form smaller packs but rather served to create distinctive behaviors because of the isolation of one pack from another, eventually causing the groups of wolves to become distinct species.
  - C. **CORRECT.** The change in habitat caused the wolves to gradually become two distinct species. Though the “sea wolves regularly swim between islands” and “some salmon-eating mainland wolves come and go from the islands,” the “sea wolves are full-time island residents” (paragraph 3). This behavioral adaptation to their environment caused the sea wolves to “became more isolated” from the mainland wolves; as a result, the two groups “rarely mated with each other,” and “over time the two types of wolves became more distinct” (paragraph 4).
  - D. Incorrect. Only the sea wolves adapted their diet. They did this not because different food sources became available in the area but because they were in an entirely different area from the mainland wolves.

# Form A Sample Test

## Mathematics Explanations of Correct Answers

- 58. (5)** Simple interest ( $y$ ) is calculated by multiplying the initial deposit ( $p$ ), the interest rate ( $r$ ), and time ( $t$ ):

$$\begin{aligned}prt &= y \\(2,500)(0.04)t &= 500 \\100t &= 500 \\t &= 5\end{aligned}$$

- 59. (-9)**

$$6 - 9 \div |-3| + (-2)^3 \times 1\frac{1}{2}$$

Calculate the exponent and convert the mixed number to an improper fraction.

$$6 - 9 \div |-3| + (-8) \times \frac{3}{2}$$

Next, calculate the absolute value.

$$6 - 9 \div 3 + (-8) \times \frac{3}{2}$$

Perform the indicated multiplication and division.

$$6 - 3 + (-12)$$

Perform the addition and subtraction.

$$3 + (-12) = -9$$

- 60. (4)**

$$7x + 3 - 2(2x + 1) = 13$$

Apply the distributive property; multiply the  $-2$  by  $2x$  and  $1$ .

$$7x + 3 - 4x - 2 = 13$$

Combine like terms.

$$3x + 1 = 13$$

Apply the additive inverse property; subtract  $1$  from both sides of the equation.

$$3x = 12$$

Apply the multiplicative inverse property; divide both sides of the equation by  $3$ .

$$x = 4$$

- 61. (55)** Since vertical angles are congruent, the right triangle in the figure has acute angles with measures of  $35^\circ$  and  $x^\circ$ . The interior angles of a triangle sum to  $180^\circ$ , so set up an equation to solve for  $x$ :

$$\begin{aligned}90 + 35 + x &= 180 \\125 + x &= 180 \\x &= 55\end{aligned}$$

- 62. (19.2)** First, find the sum of the original 8 numbers. Let  $x$  equal the sum of those numbers and use the mean formula to solve for  $x$ :

$$\begin{aligned}\frac{x}{8} &= 17 \\x &= 136\end{aligned}$$

Next, subtract the 3 discarded numbers from the sum:

$$136 - 9 - 11 - 20 = 96$$

Finally, calculate the mean of the remaining 5 numbers by dividing the new sum, 96, by 5:

$$\frac{96}{5} = 19.2$$

- 63. (C)**  $3^4 + 7^4 = 81 + 2,401 = 2,482$

- 64. (E)** To solve, add the three given fractions:

$$1\frac{3}{4} + 2\frac{2}{3} + \frac{7}{8}$$

The common denominator is 24:

$$\begin{aligned}&= 1\frac{18}{24} + 2\frac{16}{24} + \frac{21}{24} \\&= 4\frac{10}{24} + \frac{21}{24} \\&= 5\frac{7}{24}\end{aligned}$$

- 65. (A)** First, determine the amount of Jamel's weekly pay that is from commission:

$$\$1,250.00 \times 15\% = \$187.50$$

Next, subtract Jamel's commission amount from his weekly pay:

$$\$802.50 - \$187.50 = \$615.00$$

Last, divide the result by 30 hours to find Jamel's hourly rate:

$$\$615.00 \div 30 = \$20.50$$

- 66. (F)** First, use a proportion to find out how many minutes it will take the sign to complete 8 revolutions. Let  $x$  equal the total number of minutes:

$$\frac{x}{8} = \frac{90}{1}$$
$$x = 720$$

Next, convert 720 minutes into hours and minutes:

$$\frac{720}{60} = 12 \text{ hours}$$

Finally, 12 hours after 2:30 p.m. is 2:30 a.m.

- 67. (D)** First, find where  $Y$  is located on the number line. Point  $X$  is the midpoint of  $\overline{WY}$ . Since there are 2 units between  $W$  and  $X$ , there must also be 2 units between  $X$  and  $Y$ . Thus,  $Y$  is located at 4 on the number line.

Point  $Y$  is the midpoint of  $\overline{WZ}$ . Use the same reasoning as above. Since there are 4 units between  $W$  and  $Y$ , there must be 4 units between  $Y$  and  $Z$ . So,  $Z$  is located at 8 on the number line.

- 68. (F)**

$$\frac{81}{10} = \frac{9}{n}$$

Cross multiply.

$$81n = 9(10)$$

Apply the multiplicative inverse property; divide both sides of the equation by 81.

$$n = \frac{90}{81} = 1\frac{9}{81} = 1\frac{1}{9}$$

Then simplify the fraction.

- 69. (A)** The expression  $3n + 3$  is equal to  $3(n + 1)$ , and it is given that this is an even number. The expression  $(n + 1)$  must also represent an even number, because 3 is an odd number and the product of an odd number and an even number is an even number. If  $(n + 1)$  is an even number, then  $n$  must be an odd number. Choose an odd number to substitute for  $n$  in the answer options to find which expression represents an even number:

Let  $n = 3$ .

Option A:

$$5n + 1 = 5(3) + 1 = 16$$

Option B:

$$4n + 5 = 4(3) + 5 = 17$$

Option C:

$$2n + 3 = 2(3) + 3 = 9$$

Option D:

$$n + 2 = 3 + 2 = 5$$

Since 16 is the only even number, the correct answer is option A.

- 70. (F)** First, find the pairs of positive integers that multiply to 65:  $1 \times 65$  and  $5 \times 13$ .

The sums of the pairs are 66 and 18. 18 is the option that is provided in the answer choices.

- 71. (D)** The two greatest integers less than  $-3.25$  are  $-4$  and  $-5$ . Since  $-4$  is even, the answer is  $-5$ .

- 72. (G)** The data points in the box plot are as follows:

- minimum: 7
- first quartile: 8
- median: 9
- third quartile: 10
- maximum: 12

Since the value of the third quartile is 10, approximately one-fourth of the students are 10–12 years old.

- 73. (C)** First, convert  $\frac{29}{7}$  to a mixed number:  $\frac{29}{7} = 4\frac{1}{7}$ . The two consecutive integers on either side of  $4\frac{1}{7}$  are 4 and 5.

- 74. (G)** First, determine the sale price after the 15% discount is applied.

Since the customer is saving 15%, this means they are paying 85% ( $100 - 15$ ), so multiply the original price by 85% (0.85) to find the discounted price:

$$\$85.75 \times 0.85 \approx \$72.89$$

Next, find the price after the 25% coupon has been applied:

Since the customer is saving 25% off the sale price, this means they are paying 75% ( $100 - 25$ ), so multiply the price found in the first step by 75% (0.75) to find the second discounted price:

$$\$72.89 \times 0.75 \approx \$54.67$$

Last, find the final cost after an 8.5% tax is added to the second discounted price.

Since the customer is paying 8.5% tax, this means they are paying 108.5% ( $100 + 8.5$ ), so multiply the second discounted price by 108.5% (1.085) to find the final cost:

$$\$54.67 \times 1.085 \approx \$59.32$$

- 75. (A)** Let  $x$  be the amount that Sheila needs to earn each week.

$$\$90.00 + 0.15 \times 12x = \$472.59$$

First, subtract 90 from both sides:

$$0.15 \times 12x = \$382.59$$

$$1.8x = \$382.59$$

Last, divide both sides by 1.8:

$$x = \$212.55$$

- 76. (F)** Write the ratios in fraction form and solve for  $x$ :

$$\frac{x}{35} = \frac{20}{28}$$

Cross multiply.

$$28x = 700$$

Apply the multiplicative inverse property; divide both sides by 28.

$$x = \frac{700}{28} = 25$$

77. (C)

$$\frac{3^2 + (-8)^2 + 2^2}{(3 - 8 + 2)^2} = \frac{9 + 64 + 4}{(-3)^2} = \frac{77}{9}$$

78. (F) Since the total cost of \$805.95 includes an 8% tax, this means that the cost of 15 pairs of cleats before tax was multiplied by 1.08 to find the total cost of the cleats including the tax. So, first, use division to find the cost of the 15 pairs of cleats before tax:

$$\$805.95 \div 1.08 = \$746.25$$

Then, divide that quotient by 15 to find the price of 1 pair of cleats:

$$\$746.25 \div 15 = \$49.75$$

79. (C) Substitute each answer option for  $p$  to see which value will work:

Option A:

If  $p = 2$ , then  $\frac{1}{2}n = 2$ , so  $n = 4$ . This cannot be the answer, because  $n$  cannot equal 4.

Option B:

If  $p = 3$ , then  $6q = 3$ , so  $q = 0.5$ . This cannot be the answer, because  $q$  cannot equal 0.5.

Option C:

If  $p = 6$ , then  $2m = 6$ , so  $m = 3$ ;  
 $6q = 6$ , so  $q = 1$ ; and  $\frac{1}{2}n = 6$ , so  
 $n = 12$ . This is the correct answer.

Option D:

If  $p = 12$ , then  $\frac{1}{2}n = 12$ , so  $n = 24$ .  
This cannot be the answer, because  $n$  cannot equal 24.

80. (G) Three of the five numbers listed (0.001, 0.0001, and 0.00001) are less than 0.005. So, the probability of a person selecting a number less than 0.005 is  $\frac{3}{5}$ .



**81. (A)** Spinner R has 4 equal sections and Spinner T has 6 equal sections, so the number of possible two-digit numbers that can be created is found by multiplying 4 and 6, which is 24. List the possible outcomes:

11 11 12 13 14 14  
21 21 22 23 24 24  
31 31 32 33 34 34  
41 41 42 43 44 44

There are 9 prime numbers out of 24 possible outcomes: 11, 11, 13, 23, 31, 31, 41, 41, and 43.

So the probability that the two-digit number created is a prime number is  $\frac{9}{24}$ , which is equivalent to  $\frac{3}{8}$ .

**82. (G)** First, find the measures of the three angles inside the triangle. The lower left angle is supplementary to the one marked  $135^\circ$ , so the measure of that angle is  $180 - 135 = 45$ . The angle on top is a vertical angle with the one marked  $x^\circ$ , so the measure of that angle is also  $x^\circ$ . The angle on the lower right is a vertical angle with the one marked  $100^\circ$ , so the measure of that angle is also  $100^\circ$ . Since the measures of the three interior angles of a triangle sum to  $180^\circ$ , set up an equation and solve for  $x$ :

$$\begin{aligned}45 + x + 100 &= 180 \\145 + x &= 180 \\x &= 35\end{aligned}$$

- 83. (A)** Let  $x = 2$ , and substitute that value for  $x$  in each inequality to determine which one is correct:

Option A:

$$\frac{1}{3} > \frac{1}{4}. \text{ This is true.}$$

Option B:

$$\frac{1}{3} < \frac{1}{4}. \text{ This is false.}$$

Option C:

$$\frac{1}{3} - \frac{1}{4} > 1, \text{ or } \frac{1}{12} > 1. \text{ This is false.}$$

Option D:

$$\frac{1}{3} - \frac{1}{4} > \frac{1}{2}, \text{ or } \frac{1}{12} > \frac{1}{2}. \text{ This is false.}$$

Option A is the only true inequality.

- 84. (G)** First, use the information about the red balls to calculate the total number of balls in the basket:

$$\frac{1}{3} = \frac{12}{x} \quad \text{Cross multiply.}$$

$$x = 36$$

There are a total of 36 balls in the basket. The probability of selecting a green ball is 1 in 4. Use that information to calculate how many green balls are in the basket:

$$\frac{g}{36} = \frac{1}{4} \quad \text{Cross multiply.}$$

$$4g = 36 \quad \text{Apply the multiplicative inverse property; divide both sides of the equation by 4.}$$

$$g = 9$$

There are 9 green balls in the basket.

85. (B) First, calculate Lars's average speed in kilometers per hour:

$$\frac{48}{2} = 24$$

Then, convert kilometers to miles:

$$\frac{m}{24} = \frac{1}{1.6} \quad \text{Cross multiply.}$$

$$m(1.6) = 24(1) \quad \text{Apply the multiplicative inverse property; divide both sides of the equation by 1.6.}$$

$$m = \frac{24}{1.6} = 15$$

86. (H) Since integer  $x$  is evenly divisible by 3, substitute 3 for  $x$  in the answer options to determine which expression is also divisible by 3:

$$\text{Let } x = 3.$$

Option A:

$$2x + 1 = 2(3) + 1 = 7$$

Option B:

$$3x - 5 = 3(3) - 5 = 4$$

Option C:

$$4x - 1 = 4(3) - 1 = 11$$

Option D:

$$4x + 6 = 4(3) + 6 = 18$$

Option D is the only value that is divisible by 3.

- 
87. (B) There are currently 20 chips in the jar ( $6 + 10 + 4$ ). Of those chips, 14 are **not** red. So the probability of choosing a chip that is **not** red is  $\frac{14}{20} = \frac{7}{10}$ .

---

**88. (G)** There are 6 spaces, so first divide 100 by 6:  $100 \div 6 = 16$ , remainder 4. So, the arrow goes around 16 full times and then 4 more spaces. Four spaces from Space P is Space T.

---

**89. (A)** Call the 6 members A, B, C, D, E, and M (for Mei-Ling). The possible combinations are AB, AC, AD, AE, AM, BC, BD, BE, BM, CD, CE, CM, DE, DM, and EM. Of those pairs, 5 include Mei-Ling.

**90. (E)**

$$\begin{aligned}\frac{6 - 8(2 - t)}{2m + 4(3 - m)} &= \\ \frac{6 - 8[2 - (-1)]}{2(5) + 4(3 - 5)} &= \\ \frac{6 - 8(3)}{10 + 4(-2)} &= \\ \frac{6 - 24}{10 + (-8)} &= \\ \frac{-18}{2} &= -9\end{aligned}$$

---

**91. (D)** In a parallelogram, opposite angles are congruent, so the measure of the unmarked angle is  $56^\circ$ . The sum of the interior angles of a parallelogram is equal to  $360^\circ$ . Use that information to solve the problem:

$$\begin{aligned}x + y + 56 + 56 &= 360 \\ x + y + 112 &= 360 \\ x + y &= 248\end{aligned}$$

- 92. (F)**  $JK = 6 - (-4) = 10$  units. Let  $x = JL$ . Then  $LK = 10 - x$ . Substitute these expressions in the given equation:

$$x = \frac{2}{3}(10 - x)$$

Solve for  $x$ :

$$x = \frac{2}{3}(10 - x)$$

Apply the multiplicative inverse property; multiply both sides of the equation by 3.

$$3x = 2(10 - x)$$

Apply the distributive property; multiply the 2 by 10 and  $x$ .

$$3x = 20 - 2x$$

Apply the additive inverse property; add  $2x$  to both sides of the equation.

$$5x = 20$$

Apply the multiplicative inverse property; divide both sides of the equation by 5.

$$x = 4$$

So, point L is 4 units to the right of point J:  $-4 + 4 = 0$ . Point L is located at 0 on the number line.

- 93. (C)** Let  $j$  be the number of stamps Josef has. Then Mai has  $j - 500$  stamps. The total number of stamps is  $j + (j - 500) = 2j - 500$ . Since Josef has 60% of the stamps, set up an equation to solve for  $j$ :

$$\frac{j}{2j - 500} = \frac{60}{100}$$

Cross multiply.

$$100j = 60(2j - 500)$$

Apply the distributive property; multiply the 60 by  $2j$  and 500.

$$100j = 120j - 30,000$$

Apply the additive inverse property; subtract  $120j$  from both sides of the equation.

$$-20j = -30,000$$

Apply the multiplicative inverse property; divide both sides of the equation by  $-20$ .

$$j = 1,500$$

**94. (F)** The area of the entire circle is  $\pi r^2$ .

The fraction of the circle that is shaded is

$\frac{45}{360} = \frac{1}{8}$ . So, the area of the sector is  $\frac{1}{8}\pi r^2$ . Use that information to find  $r$ :

$$\frac{1}{8}\pi r^2 = 18\pi$$

$$r^2 = 144$$

$$r = 12$$

Use  $r$  to calculate the circumference of the circle:

$$c = 2\pi r = 2\pi(12) = 24\pi$$

The circumference is  $24\pi$  feet.

**95. (A)**

$-3x - 7 > -4$  Apply the additive inverse property; add 7 to both sides of the equation.

$-3x > 3$  Apply the multiplicative inverse property; divide both sides of the equation by  $-3$ . Note: when dividing an inequality by a negative number, the inequality sign is reversed.

$$x < -1$$

The solution is that  $x$  is less than  $-1$ , so choose the graph that starts at  $-1$  and continues to the left.

- 96. (H)** First, set up the equations based on the information in the question.

$$R = 3S$$
$$T = \frac{1}{6}S$$

So, the ratio of R:T is

$$3S:\frac{1}{6}S$$

Divide both sides by S to eliminate the variable. Then, multiply both sides by 6 to eliminate the fraction. The resulting ratio is 18:1.

- 97. (A)** If Ken gives 6 video games to Jeff, the number Ken has is  $k - 6$ , and the number Jeff has is  $j + 6$ . After the exchange, Ken has twice as many video games as Jeff. The equation is:

$$k - 6 = 2(j + 6)$$

- 98. (G)** So far, Sarah has read  $15 + 17 = 32$  of the entire book. That means she has  $100 - 32 = 68$  left to read.

$$68\% = \frac{68}{100} = \frac{17}{25}$$

- 99. (D)** First, list the first several multiples of 6: 6, 12, 18, 24, 30, 36, 42, 48, 54 . . .

Every third multiple (i.e., 18, 36, 54, . . .) is also a multiple of 9. Thus,  $\frac{2}{3}$  of the multiples of 6 are not multiples of 9.

Next, calculate how many multiples of 6 are in the given number range. The last multiple of 6 would be 198. So, there are a total of  $\frac{198}{6} = 33$  multiples of 6. Since  $\frac{2}{3}$  of those are not multiples of 9, the answer is  $\frac{2}{3}(33) = 22$ .

- 100. (F)** First, calculate Kim's jogging time in minutes:

$$1 \text{ hour } 40 \text{ minutes} = 100 \text{ minutes}$$

Then, convert kilometers to meters:

$$8 \text{ kilometers} = 8,000 \text{ meters}$$

Now simplify the ratio to find the answer:

$$\frac{8,000}{100} = 80$$

**101. (B)**

$$\frac{x}{5} - 4 = 3(4 - 2x) - 1$$

Apply the distributive property; multiply the 3 by 4 and  $-2x$ .

$$\frac{x}{5} - 4 = 12 - 6x - 1$$

Combine like terms.

$$\frac{x}{5} - 4 = 11 - 6x$$

Apply the additive inverse property; add  $6x$  and  $4$  to both sides of the equation.

$$\frac{x}{5} + 6x = 15$$

Get a common denominator.

$$\frac{x + 30x}{5} = 15$$

Apply the multiplicative inverse property; multiply both sides of the equation by  $5$ .

$$31x = 75$$

$$x = \frac{75}{31}$$

Apply the multiplicative inverse property; divide both sides of the equation by  $31$ .

**102. (E)** First, find the measures of the interior angles of the triangle formed by the line segment and the rectangle. The top angle on the right is a vertex of the rectangle, so the measure of that angle is  $90^\circ$ . The top angle on the left is supplementary to the given angle of  $130^\circ$ . So, the measure of that angle is  $180 - 130 = 50$ . The measure of the lower angle is  $40^\circ$ , since  $180 - 90 - 50 = 40$ . Angle  $y$  is supplementary to the lower angle of  $40^\circ$ , so the measure of angle  $y$  is  $180 - 40 = 140$ .



**103. (D)** The number of students in the sample who wrote an essay with at least 100 words is 24 out of the 30 students. Write it as a fraction:  $\frac{24}{30} = \frac{4}{5}$ . To predict the number of students in the entire grade who would write an essay with at least 100 words, find  $\frac{4}{5}$  of 150, which is  $\frac{4}{5}(150) = 120$ .

**104. (G)** Since 0.0099 is equal to 0.99%, the answer option closest to that value is 1%.

**105. (D)** First, identify the first quartile and the third quartile:

- first quartile: 31
- third quartile: 73

Then, find the difference between the first quartile and the third quartile:

$$73 - 31 = 42$$

The median is given: 42.

So, the interquartile range and the median are equal.

**106. (E)** For the outer rectangle, the length is 4 feet and the perimeter is 14 feet. Write and solve an equation to find the width:

$$2(4) + 2w = 14$$
 Apply the additive inverse property; subtract 8 from both sides of the equation.

$$2w = 6$$
 Apply the multiplicative inverse property; divide both sides of the equation by 2.

$$w = 3$$

Use that information in a proportion to find the length of the shaded rectangle:

$$\frac{x}{4} = \frac{2}{3}$$
 Cross multiply.

$$3x = 4(2)$$
 Apply the multiplicative inverse property; divide both sides of the equation by 3.

$$x = \frac{8}{3}$$

Now find the area of the shaded rectangle:

$$2 \times \frac{8}{3} = \frac{16}{3} = 5\frac{1}{3}$$

**107. (C)** First convert 6 inches to 0.5 foot.  
Then, calculate the volume, in cubic feet:

$$30 \times 8 \times 0.5 = 120$$

**108. (F)** Quartile 1 is the median of the lower half of the data, 8.

Quartile 3 is the median of the upper half of the data, 17.

$$\text{IQR} = Q3 - Q1 = 17 - 8 = 9$$

The interquartile range is 9.

**109. (B)** Vicente ran 1.5 times as fast as Carla, so that means for every lap Carla finished, Vicente finished 1.5 laps. Set up a proportion to calculate  $c$ , the number of laps Carla had completed when Vicente finished 8 laps:

$$\frac{c}{1} = \frac{8}{1.5} \quad \text{Cross multiply.}$$

$$1.5c = 8(1) \quad \text{Apply the multiplicative inverse property; divide both sides of the equation by 1.5.}$$

$$c = 5\frac{1}{3}$$

So, the number of laps Carla still had to finish is  $8 - 5\frac{1}{3} = 2\frac{2}{3}$ .

**110. (E)** Kharleen likes  $\frac{6}{20} = \frac{3}{10}$  of the dormitories. She likes  $\frac{2}{6} = \frac{1}{3}$  of the dining rooms. Multiply those fractions together to calculate the probability of Kharleen being assigned to both a dormitory and a dining room that she likes:  $\frac{3}{10} \times \frac{1}{3} = \frac{1}{10} = 10\%$ .

**111. (D)** First, find the speed of the train in miles per hour:  $240 \div 5 = 48$ .

The number of miles left to travel is  $2,200 - 240 = 1,960$ .

To find the number of hours left, use the equation  $rt = d$ :

$$48t = 1,960$$

Apply the multiplicative inverse property; divide both sides of the equation by 48.

$$t = \frac{1,960}{48} = 40\frac{5}{6}$$

That number rounded to the nearest whole hour is 41 hours.

**112. (H)** Let  $n$  represent the least of the four integers. The other three integers are  $(n + 1)$ ,  $(n + 2)$ , and  $(n + 3)$ . Write an equation to solve for  $n$ :

$$\begin{aligned}n + (n + 1) + (n + 2) + (n + 3) &= 58 \\4n + 6 &= 58 \\4n &= 52 \\n &= 13\end{aligned}$$

**113. (D)** The shaded region goes from  $\frac{1}{2}$  to  $\frac{3}{2}$ .

So, the possible values of  $\frac{1}{x}$  would be between the reciprocal of  $\frac{1}{2}$  and the reciprocal of  $\frac{3}{2}$ , which are 2 and  $\frac{2}{3}$ , respectively. Find the number line in the answer options that has a shaded region that ranges from  $\frac{2}{3}$  to 2, which is option D.

**114. (H)** Let  $\frac{1}{x}$  be the probability of Chanelle selecting a red marble the first time. The probability of selecting a red marble three times is  $\frac{1}{x} \times \frac{1}{x} \times \frac{1}{x}$ , which is given as  $\frac{1}{216}$ . Since  $216 = 6 \times 6 \times 6$ , the value of  $x$  is 6, and the probability of Chanelle selecting a red marble the first time is  $\frac{1}{6}$ .

# Form A

## Sample Test – Answer Key

You can read explanations for each answer online here. If you are in Grade 9, you can find examples of additional types of math content you might see on your test here.

### Answer Key for Sample Form A

1. D	14. F	27. A	40. E	53. D	66. F	79. C	92. F	105. D
2. G	15. C	28. E	41. C	54. F	67. D	80. G	93. C	106. E
3. C	16. E	29. D	42. F	55. C	68. F	81. A	94. F	107. C
4. E	17. D	30. H	43. A	56. E	69. A	82. G	95. A	108. F
5. A	18. H	31. B	44. G	57. C	70. F	83. A	96. H	109. B
6. H	19. B	32. G	45. B	58. 5	71. D	84. G	97. A	110. E
7. A	20. H	33. B	46. E	59. -9	72. G	85. B	98. G	111. D
8. H	21. A	34. H	47. D	60. 4	73. C	86. H	99. D	112. H
9. C	22. G	35. B	48. E	61. 55	74. G	87. B	100. F	113. D
10. F	23. B	36. E	49. A	62. 19.2	75. A	88. G	101. B	114. H
11. D	24. G	37. A	50. H	63. C	76. F	89. A	102. E	
12. G	25. A	38. F	51. D	64. E	77. C	90. E	103. D	
13. C	26. H	39. C	52. F	65. A	78. F	91. D	104. G	

The New York City Department of Education

**2023 Specialized High Schools Admissions Test****GENERAL DIRECTIONS**

**Student Name:** \_\_\_\_\_

**Identifying Information**

Turn to Side 1 of the answer sheet.

**Notify the proctor immediately if you are ill or should not be taking this test. Do not sign the statement or begin the test. Return your answer sheet to the proctor.**

**Line 1:** Read the statement and sign your name in the space following the word "signature." Do not print your name.

**Line 2:** Print today's date, using the numbers of the month, the day, and the year. For example, the date September 21, 2023, would be 9-21-23.

**Line 3:** Print your birth date, using the numbers of the month, the day, and the year. For example, a birth date of March 1, 2006, would be 3-1-06.

**Grid 4:** Print the letters of your first name, or as many as will fit, in the boxes. If you have a middle initial, print it in the box labeled "MI." Then print the letters of your last name, or as much as will fit, in the boxes provided. Below each box, fill in the circle that contains the same letter as the box. If there is a space or a hyphen in your name, fill in the circle under the appropriate blank or hyphen.

**Make dark marks that completely fill the circles.** If you change a mark, be sure to erase the first mark completely.

**Grid 5:**

1. Print the name of the school where you are now enrolled in the space at the top of the grid.
2. In the boxes marked "SCHOOL CODE," print the six-digit code that identifies your school. Below each box, fill in the circle that contains the same letter or number as the box. (You can find your school code on your Test Ticket. If it is not there, tell the proctor, and the proctor will get the school code for you.)
3. If you attend a private or parochial school, fill in the circle marked "P."

**Grid 6:** Complete the grid with your date of birth. Print the first three letters of the month in the first box, the number of the day in the next box, and the year in the last box. Then fill in the corresponding circles.

**Grid 7:** Print your student ID number in Grid 7. You can find your student ID number on your Test Ticket. In the boxes, print your nine-digit student ID number. Below each box, fill in the circle containing the same number as in the box.

**Grid 8:** In most cases, Grid 8 is already filled in for you. If it is not, copy the letter and numbers shown in the upper-right corner of your test booklet into the boxes. Below each box, fill in the circle containing the same letter or number as the box.

Now review Side 1 to make sure you have completed all lines and grids correctly. Review each column to see that the filled-in circles correspond to the letters or numbers in the boxes above them.

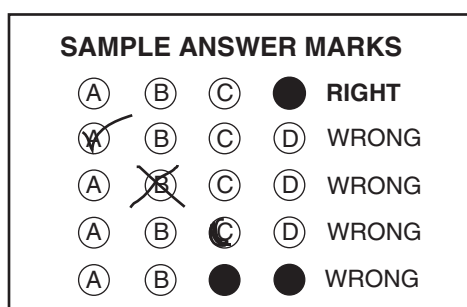
Turn your answer sheet to Side 2 and flip this booklet over to continue with General Directions.

## GENERAL DIRECTIONS, continued

Print your test booklet letter and numbers, and your name, first name **first**, in the spaces provided at the top of Side 2 of the answer sheet.

### Marking Your Answers

- Mark each of your answers on the answer sheet in the row of circles matching the question number printed in the test booklet.
- Use only a Number 2 pencil.
- If you change an answer, be sure to erase it completely.
- Be careful to avoid making any stray pencil marks on your answer sheet. **Do not make any marks on your answer sheet other than filling in your answer choices.**
- Each question has only one correct answer. If you mark more than one circle in any answer row, that question will be scored as incorrect.



- You can use your test booklet or the provided scrap paper to take notes or solve questions; however, your answers must be recorded on the answer sheet in order to be counted.
- **You will not be able to mark your answers on the answer sheet after time is up, and answers left in the test booklet will not be scored.**

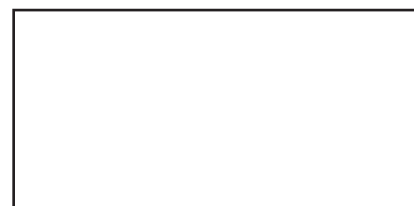
### Planning Your Time

- You have 180 minutes to complete the entire test. **How you divide the time between the English Language Arts and Mathematics sections is up to you.**
- If you begin with the English Language Arts section, you may go on to the Mathematics section as soon as you are ready. Likewise, if you begin with the Mathematics section, you may go on to the English Language Arts section as soon as you are ready.
- Be sure to read the directions for each section carefully.
- Each question has only one correct answer. Choose the best answer for each question.
- When you finish a question, go on to the next, until you have completed the last question or run out of time.
- Your score is determined by the number of questions you answer correctly. **Answer every question, even if you may not be certain which answer is correct.**
- Don't spend too much time on a difficult question. Come back to it later if you have time.
- If you complete the test before the test time (180 minutes) is over, you may go back to review questions in either section.
- Students must stay for the entire test session (180 minutes).

**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO**



# B



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The New York City Department of Education

**2023 Specialized High Schools Admissions Test****GENERAL DIRECTIONS****Student Name:** \_\_\_\_\_**Identifying Information**

Turn to Side 1 of the answer sheet.

**Notify the proctor immediately if you are ill or should not be taking this test. Do not sign the statement or begin the test. Return your answer sheet to the proctor.****Line 1:** Read the statement and sign your name in the space following the word "signature." Do not print your name.**Line 2:** Print today's date, using the numbers of the month, the day, and the year. For example, the date September 21, 2023, would be 9-21-23.**Line 3:** Print your birth date, using the numbers of the month, the day, and the year. For example, a birth date of March 1, 2006, would be 3-1-06.**Grid 4:** Print the letters of your first name, or as many as will fit, in the boxes. If you have a middle initial, print it in the box labeled "MI." Then print the letters of your last name, or as much as will fit, in the boxes provided. Below each box, fill in the circle that contains the same letter as the box. If there is a space or a hyphen in your name, fill in the circle under the appropriate blank or hyphen.**Make dark marks that completely fill the circles.** If you change a mark, be sure to erase the first mark completely.**Grid 5:**

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3. If you attend a private or parochial school, fill in the circle marked "P."

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Now review Side 1 to make sure you have completed all lines and grids correctly. Review each column to see that the filled-in circles correspond to the letters or numbers in the boxes above them.

Turn your answer sheet to Side 2 and flip this booklet over to continue with General Directions.

# PART 1 — ENGLISH LANGUAGE ARTS

57 QUESTIONS

## REVISING/EDITING

QUESTIONS 1-9 (PART A AND PART B)

### REVISING/EDITING PART A

**DIRECTIONS:** Read and answer the following questions. You will be asked to recognize and correct errors so that the sentences or short paragraphs follow the conventions of standard written English. You may write in your test booklet as needed to take notes. You should reread relevant parts of the sentences or paragraphs, while being mindful of time, before marking the **best** answer for each question.

1. Which revision should be made to correct the sentence?

To surprise her dad for his birthday on Friday, Yolanda ordered tempting savory sandwiches from a deli in her neighborhood, prepared his favorite chocolate cake, and invited his best friends over for the evening.

- A. Delete the comma after **Friday**.
- B. Insert a comma after **tempting**.
- C. Insert a comma after **deli**.
- D. Delete the comma after **neighborhood**.



2. Which sentence in the paragraph contains an error in its construction and should be revised?

(1) On the evening of July 13, 2019, a major power outage affected the Upper West Side of Manhattan in New York City. (2) Leaving approximately 73,000 residents without electricity for three long hours, lights did not function, refrigerators did not stay cold, and air conditioners did not work. (3) Longtime city residents were particularly confused because an eerily similar event had occurred years earlier—on the exact same day! (4) The famous New York City Blackout of 1977, which lasted for 25 hours, also happened on July 13, an odd coincidence to say the least.

- E. sentence 1
- F. sentence 2
- G. sentence 3
- H. sentence 4

3. Which pair of revisions is needed to correct the errors in the paragraph?

(1) Yalina, Michael, and Malcolm love making pancakes with their granddad on Saturday mornings. (2) Yalina's job is to open the box and pour the pancake mix into a bowl, slowly adding water, eggs, melted butter, and blueberries. (3) Michael uses a wooden spoon to vigorously stir the mixture until it is smooth, and Malcolm helps Granddad carefully pour the batter onto a griddle one-fourth cup at a time. (4) Granddad turns each pancake when they start to bubble, while all three siblings get the table ready for a sweet delicious breakfast.

- A. Sentence 1: Delete the comma after **Yalina**, AND change **their** to **her**.
- B. Sentence 2: Change **is** to **are**, AND delete the comma after **bowl**.
- C. Sentence 3: Change **it is** to **they are**, AND delete the comma after **smooth**.
- D. Sentence 4: Change **they start** to **it starts**, AND insert a comma after **sweet**.

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## REVISING/EDITING PART B

**DIRECTIONS:** Read the text below and answer the questions following it. You will be asked to improve the writing quality of the text and to correct errors so that the text follows the conventions of standard written English. You should reread relevant parts of the text, while being mindful of time, before marking the **best** answer for each question.

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### The End of an Era

(1) In 2004, the National Aeronautics and Space Administration (NASA) landed a rover, or robotic vehicle, named *Opportunity* on the surface of Mars. (2) The rover's mission was to search for evidence of water and life on the planet. (3) The rover was designed to gather data on Mars for about 90 days, but *Opportunity's* assignment did not come to an end until nearly 15 years later in 2019.

(4) During the rover's mission, a high-resolution camera on the rover's robotic arm took magnified photographs of the surface of Mars. (5) The photographs revealed small round rocks scattered across the surface of the planet. (6) The scientists nicknamed these rocks "blueberries" based on the rocks' resemblance to the fruit. (7) These rocks were important because their spherical shape suggested that liquid water may have flowed over them for a substantial amount of time.

(8) *Opportunity* continued to provide valuable data about craters and other surface features.

(9) Throughout the mission, the rover traveled a total of 28.06 miles across Mars' surface.

(10) When *Opportunity* had traveled nearly the length of a marathon, scientists celebrated the accomplishment by naming the valley that the rover was in Marathon Valley. (11) However, in 2018, a dust storm spread all over the planet, putting the rover's progress on hold.

(12) Prior to this planet-wide dust storm, minor dust storms had periodically deposited a layer of dust onto the solar panels of the rover. (13) These prevented it from charging its batteries.

(14) Scientists then had to rely on the passing winds and dust devils to clean off the solar panels.

(15) After the massive 2018 dust storm subsided, scientists expected to be able to reestablish communication with *Opportunity*. (16) They made repeated attempts but to no avail. (17) In 2019, NASA finally declared *Opportunity's* mission complete.

(18) *Opportunity* was an important asset in scientists' study of Mars; it returned valuable data about our neighbor planet and survived powerful dust storms. (19) NASA described the mission of *Opportunity* as "one of the most successful and enduring feats of interplanetary exploration."

(20) Even though this rover's journey ended, other rovers still roam the surface of Mars.

4. Which sentence should follow sentence 3 to **best** introduce the topic of the passage?
- E. Despite the challenges of operating on the surface of another planet, the *Opportunity* rover made many valuable contributions to the field of space research.
  - F. The *Opportunity* rover mission was a success because it informed NASA scientists about how water might have existed on Mars.
  - G. Throughout the historic mission of the *Opportunity* rover, NASA scientists had to overcome challenges created by the flaws in the rover’s design.
  - H. The *Opportunity* rover mission surpassed the original timeline of the assignment and allowed scientists to collect additional data about the planet Mars.
5. Which word should be added to the beginning of sentence 8 to provide a better transition to the third paragraph (sentences 8–11)?
- A. Overall,
  - B. Furthermore,
  - C. Meanwhile,
  - D. Consequently,
6. Which revision of sentence 11 **best** maintains the formal style established in the passage?
- E. However, in 2018, a dust storm covered the planet, bringing the rover’s progress to a standstill.
  - F. However, in 2018, a dust storm shrouded the planet, impermanently halting the rover’s progress.
  - G. However, in 2018, a dust storm enveloped the whole of the planet, arresting the rover’s progress for a time.
  - H. However, in 2018, a dust storm covered up the whole planet, which quickly brought a stop to the progress of the rover.

7. What is the **best** way to combine sentences 12 and 13?
- A. Preventing the rover from charging its batteries, minor dust storms had periodically deposited a layer of dust onto the solar panels of the rover prior to this planet-wide dust storm.
  - B. Periodically depositing a layer of dust onto the solar panels of the rover prior to this planet-wide dust storm, minor dust storms had prevented it from charging its batteries.
  - C. Minor dust storms, prior to this planet-wide dust storm, prevented the rover from charging its batteries because they had periodically deposited a layer of dust onto the solar panels of the rover.
  - D. Prior to this planet-wide dust storm, minor dust storms had periodically deposited a layer of dust onto the solar panels of the rover, preventing it from charging its batteries.

8. Read this sentence.

One of *Opportunity's* major contributions was finding possible evidence of the presence of water on Mars.

Where should the sentence be added to the passage?

- E. between sentences 2 and 3
  - F. at the beginning of the second paragraph (before sentence 4)
  - G. at the end of the second paragraph (after sentence 7)
  - H. between sentences 8 and 9
9. Which concluding sentence should be added after sentence 20 to **best** support the information presented in the passage?
- A. These rovers, including one named *Curiosity*, will help scientists answer their lingering questions about the planet.
  - B. Today's rovers continue to add to *Opportunity's* discoveries and will help us learn even more about the planet.
  - C. And in conjunction with these rovers, NASA is using other resources, including an orbiting spacecraft known as *Mars Odyssey*, for the exploration of the planet.
  - D. With its red dust, rocky surface, and freezing temperatures, Mars will continue to be a challenging environment for today's rovers.

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# READING COMPREHENSION

## QUESTIONS 10–57

**DIRECTIONS:** Read each of the following six texts and answer the related questions. You may write in your test booklet as needed to take notes. You should reread relevant parts of each text, while being mindful of time, before marking the **best** answer for each question. Base your answers only on the content within the text.

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## Excerpt from “The Food Business Incubator”

by Mandalit Del Barco

- 1 “La Cocina” means “the kitchen” in Spanish. It’s also the name of a business incubator<sup>1</sup> based in San Francisco’s Mission District. Since it began in 2005, it’s been helping local food entrepreneurs, many of whom are low-income immigrant women, develop their small businesses.
- 2 Over the years, many of its alumni have found success: more than 50 chefs in its program have become self-sufficient business owners, and many of them have opened their own brick-and-mortar restaurants. Two alumnae of its culinary program . . . were even recognized as semi-finalists for prestigious James Beard awards.<sup>2</sup>
- 3 A new cookbook, *We Are La Cocina: Recipes in Pursuit of the American Dream*, tells some of their stories.
- 4 Executive director Caleb Zigas says the nonprofit La Cocina grew out of two grassroots economic development organizations<sup>3</sup> who found many people cooking at their homes and selling food on the streets. The vendors needed an affordable commercial kitchen space and technical assistance in order for their businesses to be legally viable. La Cocina provided just such a space, in addition to helping them develop business plans, pull city permits and more.
- 5 Zigas says as many as eight businesses can work in the kitchen space at La Cocina at any one time. Some can prep for a farmers’ market sale, corporate catering gigs or weddings, while others might be making and packaging their food products.
- 6 “It’s just an incredible and exciting range of techniques, flavors, perspectives, age, language. And that’s a really beautiful thing,” he says. . . .
- 7 Twice a year, La Cocina hosts “F&B: Voices from the Kitchen,” a storytelling project where their chefs can tell their own stories, as they do in the new cookbook. Some of the chefs will be on tour to promote the book, whose proceeds will go to support La Cocina entrepreneurs.
- 8 NPR<sup>4</sup> caught up with . . . La Cocina chefs, who shared their stories:

### **Mariko Grady, Aedan Fermented Foods**

- 9 At La Cocina, you can often hear Mariko Grady singing or humming as she prepares miso, *koji*, and *amasake*. Her fermented products come in four different flavors, including mushroom and chicken, to be used in soups and sauces. She originally brought the fermenting rice and barley

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<sup>1</sup>**business incubator:** company that helps new and startup companies develop by providing services such as management training and office space

<sup>2</sup>**James Beard awards:** an award named after American cook and author James Beard, considered one of the highest honors in the culinary industry

<sup>3</sup>**economic development organizations:** organizations whose mission is to promote economic improvement within a specific geographical area

<sup>4</sup>**NPR:** National Public Radio, a nonprofit media organization that produces and distributes news and cultural programming

*koji* seeds from Japan, where she had a 30-year career as a singer and dancer with the prestigious modern theatrical dance group she founded, Pappa Tarahumara. They performed around the world, and 16 years ago, had a one-night show in San Francisco. The man who would become her husband was in the audience. She soon joined him in San Francisco, often returning to Tokyo to rehearse. But after the earthquake and tsunami hit Japan in 2011, her company disbanded. . . . Grady focused on nourishing her family and creating a line of fermented products that she sells online, at local Bay Area stores and at the Ferry Plaza Farmers Market. She began at La Cocina in 2012 and named her business after her son, Aedan. (Written in Kanji characters, the name means “wisdom” and “handed down from generation to generation.”) . . . Her fermented products are “also full of wisdom about how to relate to nature and how to create a healthy life,” she says. . . .

### **Shani Jones, Peaches Patties**

- 10 Shani Jones is a native San Franciscan. Her father was born in New Orleans, her mother, in Jamaica. She says their home was always filled with a variety of spices and dishes like jerk chicken and Jamaican patties—savory pastries filled with beef or chicken. Jones says she learned to cook from her mother, whose nickname was Peaches. After returning from college in Atlanta, Jones worked on her doctorate in organizational leadership and management while driving a Lyft<sup>5</sup> car. She often told passengers about her idea of opening a catering company with her mom’s recipes. They steered her to La Cocina, where she developed her own business, named after her mother. Five years later, she caters and runs a kiosk<sup>6</sup> at a small food cooperative in Bernal Heights, where some of her handmade patties have an Ethiopian twist, “because my husband is Ethiopian.” Jones has big aspirations for Peaches Patties: “The ultimate goal,” she says, “is to be the patty kingpin<sup>7</sup> of the West Coast.”

From “The Food Business Incubator That Helps Immigrant Women Pursue The American Dream” by Mandalit Del Barco from WEEKEND EDITION SUNDAY, June 19, 2019. Copyright © 2019 NPR.

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<sup>5</sup>**Lyft:** ride-sharing company where people use their own cars to provide rides to customers

<sup>6</sup>**kiosk:** cart or small structure with one or more open sides that is used to vend merchandise or services

<sup>7</sup>**kingpin:** the leader in a group or undertaking

## QUALIFICATIONS FOR LA COCINA APPLICANTS

Level of Income	La Cocina considers assets and access to opportunity when screening applicants. La Cocina’s mission is to support entrepreneurs who face barriers to becoming successful in the food industry. Applicants must be classified as low- or very-low-income earners according to the Housing and Urban Development (HUD) Guidelines for San Francisco.
Business Plan	Applicants must have a business plan that is ready to be put into action. La Cocina will help applicants refine an existing business plan. Applicants without a business plan should contact one of La Cocina’s partner organizations for guidance in developing one.
Viable Product	The applicant’s food must not only be delicious but also stand out. For a business to make a profit, there also has to be a market for the food.
Entrepreneurial Work Ethic	La Cocina is excited to work with entrepreneurs who are motivated and passionate about growing their business. Succeeding in the food industry requires a lot of heart and hard work.
Community Spirit	The 30+ entrepreneurs who share La Cocina’s kitchen are from many different backgrounds. La Cocina values the community it has created and expects each entrepreneur to be active in bringing the spirit of La Cocina to the wider world. In order to succeed in the La Cocina kitchen, accepted applicants must be flexible and willing to work closely with others.

Source: La Cocina

10. Read this sentence from paragraph 2.

**Two alumnae of its culinary program . . . were even recognized as semi-finalists for prestigious James Beard awards.**

The words “recognized” and “prestigious” in the sentence convey that La Cocina

- E.** makes an effort to identify chefs who have a strong entrepreneurial work ethic.
- F.** has the ability to mentor chefs to reach the highest levels of achievement in their craft.
- G.** is focused on establishing local food entrepreneurs as celebrated professionals in their industry.
- H.** is dedicated to assisting chefs in developing new and innovative products.



- 11.** Paragraph 4 contributes to the development of ideas about La Cocina in paragraph 1 by
- A.** specifying how La Cocina helps local food entrepreneurs become successful.
  - B.** explaining what kind of goals La Cocina tries to set for local food entrepreneurs.
  - C.** providing background information about local food entrepreneurs in San Francisco.
  - D.** describing how Caleb Zigas discovered the need to provide assistance to local food entrepreneurs.
- 12.** The quotation from Caleb Zigas in paragraph 6 conveys a central idea of the excerpt by
- E.** showing appreciation for the vibrant diversity of La Cocina.
  - F.** communicating La Cocina’s goal of helping people of varying abilities.
  - G.** describing a typical scenario at La Cocina.
  - H.** emphasizing La Cocina’s focus on creating products.
- 13.** The description of Mariko Grady’s background in paragraph 9 contributes to a central idea in the excerpt by
- A.** demonstrating what people are looking for when they come to La Cocina.
  - B.** explaining why La Cocina is the best option for people starting out in the food business.
  - C.** showing how La Cocina can help people find success in the food business even though they have a background in something different.
  - D.** confirming that La Cocina was originally established for small business owners who are looking to expand their services.
- 14.** Which statement would the author **most likely** agree with?
- E.** The publicity efforts La Cocina engages in will help its business design spread to other cities.
  - F.** The variety of exciting food available in San Francisco is due to the work of La Cocina.
  - G.** La Cocina offers a method that will guarantee business ownership for qualified entrepreneurs.
  - H.** La Cocina does admirable work in supporting the efforts of ambitious cooks who may have few resources.

- 15.** Which piece of evidence from the excerpt is **most** relevant to the author’s claim that La Cocina provides an opportunity to become more established as a business owner?
- A.** the description of how two alumni of the business incubator have won food awards
  - B.** the reference to a storytelling project where chefs relate their own backgrounds and business experiences
  - C.** the lists of necessities such as business plans and city permits that La Cocina assists with
  - D.** the notations of the criteria that applicants must meet to be endorsed by La Cocina in order to develop a small business
- 16.** Which detail would be **most** important to include in a summary of the excerpt?
- E.** La Cocina produced a cookbook that includes some members’ stories.
  - F.** La Cocina provides legal and technical assistance to its members.
  - G.** Potential vendors need a market for their food before considering La Cocina.
  - H.** There are different types of venues that food vendors from La Cocina use.
- 17.** The table provides additional support for a central idea of the excerpt by
- A.** showing how La Cocina works with partner organizations to further educate and advance successful applicants within the food industry.
  - B.** explaining how applicants are prepared to develop their own businesses once they leave La Cocina.
  - C.** establishing that La Cocina is dedicated to its mission to provide delicious food to different communities.
  - D.** emphasizing that applicants must be willing to dedicate time to promoting and developing their business with La Cocina.

CONTINUE TO THE NEXT PAGE ►

## Excerpt from *In Search of the Unknown*

by Robert W. Chambers

- 1 It was at that time the policy of the trustees and officers of the Zoological Gardens neither to employ collectors nor to send out expeditions in search of specimens. The society decided to depend upon voluntary contributions, and I was always busy, part of the day, in dictating answers to correspondents who wrote offering their services as hunters of big game, collectors of all sorts of fauna, trappers, snarers, and also to those who offered specimens for sale, usually at exorbitant rates.
- 2 To the proprietors of . . . mangy lynxes, moth-eaten coyotes, and dancing bears I returned courteous but uncompromising refusals—of course, first submitting all such letters, together with my replies, to Professor Farrago.
- 3 One day towards the end of May, however, just as I was leaving Bronx Park to return to town, Professor Lesard, of the reptilian department, called out to me that Professor Farrago wanted to see me a moment; so I . . . retraced my steps to the temporary, wooden building occupied by Professor Farrago, general superintendent of the Zoological Gardens. The professor, who was sitting at his desk before a pile of letters and replies submitted for approval by me, pushed his glasses down and looked over them at me with a whimsical smile that suggested amusement, impatience, annoyance, and perhaps a faint trace of apology.
- 4 “Now, here’s a letter,” he said, with a deliberate gesture towards a sheet of paper impaled on a file—“a letter that I suppose you remember.” He disengaged the sheet of paper and handed it to me.
- 5 “Oh yes,” I replied, with a shrug; “of course the man is mistaken—or—”
- 6 “Or what?” demanded Professor Farrago, tranquilly, wiping his glasses.
- 7 “—Or a liar,” I replied.
- 8 After a silence he leaned back in his chair and bade me read the letter to him again, and I did so with a contemptuous tolerance for the writer, who must have been either a very innocent victim or a very stupid swindler. I said as much to Professor Farrago, but, to my surprise, he appeared to waver.
- 9 “I suppose,” he said, with his near-sighted, embarrassed smile, “that nine hundred and ninety-nine men in a thousand would throw that letter aside and condemn the writer as a liar or a fool?”
- 10 “In my opinion,” said I, “he’s one or the other.”
- 11 “He isn’t—in mine,” said the professor, placidly.
- 12 “What!” I exclaimed. “Here is a man living all alone on a strip of rock and sand between the wilderness and the sea, who wants you to send somebody to take charge of a bird that doesn’t exist!”

- 13 “How do you know,” asked Professor Farrago, “that the bird in question does not exist?”
- 14 “It is generally accepted,” I replied, sarcastically, “that the great auk has been extinct for years. Therefore I may be pardoned for doubting that our correspondent possesses a pair of them alive.”
- 15 “Oh, you young fellows,” said the professor, smiling wearily, “you embark on a theory for destinations that don’t exist.”
- 16 He leaned back in his chair, his amused eyes searching space for the imagery that made him smile.
- 17 “Like swimming squirrels, you navigate with the help of Heaven and a stiff breeze, but you never land where you hope to—do you?”
- 18 Rather red in the face, I said: “Don’t you believe the great auk to be extinct?”
- 19 “Audubon<sup>1</sup> saw the great auk.”
- 20 “Who has seen a single specimen since?”
- 21 “Nobody—except our correspondent here,” he replied, laughing.
- 22 I laughed, too, considering the interview at an end, but the professor went on, coolly:
- 23 “Whatever it is that our correspondent has—and I am daring to believe that it *is* the great auk itself—I want you to secure it for the society.”
- 24 When my astonishment subsided my first conscious sentiment was one of pity. Clearly, Professor Farrago was on the verge of dotage<sup>2</sup>—ah, what a loss to the world!
- 25 I believe now that Professor Farrago perfectly interpreted my thoughts, but he betrayed neither resentment nor impatience. I drew a chair up beside his desk—there was nothing to do but to obey, and this fool’s errand was none of my conceiving.
- 26 Together we made out a list of articles necessary for me and itemized the expenses I might incur, and I set a date for my return, allowing no margin for a successful termination to the expedition.
- 27 “Never mind that,” said the professor. “What I want you to do is to get those birds here safely. Now, how many men will you take?”
- 28 “None,” I replied, bluntly; “it’s a useless expense, unless there is something to bring back. If there is I’ll wire you, you may be sure.”
- 29 “Very well,” said Professor Farrago, good-humoredly, “you shall have all the assistance you may require. Can you leave to-night?”

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<sup>1</sup>**Audubon:** John James Audubon, an ornithologist and artist who created scientific illustrations of birds

<sup>2</sup>**dotage:** a loss of reasoning brought about by old age

- 30 The old gentleman was certainly prompt. I nodded, half-sulkily, aware of his amusement.
- 31 “So,” I said, picking up my hat, “I am to start north to find a place called Black Harbor, where there is a man named Halyard who possesses, among other household utensils, two extinct great auks—”
- 32 We were both laughing by this time. I asked him why on earth he credited the assertion of a man he had never before heard of.
- 33 “I suppose,” he replied, with the same half-apologetic, half-humorous smile, “it is instinct. I feel, somehow, that this man Halyard *has* got an auk—perhaps two. I can’t get away from the idea that we are on the eve of acquiring the rarest of living creatures. It’s odd for a scientist to talk as I do; doubtless you’re shocked—admit it, now!”
- 34 But I was not shocked; on the contrary, I was conscious that the same strange hope that Professor Farrago cherished was beginning, in spite of me, to stir my pulses, too.
- 35 “If he has—” I began, then stopped.
- 36 The professor and I looked hard at each other in silence.
- 37 “Go on,” he said, encouragingly.
- 38 But I had nothing more to say, for the prospect of beholding with my own eyes a living specimen of the great auk produced a series of conflicting emotions within me which rendered speech profanely superfluous.

From IN SEARCH OF THE UNKNOWN by Robert W. Chambers—Public Domain

18. Read paragraph 2 from the excerpt.

**To the proprietors of . . . mangy lynxes, moth-eaten coyotes, and dancing bears I returned courteous but uncompromising refusals—of course, first submitting all such letters, together with my replies, to Professor Farrago.**

This paragraph helps develop the plot by establishing that the narrator

- E. dislikes writing refusal letters for the animals offered to the zoological society.
- F. attempts to predict what the professor would say in the refusal letters.
- G. believes that many of the animals offered are not acceptable for the zoological society.
- H. resents the professor’s insistence on reviewing the refusal letters.

19. Read this sentence from paragraph 3.

**The professor, who was sitting at his desk before a pile of letters and replies submitted for approval by me, pushed his glasses down and looked over them at me with a whimsical smile that suggested amusement, impatience, annoyance, and perhaps a faint trace of apology.**

What does the phrase “a faint trace of apology” convey about the professor?

- A. It indicates that the professor feels bad that he has to call the narrator to his office after work.
  - B. It shows that the professor is hesitant to share his opinions with the narrator.
  - C. It implies that the professor is uncomfortable criticizing the narrator’s work.
  - D. It suggests that the professor knows that the conversation will be frustrating for the narrator.
20. How does the exchange between the professor and the narrator in paragraphs 8–11 contribute to the development of the characters?
- E. It establishes the conflict between the professor and the narrator concerning the validity of the letter.
  - F. It suggests a theme of collaboration because the narrator and the professor regularly work together.
  - G. It reveals the characters’ traits by contrasting the narrator’s distrust with how easily the professor is deceived by what he reads.
  - H. It hints that the resolution will involve the narrator accepting the professor’s opinion about the content of the letter.
21. The professor’s observations in paragraphs 15–17 create tension in the excerpt by causing the narrator to feel
- A. flustered by the professor’s criticism of his logic.
  - B. annoyed by the professor’s sarcasm about his inexperience.
  - C. confused by the professor’s lack of respect for his opinion.
  - D. frustrated by the professor’s lack of interest in his theory.

- 22.** How does the interaction between the narrator and the professor in paragraphs 26–28 contribute to the development of the theme?
- E.** It illustrates the professor’s patience as the narrator argues against making the expedition.
  - F.** It reveals the narrator’s frustration with his limited role in making decisions for the zoological society.
  - G.** It emphasizes the professor’s desire to acquire new specimens for the zoological society at any cost.
  - H.** It shows the narrator’s acceptance of his assignment despite his personal objections.
- 23.** Which sentence from the excerpt **best** explains why the professor is eager to send the narrator on an expedition?
- A.** “I believe now that Professor Farrago perfectly interpreted my thoughts, but he betrayed neither resentment nor impatience.” (paragraph 25)
  - B.** “Together we made out a list of articles necessary for me and itemized the expenses I might incur, and I set a date for my return, allowing no margin for a successful termination to the expedition.” (paragraph 26)
  - C.** “ ‘What I want you to do is to get those birds here safely.’ ” (paragraph 27)
  - D.** “ ‘I can’t get away from the idea that we are on the eve of acquiring the rarest of living creatures.’ ” (paragraph 33)
- 24.** How does paragraph 34 help develop the plot of the excerpt?
- E.** It shows that the narrator is beginning to consider the possibility of finding the great auks.
  - F.** It demonstrates that the narrator is struggling to understand why the professor thinks the great auks exist.
  - G.** It establishes that the narrator is willing to let the professor overrule him about the great auks.
  - H.** It emphasizes that the narrator feels a sense of urgency to complete the expedition to locate the great auks.



- 25.** Which sentence **best** demonstrates the professional relationship between the narrator and the professor?
- A.** “He disengaged the sheet of paper and handed it to me.” (paragraph 4)
  - B.** “Clearly, Professor Farrago was on the verge of dotage—ah, what a loss to the world!” (paragraph 24)
  - C.** “I drew a chair up beside his desk—there was nothing to do but to obey, and this fool’s errand was none of my conceiving.” (paragraph 25)
  - D.** “ ‘Very well,’ said Professor Farrago, good-humoredly, ‘you shall have all the assistance you may require.’ ” (paragraph 29)
- 26.** How does the author develop the contrast between the narrator’s point of view and the professor’s point of view?
- E.** by providing both the narrator’s and professor’s thoughts on how age and experience influence each other’s reasoning
  - F.** by using the conversation between the narrator and the professor to emphasize their reactions to the letter
  - G.** by describing the professor’s persistent efforts to change the narrator’s mind about the letter
  - H.** by including dialogue that explains why the professor is the supervisor and the narrator is his subordinate

*In 1903 brothers Wilbur and Orville Wright conducted experiments related to flying machines. These experiments would eventually lead to air travel becoming a reliable form of transportation.*

## Excerpt from “How We Made the First Flight”

by Orville Wright

- 1 During the night of December 16, 1903, a strong cold wind blew from the north. When we arose on the morning of the 17th, the puddles of water, which had been standing about camp since the recent rains, were covered with ice. The wind had a velocity of 10 to 12 meters per second (22 to 27 miles an hour). We thought it would die down before long, and so remained indoors the early part of the morning. But when ten o'clock arrived, and the wind was as brisk as ever, we decided that we had better get the machine out and attempt a flight. We hung out the signal for the men of the Life Saving Station.<sup>1</sup> We thought that by facing the flyer into a strong wind, there ought to be no trouble in launching it from the level ground about camp. We realized the difficulties of flying in so high a wind, but estimated that the added dangers in flight would be partly compensated for by the slower speed in landing.

### Final Preparations

- 2 We laid the track on a smooth stretch of ground about one hundred feet north of the new building. The biting cold wind made work difficult, and we had to warm up frequently in our living room, where we had a good fire in an improvised stove made of a large carbide<sup>2</sup> can. By the time all was ready, J. T. Daniels, W. S. Dough and A. D. Etheridge, members of the Kill Devil<sup>3</sup> Life Saving Station; W. C. Brinkley of Manteo, and Johnny Moore, a boy from Nags Head,<sup>4</sup> had arrived.
- 3 We had a “Richard” hand anemometer<sup>5</sup> with which we measured the velocity of the wind. Measurements made just before starting the first flight showed velocities of 11 to 12 meters per second, or 24 to 27 miles per hour. . . .

### Audacity—and Calculation

- 4 Wilbur having used his turn in the unsuccessful attempt on the 14th, the right to the first trial now belonged to me. After running the motor a few minutes to heat it up, I released the wire that held the machine to the track, and the machine started forward in the wind. Wilbur ran at the side of the machine, holding the wing to balance it on the track. Unlike the start on the 14th, made in a calm, the machine, facing a 27-mile wind, started very slowly. Wilbur was able to stay with it till it lifted from the track after a forty-foot run. One of the Life Saving men snapped the camera for us, taking a picture just as the machine had reached the end of the track and had

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<sup>1</sup>**Life Saving Station:** one of the rescue stations along the Atlantic coastline that provided assistance to mariners in distress

<sup>2</sup>**carbide:** a very hard material composed of carbon and other heavy metals

<sup>3</sup>**Kill Devil:** the town of Kill Devil Hills in eastern North Carolina

<sup>4</sup>**Nags Head:** a town in eastern North Carolina

<sup>5</sup>**“Richard” hand anemometer:** the type of anemometer produced by Jules Richard, a French manufacturer of scientific instruments

risen to a height of about two feet. The slow forward speed of the machine over the ground is clearly shown in the picture by Wilbur's attitude. He stayed along beside the machine without any effort.

**Flight**

5 The course of the flight up and down was exceedingly erratic, partly due to the irregularity of the air, and partly to lack of experience in handling this machine. The control of the front rudder was difficult on account of its being balanced too near the center. This gave it a tendency to turn itself when started; so that it turned too far on one side and then too far on the other. As a result the machine would rise suddenly to about ten feet, and then as suddenly dart for the ground. A sudden dart when a little over a hundred feet from the end of the track, or a little over 120 feet from the point at which it rose into the air, ended the flight. As the velocity of the wind was over 35 feet per second and the speed of the machine over the ground against this wind ten feet per second, the speed of the machine relative to the air was over 45 feet per second, and the length of the flight was equivalent to a flight of 540 feet made in calm air. This flight lasted only 12 seconds, but it was nevertheless the first in the history of the world in which a machine carrying a man had raised itself by its own power into the air in full flight, had sailed forward without reduction of speed and had finally landed at a point as high as that from which it started.

From "How We Made the First Flight" by Orville Wright—Public Domain/Federal Aviation Administration

27. How does paragraph 1 introduce the idea that the Wright brothers knew that their flight attempt was risky?
- A. through the mention of a signal to notify lifesaving experts that the flight attempt was about to begin
  - B. by providing specific details about the speed of the wind and the Wright brothers' response to the windy conditions
  - C. by suggesting that a slower landing would be necessary at the end of the flight in order to maintain safety
  - D. through the indication that the Wright brothers waited indoors for most of the morning because of the poor weather

28. Read this sentence from paragraph 4.

**Wilbur having used his turn in the unsuccessful attempt on the 14th, the right to the first trial now belonged to me.**

The sentence contributes to the development of ideas in the excerpt by

- E. demonstrating the challenge of the extreme winter conditions during the flight.
  - F. revealing how many tries it took for Wilbur Wright to finally get the machine to take flight.
  - G. demonstrating that both Orville and Wilbur Wright were eager to pilot what could potentially be the first flight.
  - H. suggesting a sense that both brothers felt confident they would soon succeed in completing the first flight.
29. The photograph mentioned in paragraph 4 is significant because it
- A. documents that the machine rose into the air as soon as the tethering wire was released.
  - B. provides proof of the critical moment the machine took flight.
  - C. documents that the wind reduced the speed of the plane at the start of the flight.
  - D. provides proof that the pilot had to gradually increase the height of the plane in the air.
30. How do the details in paragraph 5 about the uneven nature of the flight convey a central idea of the excerpt?
- E. by explaining how the flawed design of the machine caused it to turn unpredictably in the air and brought the first flight by a person to an abrupt end
  - F. by indicating that the difficulty in controlling the flight was caused by the rudimentary instruments of the machine and the inexperience of the pilot
  - G. by explaining how the pilot and the plane overcame adverse conditions in order to complete the first piloted flight
  - H. by indicating that the gradual change in wind velocity created an extreme environment in which to maneuver the plane and maintain its flight

31. Read this sentence from paragraph 5.

**As the velocity of the wind was over 35 feet per second and the speed of the machine over the ground against this wind ten feet per second, the speed of the machine relative to the air was over 45 feet per second, and the length of the flight was equivalent to a flight of 540 feet made in calm air.**

How does the sentence help convey Orville Wright’s perspective about this first flight?

- A. It suggests that he was frustrated by the poor flying conditions on the day of the flight.
- B. It emphasizes that he believed the flight was successful despite its short distance.
- C. It provides a comparison between flight distances under calm and high wind conditions.
- D. It highlights the importance of such calculations in the success of future flights.

32. Read this sentence from paragraph 5.

**A sudden dart when a little over a hundred feet from the end of the track, or a little over 120 feet from the point at which it rose into the air, ended the flight.**

How does the sentence contribute to the paragraph?

- E. It details the need for the pilot to have quick reflexes while flying the machine.
- F. It presents the idea that the difficulty of operating the machine shortened the flight.
- G. It describes the shift in wind speed that made flying nearly impossible.
- H. It provides an overview of the flight’s progression from takeoff to landing.

33. Read this sentence from paragraph 5.

**This flight lasted only 12 seconds, but it was nevertheless the first in the history of the world in which a machine carrying a man had raised itself by its own power into the air in full flight, had sailed forward without reduction of speed and had finally landed at a point as high as that from which it started.**

The words “only,” “nevertheless,” and “finally” **most** clearly convey the idea that

- A. even a flight of such minor duration had taken a long time to achieve.
- B. the short flight gave the Wright brothers hope for longer ones in the future.
- C. the flight proved that the machine was, at last, capable of becoming airborne.
- D. although it was brief, the flight was a remarkable accomplishment.

34. Which sentence from the excerpt **best** supports the idea that the Wright brothers had to adapt their plans for the flight in order to accommodate the weather conditions?

- E. “When we arose on the morning of the 17th, the puddles of water, which had been standing about camp since the recent rains, were covered with ice.” (paragraph 1)
- F. “We realized the difficulties of flying in so high a wind, but estimated that the added dangers in flight would be partly compensated for by the slower speed in landing.” (paragraph 1)
- G. “After running the motor a few minutes to heat it up, I released the wire that held the machine to the track, and the machine started forward in the wind.” (paragraph 4)
- H. “The course of the flight up and down was exceedingly erratic, partly due to the irregularity of the air, and partly to lack of experience in handling this machine.” (paragraph 5)

35. The use of chronological structure contributes to the development of ideas in the excerpt by

- A. outlining the actions that the Wright brothers took to prepare for and successfully complete the first flight.
- B. identifying the primary factors that allowed the Wright brothers to overcome obstacles and achieve the first flight.
- C. showing how the Wright brothers applied lessons learned from their previous flight attempts to accomplish the first flight.
- D. demonstrating how the Wright brothers analyzed the impact of wind velocity to identify the ideal conditions for the first flight.

CONTINUE TO THE NEXT PAGE ►

## Cross-Purposes

What I am is *built*: concrete and steel.  
I defy gravity. I am what every athlete  
wants: to remain at the apex of the leap,  
up in the air. And yet I am useful, too:  
5 cars, trucks, people, even trains  
make their way across my broad back.  
Swallows and ospreys<sup>1</sup> nest in my trusses.

10 *What I am is motion. I am water, and I am older  
than anything else you know. No human  
built me. I am gravity's best friend; I pool  
and flow wherever gravity takes me.  
I am the blood flowing in the runner's chest,  
and I catch everything: from the hills,  
the mountains. It all washes down through me.*

15 What you are is an *accident*,  
what happens to rain when rain gives in  
to Earth's gravitational pull.  
You are some tears dribbling from a mountain's  
eye, running down the pavements  
20 of small towns, into the cities, to the sea.  
You are the path of least resistance.

25 *What I am is power. You, of course,  
have none: you are a static lump, an artifact  
slowly decaying. But my regal flow  
nourishes grasses, permits empires to rise.  
Those who made you will break you,  
in time, replacing you with yet another  
clumsy structure. I have seen. I know.*

"Clumsy"? Being rebuilt makes me  
30 a friend of time, does it not? And it means  
that I have siblings—those "clumsy" structures,  
my sisters and brothers.  
We stitch across the rip you make.  
We are steel thread to the human needle.  
35 We bind you up. We sew you.

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<sup>1</sup>ospreys: large birds



40

*And I sow into you; in every cranny  
of your superstructure my vapors cling.  
They bring out your softness, your rust.  
Boast your best, and boast better yet.  
I am listening to the bright hum  
of the wind in your wires. Because I am,  
above all else, patient. I will wait for you.*

- 36.** How does the similar construction of line 1 and line 8 contribute to the meaning of the poem?
- E.** It introduces the intended permanence of the structure and the ever-changing fluidity of the water.
  - F.** It shows that the structure can bridge the gap caused by the water.
  - G.** It suggests that the inflexible structure has more limitations than the adaptable water does.
  - H.** It contrasts the stability of the structure with the instability of the water.
- 37.** Read lines 2–4 and lines 12–14 from the poem.

**I am what every athlete  
wants: to remain at the apex of the leap,  
up in the air.**

***I am the blood flowing in the runner's chest,  
and I catch everything: from the hills,  
the mountains.***

How do the lines contribute to the development of a central idea of the poem?

- A.** They establish that both the structure and the water have endurance and control.
- B.** They highlight that both the structure and the water are powerful and impressive.
- C.** They suggest that the structure and the water are unaware of how similar they are.
- D.** They reveal that the structure and the water are surprised that they are interrelated.

38. The use of the words “siblings” and “my sisters and brothers” in lines 31–32 conveys the idea that the
- E. forms water can take are less diverse than the types of structures that exist.
  - F. number of human-made structures is rapidly increasing.
  - G. water passes under many similar-looking structures as it flows.
  - H. structure is powerful because it is one of many.
39. The comparison to sewing in lines 33–35 helps show that the structure
- A. enhances the beauty of the natural landscape.
  - B. brings people together more effectively than nature does.
  - C. provides clear boundaries for natural environments.
  - D. serves as a means for people to overcome an obstacle created by nature.
40. The last stanza (lines 36–42) conveys a central idea of the poem by
- E. demonstrating that both the structure and the water depend on each other to fulfill their functions.
  - F. implying that a stronger structure would be able to resist the degradation caused by the water.
  - G. revealing that the passage of time will render both the structure and the water obsolete.
  - H. suggesting that the water will eventually weaken the structure and will continue to exist after the structure is gone.
41. Read lines 41–42 from the poem.

***Because I am,  
above all else, patient. I will wait for you.***

Which of the following supports what is implied in these lines?

- A. “I am older / than anything else you know.” (lines 8–9)
- B. “No human / built me.” (lines 9–10)
- C. “It all washes down through me.” (line 14)
- D. “Those who made you will break you,” (line 26)

- 42.** How does the poet develop the points of view of the structure and the water?
- E.** by giving an account of a discussion between them about the future of human civilization
  - F.** by narrating a debate they have over their impact on the environment
  - G.** by illustrating the unique power they each possess over nature
  - H.** by using personification to allow them to debate who is more important
- 43.** How does the form of the poem contribute to its meaning?
- A.** The use of an equal number of lines in each stanza emphasizes that both speakers are equally important.
  - B.** The use of italics in some of the stanzas indicates the increasing tension between the structure and the water.
  - C.** The alternating positions of the stanzas highlights the opposing points of view of the speakers.
  - D.** The lack of a regular rhyme scheme or meter reflects the way the water changes the structure and the way the water itself changes.

## Excerpt from “Scribe Like an Egyptian”

by Hilary Wilson

- 1 In ancient Egypt, literacy was the key to success. However, contrary to popular belief, not all Egyptian scribes understood hieroglyphs. Many relied instead on the simpler hieratic script for the multitude of everyday documents generated by the Egyptian bureaucracy.<sup>1</sup>
- 2 Hieroglyphs—“the Words of God”—compose a writing system with more than 1,000 distinct characters, the meanings of which were lost for 1,500 years before they were deciphered by Jean-François Champollion in 1822. Including both ideograms (which convey a whole word or idea, either concrete or abstract, in a single sign) and phonograms (representing either an alphabetic sound or a group of consonants), [the writing system] was used in formal inscriptions on tomb and temple walls as well as on elaborate funerary papyri.<sup>2</sup> For everyday purposes, however, scribes used a shorthand version of the hieroglyphic script known as hieratic, which was quicker to write and more economical of space. The two writings existed side by side for at least 2,500 years.
- 3 Scraps of ancient hieratic writing, mostly penned by student scribes on limestone flakes called ostraca, suggest that no matter how humble his origins, an educated Egyptian could achieve almost anything. Horemheb (d.1292 B.C.) is a good example. Born of middle-ranking parents, his scribal training led to an army career. From Scribe of Recruits, during the reign of Akhenaten (1353–1336 B.C.), Horemheb rose through the military ranks and, by the rule of Tutankhamun (1332–1323 B.C.), he was commander in chief of the Egyptian forces. As a close adviser of the young Pharaoh, Horemheb was appointed “Deputy of the King throughout the Two Lands,” and might have expected to succeed to the throne should the king die childless. He had to wait a few years, but eventually Horemheb achieved the pinnacle of his career by becoming the last king of the 18th Dynasty, making his mark by instituting dramatic reforms to the organization of the army, the judiciary and administration in general. The lasting success of these changes owed much to his scribal background. . . .
- 4 But education was not available to all. Government departments and major temples supported schools, where boys commenced their training at six or seven, sometimes earlier. To these boarding establishments . . . family or household servants delivered the students’ food and drink rations daily for several years, during which time the student was not contributing to the family’s income. Boys from poorer families could only hope to be educated with support from a wealthier relative or patron, or through apprenticeship to an older scribe, perhaps the local clerk or land agent, who would teach them the basics of the scribe’s craft. This limited the scope for employment but such “on the job” training allowed apprentices to help out at home while learning. . . .
- 5 Scribal education began with the elementary principles of the hieratic script. The lowliest scribes, who trained for just five or six years, probably learned only the rudiments<sup>3</sup> of the hieroglyphic

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<sup>1</sup>**bureaucracy:** an administrative staff of government officials

<sup>2</sup>**funerary papyri:** a sheet or scroll of papyrus containing religious images and hieroglyphs meant to help the deceased be reborn in the afterlife

<sup>3</sup>**rudiments:** basics

script. Students were set exemplar documents and extracts from popular texts to copy, to practice their hieratic handwriting on basic-format letters, reports and contracts, while absorbing the good advice contained in the texts. Surviving examples of copy-work sometimes include tutors' corrections added in red. Some significant Egyptian literary works survive almost exclusively from student copies.

- 6 A schoolboy<sup>4</sup> "dictionary" of hieroglyphs with their hieratic equivalents shows that a knowledge of more than 450 signs was required for everyday writing purposes. Lessons in record-keeping and filing and labelling enabled any half-competent scribe to perform that most essential of all scribal functions: the making and updating of lists. For professions such as those of government official, priest or lawyer, a scribe would train for several more years, increasing his vocabulary to perhaps a thousand or more signs. Those with the best handwriting or drawing skills might follow the craft of creating beautifully illustrated copies of funerary texts, commonly called *Books of the Dead*. Others could become draughtsmen,<sup>5</sup> artists or architects. Doctors compiled their own collections of medication recipes, treatments and associated incantations, many copied from texts found in the House of Life, the temple library. Lawyers had to be familiar with the corpus<sup>6</sup> of civil and religious laws and precedents found in the official records, which were administered by archivists. Egypt's bureaucratic society depended on the skills of an army of scribes of all ranks from filing clerk to tax assessor. For young Egyptians, "be a scribe" was the best of career advice.

From "Scribe Like an Egyptian" by Hilary Wilson from HISTORY TODAY, August 8, 2019. Copyright © 2019 by History Today Ltd. Company.

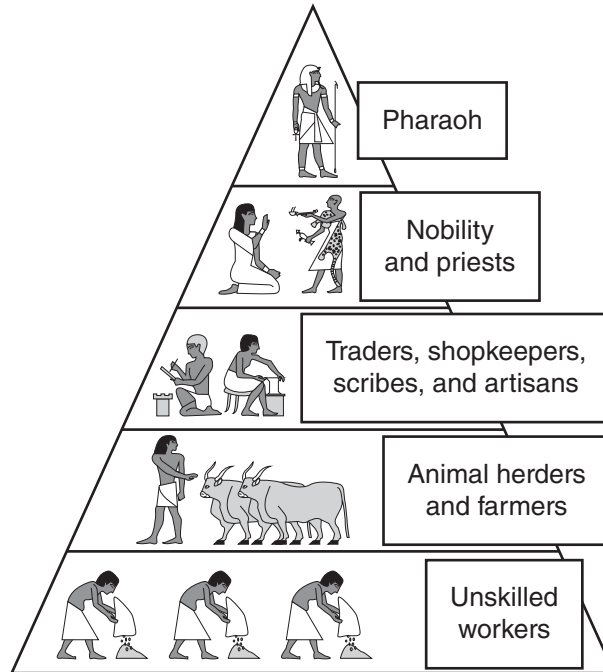
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<sup>4</sup>**schoolboy:** slang that refers to materials used during the course of receiving an education

<sup>5</sup>**draughtsmen:** people who draw plans of machinery or structures

<sup>6</sup>**corpus:** a collection of writings

ANCIENT EGYPTIAN  
SOCIAL CLASS STRUCTURE



44. Which sentence from the excerpt **best** supports the idea that there were different levels of education for a scribe?
- E. "However, contrary to popular belief, not all Egyptian scribes understood hieroglyphs." (paragraph 1)
  - F. "For everyday purposes, however, scribes used a shorthand version of the hieroglyphic script known as hieratic, which was quicker to write and more economical of space." (paragraph 2)
  - G. "This limited the scope for employment but such 'on the job' training allowed apprentices to help out at home while learning." (paragraph 4)
  - H. "For professions such as those of government official, priest or lawyer, a scribe would train for several more years, increasing his vocabulary to perhaps a thousand or more signs." (paragraph 6)

45. Read this sentence from paragraph 2.

**Including both ideograms (which convey a whole word or idea, either concrete or abstract, in a single sign) and phonograms (representing either an alphabetic sound or a group of consonants), [the writing system] was used in formal inscriptions on tomb and temple walls as well as on elaborate funerary papyri.**

The author’s purpose for including the sentence is to

- A. explain that hieroglyphs were reserved for royal and religious purposes.
- B. demonstrate the methods experts use to interpret hieroglyphs.
- C. clarify the significance of hieroglyphs in language and literature.
- D. describe the basic features of hieroglyphs and how they were typically used.

46. Which statement summarizes the process that schools used to train scribes?

- E. Boys had to memorize around 450 hieratic signs. Once they had learned these, they were expected to copy literary texts that contained valuable lessons.
- F. Boys spent at least five years learning hieratic signs, which they practiced by copying texts. During this period, they were also introduced to basic hieroglyphs.
- G. Boys spent five or six years learning the basics of hieratic script. After this period, they could become apprentices and begin learning hieroglyphics.
- H. Boys were taught two different scripts. They practiced both types by copying lists and eventually progressed to writing letters, reports, and contracts.

47. Which claim is **best** supported by the information presented in paragraphs 3 and 4?

- A. Education was difficult for the common citizens of Egypt to obtain.
- B. Once students began studying to become scribes, their future held more possibilities.
- C. If someone wanted to become a scribe, support from outside sources such as the government or a temple was necessary.
- D. Becoming a successful scribe required a student’s family to sacrifice time and money in order to ensure the best education.

- 48.** Hieratic script was particularly valuable in a bureaucratic government because
- E.** using hieratic script was an efficient way for scribes to produce large amounts of documentation.
  - F.** many members of the general public could comprehend information that was written in hieratic script.
  - G.** knowledge of hieratic script prepared scribes to serve their society in increasingly challenging roles.
  - H.** people from different professional backgrounds could easily communicate with one another in hieratic script.
- 49.** The diagram after paragraph 6 **best** provides additional support for the topic of the excerpt by
- A.** demonstrating the place of scribes in ancient Egyptian social structure.
  - B.** depicting the types of tasks performed by each social class.
  - C.** indicating that scribes were able to easily improve their social ranking.
  - D.** comparing the social positions of each social class in ancient Egypt.
- 50.** Based on the excerpt, which statement would the author **most** strongly agree with?
- E.** Boys in Egypt were encouraged to enter the same profession as older male relatives.
  - F.** Knowledge of hieroglyphs was helpful to Egyptians who were interested in becoming scribes.
  - G.** Hieratic script was more practical to ancient Egyptians than hieroglyphs were.
  - H.** Boys in Egypt who studied for only a few years were unlikely to find employment as scribes.



CONTINUE TO THE NEXT PAGE ►

## Excerpt from “Niagara Falls”

by Rupert Brooke

- 1 The real secret of the beauty and terror of the Falls is not their height or width, but the feeling of colossal power and of unintelligible disaster caused by the plunge of that vast body of water. If that were taken away, there would be little visible change, but the heart would be gone.
- 2 The American Falls do not inspire this feeling in the same way as the Canadian. It is because they are less in volume, and because the water does not fall so much into one place. By comparison their beauty is almost delicate and fragile. They are extraordinarily level, one long curtain of lacework and woven foam. Seen from opposite, when the sun is on them, they are blindingly white, and the clouds of spray show dark against them. With both Falls the colour of the water is the ever-altering wonder. Greens and blues, purples and whites, melt into one another, fade, and come again, and change with the changing sun. Sometimes they are as richly diaphanous<sup>1</sup> as a precious stone, and glow from within with a deep, inexplicable light. Sometimes the white intricacies of dropping foam become opaque and creamy. And always there are the rainbows. If you come suddenly upon the Falls from above, a great double rainbow, very vivid, spanning the extent of spray from top to bottom, is the first thing you see. If you wander along the cliff opposite, a bow springs into being in the American Falls, accompanies you courteously on your walk, dwindles and dies as the mist ends, and awakens again as you reach the Canadian tumult. And the bold traveller who attempts the trip under the American Falls sees, when he dare open his eyes to anything, tiny baby rainbows, some four or five yards in span, leaping from rock to rock among the foam, and gambolling beside him, barely out of hand’s reach, as he goes. One I saw in that place was a complete circle, such as I have never seen before, and so near that I could put my foot on it. It is a terrifying journey, beneath and behind the Falls. The senses are battered and bewildered by the thunder of the water and the assault of wind and spray; or rather, the sound is not of falling water, but merely of falling; a noise of unspecified ruin. So, if you are close behind the endless clamour, the sight cannot recognise liquid in the masses that hurl past. You are dimly and pitifully aware that sheets of light and darkness are falling in great curves in front of you. Dull omnipresent foam washes the face. Farther away, in the roar and hissing, clouds of spray seem literally to slide down some invisible plane of air.
- 3 Beyond the foot of the Falls the river is like a slipping floor of marble, green with veins of dirty white, made by the scum that was foam. It slides very quietly and slowly down for a mile or two, sullenly exhausted. Then it turns to a dull sage green, and hurries more swiftly, smooth and ominous. As the walls of the ravine close in, trouble stirs, and the waters boil and eddy. These are the lower rapids, a sight more terrifying than the Falls, because less intelligible. Close in its bands of rock the river surges tumultuously forward, writhing and leaping as if inspired by a demon. It is pressed by the straits into a visibly convex form. Great planes of water slide past. Sometimes it is thrown up into a pinnacle of foam higher than a house, or leaps with incredible speed from the crest of one vast wave to another, along the shining curve between, like the spring of a wild beast. Its motion continually suggests muscular action. The power manifest in these rapids moves one with a different sense of awe and terror from that of the Falls. Here the inhuman life and strength are spontaneous, active, almost resolute. . . . A place of fear.

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<sup>1</sup>**diaphanous:** sheer, translucent

4 One is drawn back, strangely, to a contemplation of the Falls, at every hour, and especially by night, when the cloud of spray becomes an immense visible ghost, straining and wavering high above the river, white and pathetic and translucent. The Victorian lies very close below the surface in every man. There one can sit and let great cloudy thoughts of destiny and the passage of empires drift through the mind; for such dreams are at home by Niagara. I could not get out of my mind the thought of a friend, who said that the rainbows over the Falls were like the arts and beauty and goodness, with regard to the stream of life—caused by it, thrown upon its spray, but unable to stay or direct or affect it, and ceasing when it ceased. In all comparisons that rise in the heart, the river, with its multitudinous waves and its single current, likens itself to a life, whether of an individual or of a community. A man’s life is of many flashing moments, and yet one stream; a nation’s flows through all its citizens, and yet is more than they. In such places, one is aware, with an almost insupportable and yet comforting certitude, that both men and nations are hurried onwards to their ruin or ending as inevitably as this dark flood. Some go down to it unreluctant, and meet it, like the river, not without nobility. And as incessant, as inevitable, and as unavailing as the spray that hangs over the Falls, is the white cloud of human crying. . . . With some such thoughts does the platitudinous<sup>2</sup> heart win from the confusion and thunder of a Niagara peace that the quietest plains or most stable hills can never give.

From LETTERS FROM AMERICA by Rupert Brooke—Public Domain

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<sup>2</sup>**platitudinous:** clichéd, common

51. The central idea that the Falls communicate a feeling of “unintelligible disaster” (paragraph 1) is conveyed in paragraph 2 through a description of
- A. the glow of the precious stones visible within the water.
  - B. the dynamic flow of the colors that are visible in the water.
  - C. the sudden appearance and disappearance of rainbows.
  - D. the sounds associated with a sense of falling.

52. Read this sentence from paragraph 2.

**They are extraordinarily level, one long curtain of lacework and woven foam.**

What is the effect of comparing the American Falls to a “long curtain of lacework and woven foam”?

- E. It demonstrates the timelessness of the American Falls.
- F. It conveys the secretive nature of the American Falls.
- G. It illustrates the elegant uniformity of the American Falls.
- H. It communicates the intense strength of the American Falls.

53. Read this sentence from paragraph 3.

**These are the lower rapids, a sight more terrifying than the Falls, because less intelligible.**

Which statement **best** describes how the sentence fits into the overall structure of the excerpt?

- A. It signals a change from the positive aspects of the Falls to the negative aspects.
- B. It indicates a progression from the literal description of the water to a discussion of timeless truths.
- C. It reinforces a shift from the qualities of the Falls to the qualities of the river.
- D. It introduces a contrast between the obvious and the hidden features of the rapids.

54. Which sentence from the excerpt **best** supports the idea that the essence of the Falls lies in their emotional impact?

- E. "If that were taken away, there would be little visible change, but the heart would be gone." (paragraph 1)
- F. "By comparison their beauty is almost delicate and fragile." (paragraph 2)
- G. "One is drawn back, strangely, to a contemplation of the Falls, at every hour, and especially by night, when the cloud of spray becomes an immense visible ghost, straining and wavering high above the river, white and pathetic and translucent." (paragraph 4)
- H. "A man's life is of many flashing moments, and yet one stream; a nation's flows through all its citizens, and yet is more than they." (paragraph 4)

55. Read this sentence from paragraph 4.

**There one can sit and let great cloudy thoughts of destiny and the passage of empires drift through the mind; for such dreams are at home by Niagara.**

The sentence **most** contributes to the development of ideas in the excerpt by

- A. suggesting that viewing the Falls can be a life-changing experience.
- B. showing that the cliffs of the Falls are a good place for self-examination.
- C. emphasizing that the grandeur of the Falls seems impossible to grasp.
- D. highlighting the type of reflection that is inspired by a visit to the Falls.

56. In paragraph 4, the idea that human life and history ultimately end in the same way is illustrated **mainly** through
- E. the discussion of how the rainbows visible in the Falls are like the art and beauty created by humankind.
  - F. the comparison between the movement of water in the Falls and the human experience.
  - G. the inclusion of details that show that every observer’s experience with the Falls is different.
  - H. the acknowledgment that contemplating the Falls at night sparks an awareness of humankind’s destiny.
57. With which statement would the author of this excerpt **most likely** agree?
- A. A sense of ease and assurance comes with accepting one’s fate.
  - B. No matter where one’s path goes in life, one will always have regrets.
  - C. The best way to overcome fear is to recognize it and then defy it.
  - D. Reason will die out with humanity, but art will remain immortal.

# PART 2 — MATHEMATICS

57 QUESTIONS

## IMPORTANT NOTES

- (1) Formulas and definitions of mathematical terms and symbols are **not** provided.
- (2) Diagrams other than graphs are **not** necessarily drawn to scale. Do not assume any relationship in a diagram unless it is specifically stated or can be determined from the information given.
- (3) Assume that a diagram is in one plane unless the question specifically states that it is not.
- (4) Graphs are drawn to scale. Unless stated otherwise, you can assume relationships according to appearance. For example, lines on a graph that appear to be parallel can be assumed to be parallel. This is also true for concurrent lines, straight lines, collinear points, right angles, etc.
- (5) Reduce (simplify) all fractions to lowest terms.

## GRID-IN QUESTION NOTES

- (1) For each grid-in question, write your answer at the top of the grid.
- (2) Begin recording your answer in the columns on the far left.
- (3) Fill in the circle under the box that matches the number or symbol you wrote. Leave the negative sign bubble blank if your answer is positive.

(Answer:  $-1.5$ )

-	1	.	5	
<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	0	0	0	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	1	1	1	
2	2	2	2	
3	3	3	3	
4	4	4	4	
5	5	<input checked="" type="radio"/>	5	
6	6	6	6	
7	7	7	7	
8	8	8	8	
9	9	9	9	

Negative sign →      ← Decimal point

(Answer:  $3.2$ )

	3	.	2	
<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	0	0	0	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	1	1	1	
2	2	<input checked="" type="radio"/>	2	
3	<input checked="" type="radio"/>	3	3	
4	4	4	4	
5	5	5	5	
6	6	6	6	
7	7	7	7	
8	8	8	8	
9	9	9	9	

Negative sign →      ← Decimal point

CONTINUE TO THE NEXT PAGE ►

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# GRID-IN QUESTIONS

## QUESTIONS 58–62

**DIRECTIONS:** Solve each problem. On the answer sheet, write your answer in the boxes at the top of the grid. Start on the left side of each grid. Print only one number or symbol in each box. Under each box, fill in the circle that matches the number or symbol you wrote above.

- Do not fill in a circle under an unused box.
  - Do not leave a box blank in the middle of an answer.
- 

58.

LAST YEAR'S TOTAL SALES

Vehicles	Number
Four-door cars	5,850
Two-door cars	2,250
Trucks	900
<b>Total</b>	<b>9,000</b>

The table above shows the number of each type of vehicle sold at a dealership last year. If 1,000 vehicles will be sold next month, what is the best estimate (based on last year's sales) of the number of two-door cars that will be sold?

59. In a scale drawing of a rectangular garden, the length is 15 inches and the width is 9 inches. In the drawing, 2 inches represents 3 yards. What is the width of the actual garden, in yards?

---

60. A kindergarten teacher has 72 crayons, 60 pencils, and 84 sheets of paper to distribute to the children in her class. If each child receives an equal number of each item and there are no items remaining, what is the greatest possible number of children in the class?

---

**61.** Mr. Smith opened a retirement account with a deposit of \$900. This account earns 5% simple interest annually. How many years will it take for his \$900 deposit to earn \$360 interest?

**62.** Solve the equation for  $x$ :

$$\frac{(21)(14)x}{(49)(48)} = 0.875$$



# MULTIPLE CHOICE QUESTIONS

## QUESTIONS 63–114

**DIRECTIONS:** Solve each problem. Select the answer from the choices given. Mark the letter of your answer on the answer sheet. When you are solving problems, you can write in the test booklet or on the scrap paper given to you.

- 63.** What is the value of

$$3\frac{1}{4} - 1\frac{2}{3} - \left(-4\frac{1}{2}\right)?$$

**A.**  $-3\frac{1}{12}$

**B.**  $-2\frac{11}{12}$

**C.**  $6\frac{1}{12}$

**D.**  $9\frac{5}{12}$

- 64.** On Fran’s map, 2 centimeters represents 3 kilometers. The points on this map that represent Fran’s home and Bryant State Park are 4.5 centimeters apart. How many kilometers apart are Fran’s home and Bryant State Park, to the nearest kilometer?

**E.** 3

**F.** 5

**G.** 7

**H.** 9

- 65.** Solve for  $x$  in terms of  $y$  if  $2x + 4 = y$ .

**A.**  $x = \frac{y - 4}{2}$

**B.**  $x = 2(y + 4)$

**C.**  $x = \frac{y + 4}{2}$

**D.**  $x = 2(4 - y)$

- 66.** Bryan completed a 100-meter race in 11.74 seconds. Luis completed the same race in 11.69 seconds. What was the difference between their times, expressed as a fraction of a second?

**E.**  $\frac{1}{20}$

**F.**  $\frac{1}{10}$

**G.**  $\frac{3}{20}$

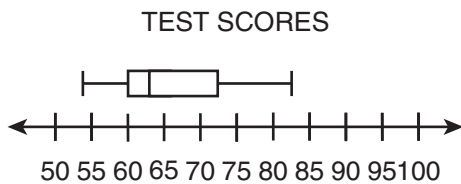
**H.**  $\frac{1}{5}$

67. A total of 24 students in a math class took a 100-point test:

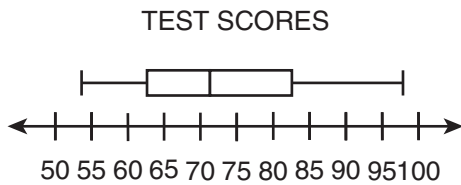
- None of the students scored 100 points.
- 75% of the students scored less than 82 points.
- The lowest score in the class was 54 points.

Which box plot best represents the test scores from this math class?

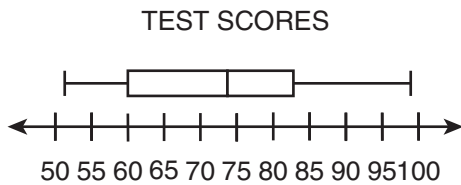
A.



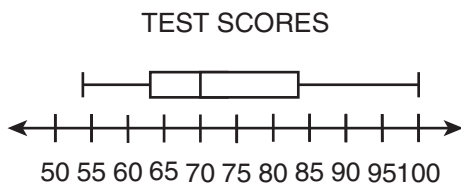
B.



C.



D.



68.

$$n = 0.13 + \frac{207}{100}$$

What is the value of  $n$  expressed as a fraction?

E.  $\frac{1}{3}$

F.  $\frac{11}{5}$

G.  $\frac{9}{4}$

H.  $\frac{23}{10}$

69.

The perimeter of a 12-sided polygon is 100 centimeters. The length of one side is 25 centimeters. The length of another side is 35 centimeters. The remaining sides are equal in length to one another. What is the length of each of the remaining sides, in centimeters?

A. 4

B. 5

C. 20

D. 40

**70.** Shioh-Chen has a box that contains 4 green cards, 7 yellow cards, and 6 red cards. She randomly draws one card at a time from the box and does not return the cards to the box after they have been drawn. The first card she draws is yellow. The second card she draws is green. What is the probability that the third card she draws will also be green?

**E.**  $\frac{1}{5}$

**F.**  $\frac{4}{17}$

**G.**  $\frac{1}{4}$

**H.**  $\frac{1}{3}$

**71.** Each number in a sequence is 3 more than twice the number that comes just before it. If 93 is a number in the sequence, what number comes just before it?

**A.** 92

**B.** 90

**C.** 48

**D.** 45

**72.** On a map, the distance between Deshawn's house and Xin's house is 5.4 inches. If 2 inches on the map represents 3 miles, what is the distance between these two houses, in miles?

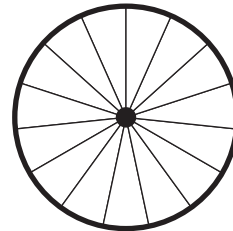
**E.** 2.6

**F.** 3.6

**G.** 7.5

**H.** 8.1

**73.**



This wheel has 15 spokes, equally spaced. What is the measure of the angle between adjacent spokes?

**A.**  $30^\circ$

**B.**  $24^\circ$

**C.**  $15^\circ$

**D.**  $12^\circ$

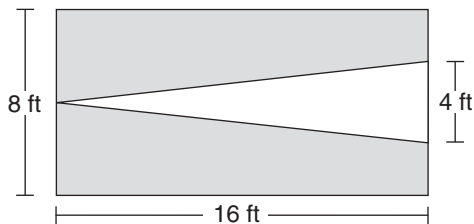
74.

$$m \cdot t = 72$$

For the equation above, what is the sum of the values of  $m$  when  $t = 1$ , when  $t = 2$ , and when  $t = 3$ ?

- E. 12
- F. 72
- G. 132
- H. 135

75.



The diagram above shows a rectangle with an inscribed triangle. The triangle's vertex and base touch the sides of the rectangle as shown. What is the total area of the shaded portion?

- A. 32 sq ft
- B. 64 sq ft
- C. 96 sq ft
- D. 128 sq ft

76. Orange juice costs \$2 per gallon, and grapefruit juice costs \$3 per gallon. A recent shipment of equal amounts of the two types of juice costs a total of \$250. How many gallons of orange juice are in the shipment?

- E. 50
- F. 62.5
- G. 100
- H. 125

77. Five consecutive numbers have a sum of 110. What is the **least** of these consecutive numbers?

- A. 11
- B. 18
- C. 20
- D. 22

78.

$$\begin{array}{c} -mn \\ (-m)(-n) \\ |mn| \\ |-mn| \\ |(-m)(-n)| \end{array}$$

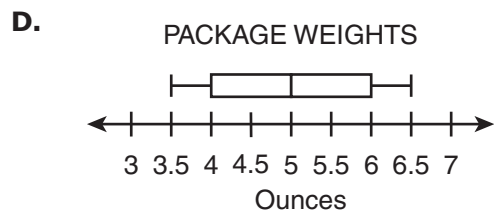
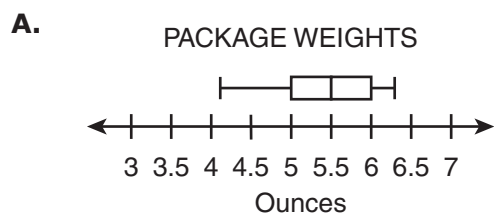
If  $m$  and  $n$  are positive integers, how many of the five expressions above are equivalent to  $mn$ ?

- E. 1
- F. 2
- G. 3
- H. 4

79. A vendor is selling 10 packages of homemade fudge at a bake sale. The vendor weighed and labeled each package. The package weights are given in ounces:

4.6 6.0 3.8 3.5 4.5  
5.4 3.9 6.5 4.8 6.2

The vendor created a box plot of the package weights. Which box plot best represents the data?



80.

FRUIT SOLD  
AT STORE XYZ

Fruit	Number Sold
Apples	8
Bananas	6
Cherries	12
Oranges	6
Peaches	?
<b>Total</b>	<b>50</b>

Peaches made up what percentage of the total number of pieces of fruit sold at Store XYZ, according to the table above?

- E. 18%
- F. 28%
- G. 36%
- H. 64%

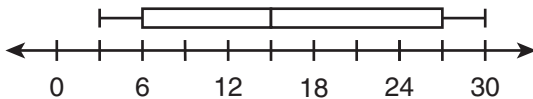
81. A prism is made up of 9 congruent cubes. Each of the cubes has side lengths measuring 4 units. What is the volume, in cubic units, of the prism?

- A. 108
- B. 144
- C. 480
- D. 576

**82.** The town of Waterville covers an area of 50 square miles. In 2005, its population was 84,000. In 2006, its population had decreased so that the average population per square mile was equal to 1,500. What was the total decrease in population from 2005 to 2006?

- E.** 7,500
- F.** 8,400
- G.** 9,000
- H.** 9,200

**83.** The box plot below represents a set of data.



What is the interquartile range of the set of data?

- A.** 9
- B.** 12
- C.** 21
- D.** 27

**84.**  $N = \{6, 7, \dots, 21, 22\}$

Set L (not shown) is a list of 25 consecutive integers. The median of the integers in set N above is equal to the least integer in set L. What is the median of the integers in set L?

- E.** 25
- F.** 26
- G.** 27
- H.** 28

**85.** The sum of the numbers  $x$ ,  $y$ , and  $z$  is 40. The ratio of  $x$  to  $y$  is 1:2, and the ratio of  $y$  to  $z$  is 2:5. What is the value of  $y$ ?

- A.** 2
- B.** 4
- C.** 8
- D.** 10

86. Which number could be the sum of 4 consecutive integers?

- E. -12
- F. -10
- G. -8
- H. -4

87.

PRICE OF A USED VIDEO GAME AT VARIOUS STORES

Price of Used Video Game	Number of Stores
\$10.99	5
\$11.99	2
\$12.99	1
\$13.99	4

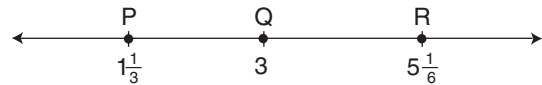
The table above shows the price of a certain used video game at 12 different stores. What is the median price of this video game?

- A. \$10.99
- B. \$11.49
- C. \$11.99
- D. \$12.32

88. If  $xy = 30$ , what is the value of  $10 \div x$  in terms of  $y$ ?

- E.  $\frac{1}{10}y$
- F.  $\frac{1}{3}y$
- G.  $3y$
- H.  $10y$

89.



On the number line above, how many units longer is  $\overline{QR}$  than  $\overline{PQ}$ ?

- A.  $\frac{1}{6}$
- B.  $\frac{1}{2}$
- C.  $\frac{2}{3}$
- D. 3



90.



The distance from W to X is 70% of the distance from W to Y. If the distance from X to Y is 15 miles, what is the distance, in miles, from W to X?

- E. 10.5
- F. 35
- G. 45
- H. 50

91. There are 3 different highways from City W to City X, 4 different highways from City X to City Y, and 3 different highways from City Y to City Z. How many different routes are there for a trip from City W to City X to City Y to City Z?

- A. 10
- B. 12
- C. 24
- D. 36

92. In Center City, the ratio of people to dogs is 4:1, and the ratio of dogs to cats is 3:2. What is the ratio of people to cats?

- E. 2:1
- F. 7:3
- G. 6:1
- H. 12:1

93. The side length of square S is shorter than the side length of square T by 1 centimeter. The area of square S is 9 square centimeters. What is the difference, in square centimeters, between the area of square T and the area of square S?

- A. 3
- B. 7
- C. 8
- D. 10

---

**94.** Which expression is equivalent

to  $\frac{1}{2}x + 7 - \left(x - \frac{9}{2}\right)$ ?

**E.**  $\frac{1}{2}(x - 5)$

**F.**  $\frac{1}{2}(x + 5)$

**G.**  $-\frac{1}{2}(x + 23)$

**H.**  $-\frac{1}{2}(x - 23)$

---

**95.** How is  $\frac{1}{x} - \frac{1}{2x}$  written as a single fraction? (Assume  $x \neq 0$ .)

**A.**  $\frac{1}{2x}$

**B.**  $\frac{1}{3x}$

**C.**  $-\frac{1}{x}$

**D.**  $-\frac{1}{2x}$

**96.** In a certain competition, 1 person finished in first place, 5 people tied for second place, 10 people tied for third place, and the other 4,984 people did not place. What percentage of the people in the competition placed first, second, or third altogether?

**E.** 0.0032%

**F.** 0.032%

**G.** 0.32%

**H.** 3.2%

---

**97.** Angle A and angle B are complementary. If the measure of angle B is three times as great as the measure of angle A, what is the measure of angle B?

**A.**  $45^\circ$

**B.**  $67.5^\circ$

**C.**  $75^\circ$

**D.**  $135^\circ$

---

**98.** The height of a tree in 2013 is 300% of the height it was in 2003. By what percentage did its height increase over this ten-year period?

**E.**  $33\frac{1}{3}\%$

**F.** 100%

**G.** 200%

**H.** 300%

---

**99.**

1 gallon = 16 cups  
1 cup = 8 fluid ounces

If 1 gallon =  $2^x$  fluid ounces, what is the value of  $x$ ?

**A.** 4

**B.** 7

**C.** 8

**D.** 64

**100.** A certain square puzzle has an area of 64 square inches, and a cubic block has a volume of 64 cubic inches. What is the ratio of the length of a side of the puzzle to the length of a side of the block?

**E.** 1:3

**F.** 1:2

**G.** 2:3

**H.** 2:1

---

**101.** In a certain class, Rosa will take a total of 4 tests. She has already taken 2 of the tests and earned scores of 81 and 83. What is the **least** possible score Rosa can earn on the third test and still be able to finish the class with an average score of 85 on all 4 tests? (Assume that test scores can range from 0 to 100.)

**A.** 76

**B.** 82

**C.** 88

**D.** 90

**102.** The Barnes family and the Ramirez family each have a pizza of equal size. The first pizza is cut into 18 equal slices, and the second pizza is cut into 15 equal slices. If the Barnes family eats 11 slices from the first pizza, what is the greatest number of whole slices from the second pizza that the Ramirez family can eat without eating a greater percentage of a pizza than the Barnes family ate?

- E.** 6
- F.** 7
- G.** 8
- H.** 9

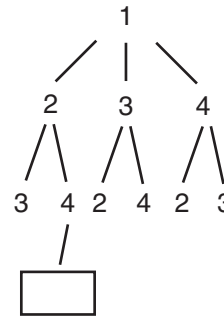
**103.**  $0^3 + 4^0 + 2^{-1} + (-1)^2$

What is the value of the expression above, in decimal form?

- A.** 0
- B.** 0.5
- C.** 1.5
- D.** 2.5

**104.** Four slips of paper numbered 1, 2, 3, and 4 were placed in a bag:

- One slip was selected from the bag, and the number recorded.
- Without replacement, a second slip was chosen.
- This process continued until no more slips remained in the bag.
- One part of a tree diagram representing the sample space is shown.



Which number should be placed in the box to complete this part of the tree diagram?

- E.** 1
- F.** 2
- G.** 3
- H.** 4

---

**105.** The outdoor temperature was  $4.2^{\circ}$  F at 10 p.m. After  $3\frac{1}{2}$  hours, the outdoor temperature was  $-0.7^{\circ}$  F. Which value best represents the average change in temperature per hour?

- A.  $-1.4^{\circ}$  F
- B.  $-1.0^{\circ}$  F
- C.  $1.0^{\circ}$  F
- D.  $1.4^{\circ}$  F

---

**106.** A rectangular swimming pool of uniform depth is 20 yards long and 14 yards wide. If the water is 6 **feet** deep, what is the volume of water in the pool, in cubic yards?

- E. 40
- F. 286
- G. 560
- H. 1,680

**107.**  $\{3, 4, 5, 6, 7\}$

A student made a list of all possible products of 2 **different** numbers in the set above. What fraction of the products are odd?

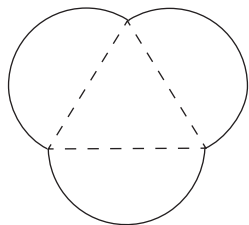
- A.  $\frac{3}{20}$
- B.  $\frac{3}{10}$
- C.  $\frac{1}{2}$
- D.  $\frac{3}{5}$

---

**108.** A number,  $n$ , is divided by 25. If the quotient is 10 with a remainder of 5, what is the quotient expressed as a decimal?

- E. 10.20
- F. 10.25
- G. 10.50
- H. 10.75

109.



The garden design shown above is created in the shape of three semicircles whose diameters lie on the sides of an equilateral triangle. If each diameter is 2 meters long, what is the perimeter of the garden, in meters?

- A. 6
- B. 12
- C.  $3\pi$
- D.  $6\pi$

110. Micha is playing a game with five cards numbered 1 through 5. He will place the cards in a bag and draw one card at random three times, replacing the card each time. To win a prize, he must draw the number 5 all three times. What is the probability he will draw the number 5 all three times?

- E.  $\frac{1}{125}$
- F.  $\frac{3}{125}$
- G.  $\frac{1}{15}$
- H.  $\frac{3}{5}$

---

**111.** The speed 10 meters per second is equivalent to how many feet per hour?

(Use the approximation  
1 foot = 0.3 meter.)

- A.** 10,800
- B.** 12,000
- C.** 36,000
- D.** 120,000

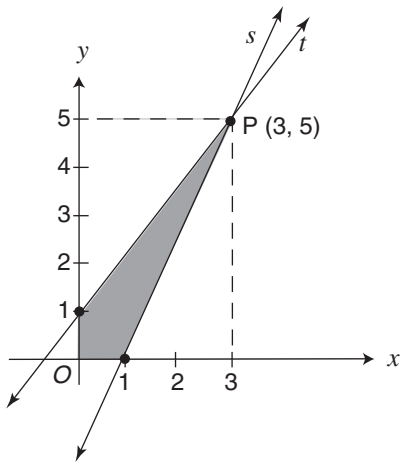
**112.**

$$6.\overline{34} - 4.\overline{12}$$

What is the value of the expression above, written as an improper fraction?

- E.**  $\frac{24}{11}$
- F.**  $\frac{224}{101}$
- G.**  $\frac{111}{50}$
- H.**  $\frac{20}{9}$

113.



Lines  $s$  and  $t$  intersect at point  $P(3, 5)$ .  
What is the area, in square units, of the shaded region in the graph above?

- A. 2
- B. 3
- C. 4
- D. 7

114. A box contains 14 red marbles, 10 black marbles, and 16 white marbles. How many more white marbles need to be added to the box so that the probability of randomly drawing a white marble is  $\frac{3}{5}$ ?

- E. 8
- F. 10
- G. 14
- H. 20

THIS IS THE END OF THE TEST.  
IF TIME REMAINS, YOU SHOULD CHECK  
YOUR ANSWERS. BE SURE THAT THERE  
ARE NO STRAY MARKS, PARTIALLY  
FILLED ANSWER CIRCLES, OR  
INCOMPLETE ERASURES ON YOUR  
ANSWER SHEET. ■



## Form B

# Sample Test – English Language Arts Explanations of Correct Answers

### REVISING/EDITING PART A

1. The question asks which edit should be made to correct the sentence.
  - A. Incorrect. A comma is needed to separate the introductory infinitive phrase “to surprise her dad for his birthday on Friday,” which modifies Yolanda’s action, from the remainder of the sentence.
  - B. **CORRECT.** A comma is needed between two adjectives of equal importance preceding a noun. In this case, the adjectives “tempting” and “savory” are of equal importance, modifying the noun “sandwiches.” Their equal importance can be determined by inserting the word “and” between them (“tempting and savory sandwiches”).
  - C. Incorrect. This edit would introduce an error into the sentence by needlessly breaking up the two prepositional phrases “from a deli” and “in her neighborhood” with a comma. No comma is needed when prepositional phrases are joined together in this way to indicate a singular idea. In this sentence, these two phrases work together to show where the sandwiches are from.
  - D. Incorrect. Deleting this comma would introduce an error into the sentence. A comma is needed to separate the first and second items in the series of three actions Yolanda undertook: “ordered tempting savory sandwiches from a deli in her neighborhood,” “prepared his favorite chocolate cake,” and “invited his best friends over for the evening.”

---

2. The question asks for the identification of the sentence in the paragraph that contains an error.
  - E. Incorrect. This sentence has an appropriate construction. An introductory prepositional phrase is correctly punctuated and describes when the power outage occurred. Similarly, the direct object, “the Upper West Side of Manhattan in New York City,” is presented clearly in terms of what area was “affected” by the power outage.
  - F. **CORRECT.** “Leaving approximately 73,000 residents without electricity for three long hours” is a dangling modifier because it is not clearly modifying any word or words in this sentence. It actually further describes the “power outage” in sentence 1. In clear and correct construction, all modifiers should be near the words they describe in order to avoid confusion.
  - G. Incorrect. Sentence 3 has a correct construction. A dash is used appropriately to show a break in thought and to introduce the phrase “on the exact same day.”
  - H. Incorrect. Correct construction is used in this sentence. Two commas are used correctly to set off the nonessential clause “which lasted for 25 hours” from the rest of the sentence. Similarly, one comma is used to set off the nonessential appositive “an odd coincidence to say the least.” Both of these elements are nonessential to the sentence’s overall meaning and are thus correctly separated from the sentence by the use of commas.

3. The question asks which two revisions are needed to correct the paragraph.
- A. Incorrect. The comma is needed after “Yalina” to separate the first and second names in the series of three names (Yalina, Michael, and Malcolm). The possessive determiner “their” is also correct as written because it refers back to “Yalina, Michael, and Malcolm,” a plural group of people.
  - B. Incorrect. Changing “is” to “are” would introduce an error in subject-verb agreement into the sentence; the singular subject “Yalina’s job” requires the singular verb “is.” The comma after “bowl” is required because it separates the phrase “slowly adding water, eggs, melted butter, and blueberries,” which modifies how Yalina prepares the batter, from the remainder of the sentence.
  - C. Incorrect. “It is” refers to the singular noun “mixture,” so this singular pronoun and verb form is correct. The comma after “smooth” is necessary because this is a compound sentence where two independent clauses (“Michael uses a wooden spoon to vigorously stir the mixture until it is smooth” and “Malcolm helps Granddad carefully pour the batter onto a griddle one-fourth cup at a time”) are joined using a coordinating conjunction, which requires a comma.
  - D. **CORRECT.** The plural pronoun “they” refers incorrectly to a singular antecedent, “each pancake.” The pronoun should be changed to a singular one to match its antecedent. A comma is needed between two adjectives of equal importance that modify the noun “breakfast.” Because “sweet” and “delicious” could be written as “sweet and delicious,” they are of equal importance, and a comma is needed.

## REVISING/EDITING PART B

### The End of an Era

4. The question asks for the sentence that should follow sentence 3 to **best** introduce the topic of the passage.
- E. CORRECT.** This sentence best introduces the passage’s topic: the *Opportunity* rover had many accomplishments on its mission, despite numerous challenges. Some of those accomplishments include providing high-resolution photographs (paragraph 2), traveling long distances (paragraph 3), and providing data about craters and other surface features (paragraph 3).
  - F.** Incorrect. Although paragraph 2 discusses how photographs taken by the rover showed rocks that may have been shaped by water, this idea alone is not the topic of the entire passage.
  - G.** Incorrect. While this sentence incorporates ideas about difficulties the scientists encountered because of the *Opportunity* rover’s design (paragraph 4), the main topic of the passage is not the design flaws and obstacles scientists encountered throughout the mission. The passage primarily focuses on the achievements of the mission.
  - H.** Incorrect. While it is true that the *Opportunity* rover mission lasted much longer than planned (sentence 3), this fact is a supporting detail of the passage, not the main topic of the passage; surpassing the original timeline is only one of the rover’s many achievements mentioned in the passage.
- 
5. The question asks for the word that should be added to the beginning of sentence 8 to provide a better transition to the third paragraph.
- A.** Incorrect. While sentence 8 is a more general statement than sentence 7, the word “Overall” would imply that all of the third paragraph features general information about the *Opportunity* rover. Instead, paragraphs 2 and 3 both describe specific accomplishments of the *Opportunity* rover (the discovery of possible water on Mars and the distance the rover traveled), so these paragraphs require a word between them that does not transition from the specific to the general.
  - B.** Incorrect. The word “Furthermore” would suggest that the author is making an argument in paragraph 2 that is further developed by the statement in sentence 8 and the rest of paragraph 3. Because this is not the case, the word “Furthermore” is not a suitable transition from one paragraph to the next.
  - C. CORRECT.** The word “Meanwhile” is an appropriate transition to add before sentence 8, since the actions of the *Opportunity* rover in paragraph 2 (taking photographs) and in paragraph 3 (traveling long distances) happened at the same time and both served critical functions to the overall mission.
  - D.** Incorrect. The word “Consequently” would create a cause-and-effect relationship that does not exist between the paragraphs. The passage gives no indication that the rover’s actions in the third paragraph (traveling a far distance) resulted from the actions in the second paragraph (taking photographs).

6. The question asks for the revision of sentence 11 that **best** maintains the formal style established in the passage.
- E. **CORRECT.** This sentence uses clear and formal writing throughout. The phrase “covered the planet” is accurate and formal without being overly poetic, and “standstill” is a precise word for putting something “on hold,” as expressed by the original sentence, while maintaining the formal style of the passage.
  - F. Incorrect. Although the sentence is formal in style, the word “shrouded” is overly poetic, and the phrase “impermanently halting” is too stilted and formal for the style and tone of the passage.
  - G. Incorrect. Although the sentence is formal in style, the words “enveloped” and “arresting” are overly poetic, especially when used in the same sentence, and the phrases “the whole of the planet” and “for a time” are needlessly wordy and imprecise, compared with the formal scientific language of the passage.
  - H. Incorrect. The phrases “covered up the whole planet” and “quickly brought a stop to the progress of the rover” are less formal and unnecessarily wordy, compared with the formal style established by the rest of the passage.
- 

7. The question asks for the **best** way to combine sentences 12 and 13.
- A. Incorrect. The phrase “this planet-wide dust storm” in the original sentence 12 makes a direct reference to sentence 11 and therefore acts as a transition that should be kept at the beginning. In this sentence, the transition phrase is placed at the end of the sentence, making the phrase confusing. In addition, the sentence is unnecessarily repetitive and wordy.
  - B. Incorrect. This combination unnecessarily turns sentence 12 into an overly long dependent clause, making the connection between “it” and its antecedent, “the rover,” unclear and distracting from the subject of the sentence, “minor dust storms.”
  - C. Incorrect. Not only does this combination move the reference to “this planet-wide dust storm” farther from sentence 11, but it is also unnecessarily wordy, adding “because” and repeating “the rover.”
  - D. **CORRECT.** This sentence efficiently and accurately adds sentence 13 to sentence 12 as a dependent clause by changing “These prevented” to “preventing,” while also retaining the meanings of the original sentences 12 and 13.

8. The question asks where the sentence should be added to the passage.
- E. Incorrect. While sentence 2 refers to *Opportunity's* mission to search for evidence of water, sentence 3 mentions the rover lasting much longer than anticipated. Placing the sentence between these two ideas, rather than at the start of the second paragraph, where it introduces the topic of the paragraph, would create a disjointed and confusing experience for the reader.
  - F. **CORRECT.** The sentence introduces the idea of finding possible evidence of water on Mars, which is the main topic of the second paragraph.
  - G. Incorrect. The sentence sets up the main idea of paragraph 2, which is the possibility of water on Mars. As a concluding sentence, it would be repetitive and confusing.
  - H. Incorrect. The sentence introduces the possibility of water on Mars, while sentences 8 and 9 discuss other surface features and the distance traveled by the rover. Adding the sentence here would create a disorganized paragraph.
- 

9. The question asks for the concluding sentence that should be added after sentence 20 to **best** support the information presented in the passage.
- A. Incorrect. The sentence does not summarize or make reference to the focus of the passage, which is the *Opportunity* rover.
  - B. **CORRECT.** This sentence summarizes the ideas about the *Opportunity* rover while also extending those ideas to future research, an effective combination for a sentence that concludes a piece about a scientific topic.
  - C. Incorrect. This sentence not only begins with the phrase "And in conjunction," which is repetitive, but also introduces an entirely new idea (*Mars Odyssey*) instead of concluding on the main topic of the passage (the *Opportunity* rover).
  - D. Incorrect. This sentence puts emphasis on Mars's characteristics and makes a conclusion about "today's rovers," instead of referring back to the *Opportunity* rover, the main focus of the passage.

## READING COMPREHENSION

### Excerpt from "The Food Business Incubator"

- 10.** The question asks what the words “recognized” and “prestigious” convey about La Cocina.
- E.** Incorrect. While later information indicates that La Cocina bases its choices on the work ethic of entrepreneurs as well as their financial needs, the use of the words “recognized” and “prestigious” in the context of the sentence is not related to the work ethic of the chefs.
  - F. CORRECT.** The fact that alumni of the La Cocina program have received recognition as semi-finalists for prestigious awards shows that La Cocina has helped members of its program achieve at the highest level.
  - G.** Incorrect. As paragraph 1 indicates, La Cocina focuses on helping local food entrepreneurs develop their small businesses. While some participants in the program have earned official recognition, La Cocina is not primarily focused on establishing entrepreneurs as celebrated professionals.
  - H.** Incorrect. La Cocina assists chefs with the development of their small businesses, not necessarily with their development of specific products.
- 
- 11.** The question asks how paragraph 4 contributes to the development of ideas about La Cocina in paragraph 1.
- A. CORRECT.** Paragraph 4 lists ways that La Cocina provides support to local food entrepreneurs. This supports the statement in paragraph 1 that La Cocina has been “helping local food entrepreneurs, many of whom are low-income immigrant women, develop their small businesses.”
  - B.** Incorrect. Paragraph 1 simply states that La Cocina tries to help local food entrepreneurs develop their businesses, but neither paragraph describes or mentions any goals that La Cocina sets for local food entrepreneurs.
  - C.** Incorrect. While paragraph 4 mentions some background information on where local food entrepreneurs were found, these details do not directly support any ideas in paragraph 1.
  - D.** Incorrect. The description of the process by which Caleb Zigas realized there was a need for La Cocina provides background for the organization, but it does not directly support any ideas in paragraph 1.

- 12.** The question asks how the quotation from Caleb Zigas in paragraph 6 conveys a central idea of the excerpt.
- E. CORRECT.** A central idea of the excerpt is that La Cocina’s entrepreneurs are a group of people cooking a diverse range of cuisines. This quotation from the executive director of La Cocina conveys this idea by emphasizing the diversity of both the cooking methods and the chefs themselves.
  - F.** Incorrect. While La Cocina’s goal is “helping local food entrepreneurs, many of whom are low-income immigrant women” (paragraph 1), the organization does not necessarily have a goal of helping people without solid cooking skills. Per the table that describes the “Qualifications for La Cocina Applicants,” the applicant’s food must be delicious, which speaks to the skill required for all participants.
  - G.** Incorrect. The quotation describes the diversity of people and cooking techniques found at La Cocina, but it does not reference “a typical scenario.” Paragraphs 9 and 10 more closely describe examples of typical La Cocina chef entrepreneurs.
  - H.** Incorrect. Applicants to La Cocina must have a food that is a “viable product,” but this quotation emphasizes the diversity of chefs and cuisines, not the requirements chefs must meet to enter the program.
- 

- 13.** The question asks how the description of Mariko Grady’s background in paragraph 9 contributes to a central idea in the excerpt.
- A.** Incorrect. The paragraph about Mariko Grady describes her earlier success in the field of theatrical dance and how she later started her own small cooking business. It does not describe what she was looking for when she came to La Cocina.
  - B.** Incorrect. The excerpt does not argue that La Cocina is the best option for people starting out in the food business, and the description in paragraph 9 does not support that idea.
  - C. CORRECT.** The detailed background story of Mariko Grady describes that Grady started a small food business after working as “a singer and dancer with the prestigious modern theatrical dance group she founded” and then, after that ended, created a fermented food product line. This information contributes to a central idea in the excerpt that many of the people working with La Cocina, like Grady, “needed an affordable commercial kitchen space and technical assistance in order for their businesses to be legally viable. La Cocina provided just such a space, in addition to helping them develop business plans, pull city permits and more” (paragraph 4).
  - D.** Incorrect. While Mariko Grady is now a food business owner that La Cocina has helped since 2012, Grady’s story does more to illustrate how people from non-business backgrounds can receive special support from La Cocina in order to do more with their business.

14. The question asks with which statement the author would **most likely** agree.
- E. Incorrect. The author does not suggest at any point that La Cocina would like to expand its work and mission to other cities.
  - F. Incorrect. While the author describes some of the work of talented chefs from La Cocina, at no point does the author imply that the many food choices that exist in San Francisco are because of La Cocina.
  - G. Incorrect. While the author does describe how La Cocina can help entrepreneurs find success, at no point does the author suggest that La Cocina can guarantee success.
  - H. **CORRECT.** The descriptions of the income requirements as well as the information that some of the chefs are James Beard award recipients and others have achieved success with their businesses all help show that the author admires the work of La Cocina in helping chefs who have few resources.
- 
15. The question asks for the piece of evidence **most** relevant to the author’s claim that La Cocina provides an opportunity to become more established as a business owner.
- A. Incorrect. This evidence reveals that two former members of La Cocina have been recognized for their culinary skills and thus likely gained some business success, but it is not directly relevant to how La Cocina provides specific services and training to help prospective business owners in achieving their goals.
  - B. Incorrect. Paragraph 7 briefly describes this project, but the fact that chefs share their stories with others does not directly reveal that La Cocina provides resources to help current members become established in a business. It merely suggests that La Cocina wants to publicize its participants and its efforts.
  - C. **CORRECT.** This evidence reveals a direct connection between what La Cocina offers and the chefs’ ability to operate a successful business. Having a viable business plan and obtaining the correct operating permits are necessary for the chefs to move out of the La Cocina space and into their own facilities—thus becoming more established business owners.
  - D. Incorrect. Though the list of criteria that applicants to La Cocina must meet helps ensure that the chefs have a good chance of success in the program, these criteria reveal La Cocina’s selectivity and not necessarily its ability to aid chefs in becoming more established business owners.



16. The question asks which detail would be **most** important to include in a summary of the excerpt.
- E. Incorrect. The detail about the cookbook that includes members' stories is mentioned briefly but not developed. It should not be included in a summary, because it does not most help support the central idea that La Cocina helps food entrepreneurs expand their businesses.
  - F. **CORRECT.** The fact that La Cocina provides legal and technical assistance is a key factor in the success of the chefs who participate. Paragraph 4 explains that La Cocina provides technical and legal assistance by helping businesses navigate city permits and meet other challenges. This detail supports the central idea by sharing how La Cocina helps food entrepreneurs expand their businesses.
  - G. Incorrect. The specific requirements for chefs to be accepted at La Cocina are lesser details and should not be included in a summary, because they do not strongly support the central idea that La Cocina helps its members expand their food businesses.
  - H. Incorrect. Paragraph 5 indicates that vendors from La Cocina sell their food at various venues, including farmers' markets and corporate events. However, this is a detail that is not developed and should not be included in a summary since it does not support the central idea as clearly as does the detail that La Cocina provides members with legal and technical support for their businesses.
- 

17. The question asks how the table provides additional support for a central idea of the excerpt.
- A. Incorrect. The table describes the requirements that allow food entrepreneurs to qualify to participate in La Cocina. While the table does mention that applicants without a business plan must contact one of La Cocina's partner organizations, it does not specifically explain how La Cocina works with these partner organizations to help educate successful applicants.
  - B. Incorrect. The table describes the ways entrepreneur chefs must qualify in order to be accepted into La Cocina, not how their businesses can be successful after they leave.
  - C. Incorrect. While the table mentions community spirit, this is in reference to the type of energy La Cocina wishes to establish within its group kitchen space. The excerpt and table do not discuss providing food to different communities within or outside San Francisco as specific goals of La Cocina.
  - D. **CORRECT.** A central idea of the excerpt is that La Cocina helps local food entrepreneurs develop their businesses. The table lists requirements for people who want to participate in La Cocina. They must be willing to work hard to promote their own businesses as they use the resources that La Cocina provides.

**Excerpt from *In Search of the Unknown***

- 18.** The question asks how paragraph 2 helps develop the plot.
- E.** Incorrect. As paragraph 1 indicates, writing such letters is one of the main parts of the narrator’s job (“and I was always busy, part of the day, in dictating answers to correspondents”), and he shows no indication of disliking this work. The letters are to inform people whether the zoo will accept their animals.
  - F.** Incorrect. Paragraph 2 indicates that the narrator offers his letters to the professor merely for official approval. At the start of the excerpt, the narrator is confident in his reply and does not anticipate that his response will differ from that of the professor, so he has no need to “predict what the professor would say.”
  - G. CORRECT.** The phrase “uncompromising refusals” in paragraph 2 indicates the confidence that the narrator initially has in his belief that the animals described in the letters are not of value to the society. This confidence is badly shaken as the plot unfolds, as when Professor Farrago states that “ ‘I am daring to believe that it *is* the great auk itself’ ” (paragraph 23). The narrator’s transition from an attitude of dismissive doubt to one of budding hopefulness is a major part of the plot (“But I was not shocked; on the contrary, I was conscious that the same strange hope that Professor Farrago cherished was beginning, in spite of me, to stir my pulses, too” [paragraph 34]).
  - H.** Incorrect. The narrator does not resent the professor’s review of the letters; instead, the phrase “of course” in paragraph 2 shows that he expects to submit the letters to the professor as part of his job.
- 
- 19.** The question asks what the phrase “a faint trace of apology” in paragraph 3 conveys about the professor.
- A.** Incorrect. The fact that the narrator had intended to leave the office for the day is not the source of the professor’s faintly apologetic manner, which is instead caused by the professor’s understanding that their conversation about the letter and the expedition is likely to cause an argument (“with a whimsical smile that suggested amusement, impatience, annoyance” [paragraph 3]). In paragraph 29, the professor asks the narrator if he can leave on an expedition that same evening, which indicates that the professor does not feel bad about taking up the narrator’s time after work.
  - B.** Incorrect. The paragraphs that follow the sentence from paragraph 3 show the professor sharing his opinions without pause, even when his opinion of the narrator is unflattering (“ ‘Like swimming squirrels, you navigate with the help of Heaven and a stiff breeze, but you never land where you hope to—do you?’ ” [paragraph 17]).
  - C.** Incorrect. The professor knows that the narrator will push back regarding the letter, but the professor is not uncomfortable challenging the narrator. Professor Farrago seems perfectly at ease and comfortable as he begins the discussion with the narrator.
  - D. CORRECT.** The professor is both amused and annoyed by the narrator’s dismissal of the possibility that great auks still exist, and the professor knows that the narrator is likely to react negatively to being sent on what the narrator considers a “fool’s errand” (paragraph 25).

**20.** The question asks how the exchange between the professor and the narrator in paragraphs 8–11 contributes to the development of the characters.

- E. CORRECT.** Paragraphs 8–11 help develop the characters by revealing the difference between the opinions of the narrator and the professor. The narrator believes without any doubts that Halyard, the man who wrote the letter about the auks, is either “ ‘a liar or a fool’ ” (paragraph 9), while the professor believes in the possibility that the writer of the letter could actually be telling the truth (“I said as much to Professor Farrago, but, to my surprise, he appeared to waver” [paragraph 8]).
- F.** Incorrect. In paragraph 8, the narrator reacts to the letter writer with “a contemptuous tolerance,” and he is shocked to learn that the professor actually agrees with the man (paragraph 11) whom the narrator has bluntly condemned as a liar or a fool (“ ‘In my opinion,’ said I, ‘he’s one or the other.’ ” [paragraph 10]). The exchange presents an emphatic disagreement between the narrator and the professor, and it does not show them working together in a collaborative manner.
- G.** Incorrect. Although the narrator initially distrusts the contents of the letter and shows “contemptuous tolerance for the writer” (paragraph 8), the excerpt portrays the professor as experienced and intelligent, not as one who is easily deceived.
- H.** Incorrect. While the narrator does begin to consider the professor’s perspective at the end of the excerpt, paragraphs 8–11 primarily serve to establish the difference of opinion between the narrator and the professor about the writer of the letter.

21. The question asks how the professor's observations in paragraphs 15–17 create tension in the excerpt.
- A. **CORRECT.** The professor criticizes “ ‘you young fellows’ ” (paragraph 15), suggesting that the ideas of young scientists like the narrator are unsupported (“ ‘like swimming squirrels’ ” [paragraph 17]) and inaccurate (“ ‘but you never land where you hope to—do you?’ ” [paragraph 17] and “ ‘you embark on a theory for destinations that don’t exist’ ” [paragraph 15]). The narrator then becomes “red in the face” (paragraph 18), indicating that the narrator is upset by the professor’s criticism, and asks the professor about the great auk in an attempt to defend himself.
  - B. Incorrect. While the narrator does experience a negative reaction to the professor’s words, the professor is being genuine, not sarcastic. In fact, the sarcasm comes from the narrator in paragraph 14 (“ ‘It is generally accepted,’ I replied, sarcastically, ‘that the great auk has been extinct for years. Therefore I may be pardoned for doubting that our correspondent possesses a pair of them alive’ ”), not from the professor.
  - C. Incorrect. The professor’s observations cause the narrator to blush with embarrassment (“rather red in the face” [paragraph 18]), but the narrator understands the point that the professor is making about the narrator’s acceptance of the idea that great auks do not exist. The narrator recognizes that the professor is criticizing his youthful ideas, not his opinion.
  - D. Incorrect. The professor shows amusement with the narrator’s perspective. The narrator is embarrassed and upset by the professor’s words, but the narrator does not display frustration with the professor’s lack of interest in a commonly held view of the existence of a certain species of bird.

22. The question asks how the interaction between the narrator and the professor in paragraphs 26–28 contributes to the development of the theme.
- E. Incorrect. Paragraphs 26–28 do not show the narrator arguing against making the expedition. He instead argues that it is unnecessary for the professor to pay to send extra men on the expedition. The narrator points out that he can ask for assistance if he does, in fact, find great auks (“ ‘None,’ I replied, bluntly; ‘it’s a useless expense, unless there is something to bring back. If there is I’ll wire you, you may be sure’ ” [paragraph 28]).
  - F. Incorrect. When the professor criticizes the narrator’s blind acceptance of the theory about the existence of the auks, the narrator is frustrated and embarrassed. This frustration does not stem from his inability to make decisions for the zoological society.
  - G. Incorrect. The professor states that “ ‘what I want you to do is to get those birds here safely’ ” (paragraph 27), which indicates that his main priority is the birds’ safety rather than acquiring specimens regardless of the consequences (i.e., at any cost).
  - H. **CORRECT.** Paragraph 26 describes the professor and the narrator making practical plans for the expedition (“we made out a list of articles necessary for me and itemized the expenses I might incur”), indicating the narrator’s acceptance of his assignment while also revealing that he does not anticipate a “successful termination to the expedition.” Paragraph 28 further describes the personal objections of the narrator, who believes that adding extra men to the expedition is pointless (“ ‘a useless expense’ ”), since he does not expect to find any great auks to bring back.
- 

23. The question asks which sentence from the excerpt **best** explains why the professor is eager to send the narrator on an expedition.
- A. Incorrect. In the sentence from paragraph 25, the narrator suspects the professor is losing his ability to reason because his request (to secure the great auk for the society) seems impossible. The professor is excited about the discovery, but the narrator doubts whether the discovery is real. The sentence does not explain why the professor is excited, however.
  - B. Incorrect. Paragraph 26 shows the professor and the narrator planning the logistics of the trip, but it does not explain why the professor is eager to send the narrator on the expedition.
  - C. Incorrect. Although the sentence from paragraph 27 expresses the professor’s interest in having the narrator bring the birds back safely, it does not show the underlying reason why the safety of the birds is so crucial, which is that the great auk is extremely rare.
  - D. **CORRECT.** The sentence from paragraph 33 reveals the professor’s excitement to get “ ‘the rarest of living creatures,’ ” the great auk. In paragraph 14, the narrator states that “it is generally accepted . . . that the great auk has been extinct for years,” which would make a living auk incredibly rare and explains the professor’s eagerness for the narrator to go on the expedition.

24. The question asks how paragraph 34 helps develop the plot of the excerpt.
- E. **CORRECT.** Despite his initial disbelief, the narrator admits in paragraph 34 that he is starting to feel the “same strange hope” the professor feels, which is to find the great auks (paragraph 33).
  - F. Incorrect. While the narrator does make an effort in paragraphs 11–22 to understand the professor’s thinking, paragraph 34 reveals that the narrator has been affected by the professor’s “strange hope” for the auks and is beginning to share this hope “in spite of” himself.
  - G. Incorrect. The narrator describes a feeling of hope in paragraph 34 that would not be present if he had simply been overruled by the professor and did not share any of the professor’s belief in the possibility that the auks exist. In addition, it was established before paragraph 34 that the narrator was willing to be overruled (“I drew a chair up beside his desk—there was nothing to do but to obey, and this fool’s errand was none of my conceiving” [paragraph 25]).
  - H. Incorrect. The narrator does not express a sense of urgency in paragraph 34 to complete the expedition. Instead, he expresses hope that the great auks might really exist.
- 
25. The question asks which sentence **best** demonstrates the professional relationship between the narrator and the professor.
- A. Incorrect. Although the professor’s handing of the paper to the narrator indicates that they are beginning to discuss the letter about the great auk, the sentence from paragraph 4 does not convey the relationship between a subordinate employee (the narrator) and a superior (the professor).
  - B. Incorrect. The sentence from paragraph 24 presents the narrator’s immediate internal reaction to the professor’s words. The sentence emphasizes that the professor’s belief in the great auk’s existence is so outrageous that the narrator initially thinks the professor is starting to lose touch with reality. This is a momentary reaction to the professor’s words, not a demonstration of the professional relationship between the two.
  - C. **CORRECT.** The sentence from paragraph 25 reveals that while the narrator disagrees with the professor (“this fool’s errand was none of my conceiving”), he obeys because he works for the professor (“there was nothing to do but to obey”).
  - D. Incorrect. The professor’s good-humored offer of assistance in the sentence from paragraph 29 does not best demonstrate the underlying employer-employee relationship between the professor and the narrator. The narrator has to go on the expedition because the professor, his boss, told him to.

- 26.** The question asks how the author develops the contrast between the narrator's point of view and the professor's point of view.
- E.** Incorrect. The excerpt does not describe the narrator's thoughts about how age and experience influence the professor's reasoning in enough detail to fully contrast them against the thoughts about the narrator that the professor expresses in paragraphs 15–17. The narrator's idea that the professor might be "on the verge of dotage" (paragraph 24) is meant in a humorous way.
- F. CORRECT.** The primary conflict of the excerpt revolves around the narrator's disagreement with the professor about whether the letter about the great auks could be true. As the two men converse, their contrasting attitudes toward the letter become clear: the narrator dismisses the possibility of great auks out of hand (" 'of course the man is mistaken' " [paragraph 5]; " 'here is a man . . . who wants you to send somebody to take charge of a bird that doesn't exist!' " [paragraph 12]), while the professor calmly admits that although " 'nine hundred and ninety-nine men in a thousand would throw that letter aside and condemn the writer' " (paragraph 9), he himself believes that the writer could be telling the truth (" 'How do you know,' asked Professor Farrago, 'that the bird in question does not exist?' " [paragraph 13]).
- G.** Incorrect. The professor explains why he disagrees with the narrator (paragraphs 19–21), but he does not make persistent efforts to convince the narrator to change his mind about the letter. Instead he states that the narrator will go on an expedition to retrieve " 'whatever it is that our correspondent has' " (paragraph 23), thereby requiring the narrator to go collect the great auks whether the narrator believes in them or not.
- H.** Incorrect. The point of the dialogue is not to explain the subordinate-supervisor relationship between the narrator and the professor but rather to contrast what each character believes about the contents of the letter.

**Excerpt from "How We Made the First Flight"**

- 27.** The question asks how paragraph 1 introduces the idea that the Wright brothers knew that their flight attempt was risky.
- A. CORRECT.** Paragraph 1 describes the Wright brothers hanging out “the signal” to notify the lifesaving crew to stand by as they attempted flight; the need for lifesaving experts to be available in case of an accident introduces the idea that the attempted flight might crash.
  - B.** Incorrect. The specifics on the speed of the wind by themselves do not emphasize the danger of the flight. While the brothers admitted that the strong wind posed certain risks, they also noted that the windy conditions might make landing safer (“estimated that the added dangers in flight would be partly compensated for by the slower speed in landing” [paragraph 1]).
  - C.** Incorrect. A slower landing was expected as a result of the windy conditions, but it was not part of a plan to increase the safety of the flight.
  - D.** Incorrect. While the Wright brothers’ initial decision to wait to see whether the wind would die down does suggest they were concerned about the safety of the flight, the explanation of their decision to proceed with the flight shows that they expected one benefit from the poor weather: “the slower speed in landing” (paragraph 1).
- 
- 28.** The question asks how the sentence from paragraph 4 contributes to the development of ideas in the excerpt.
- E.** Incorrect. The sentence from paragraph 4 does not refer to the challenge of the winter conditions during the flight attempt.
  - F.** Incorrect. While the sentence from paragraph 4 specifically references a previous flight several days earlier, it does not state how many attempts came before Wilbur’s attempt on December 14.
  - G. CORRECT.** The sentence from paragraph 4 indicates that the Wright brothers had agreed to take turns attempting to achieve the first flight, which suggests their eagerness to each be the first to successfully fly the machine.
  - H.** Incorrect. Orville’s trial came about simply because the brothers took turns, which would suggest that there was no greater likelihood of success or reason to be more confident at that moment than there had been for previous attempts.



29. The question asks why the photograph mentioned in paragraph 4 is significant.
- A. Incorrect. According to paragraph 4, the photograph was not taken immediately after the tethering wire was released but rather after an intervening period during which “Wilbur ran at the side of the machine, holding the wing to balance it on the track.” The picture was not taken until “the machine had reached the end of the track,” which occurred after a “forty-foot run” (paragraph 4).
  - B. **CORRECT.** The photograph mentioned in paragraph 4 is significant because it provides proof that the machine did, in fact, take flight: “One of the Life Saving men snapped the camera for us, taking a picture just as the machine had reached the end of the track and had risen to a height of about two feet. The slow forward speed of the machine over the ground is clearly shown in the picture by Wilbur’s attitude. He stayed along beside the machine without any effort.”
  - C. Incorrect. The photograph mentioned in paragraph 4 is described as showing the plane moving forward through the air at a height of two feet, but while the effect of the wind may be visible, it is not why the photo is significant. Instead, the photograph provides proof that the plane is, in fact, moving through the air (“One of the Life Saving men snapped the camera for us, taking a picture just as the machine had reached the end of the track and had risen to a height of about two feet. The slow forward speed of the machine over the ground is clearly shown in the picture by Wilbur’s attitude”).
  - D. Incorrect. Although the plane is shown at a height of two feet in the photograph mentioned in paragraph 4, the picture documents only one moment of the plane’s flight and does not provide proof that the pilot had to gradually increase the height of the plane in the air.
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30. The question asks how the details in paragraph 5 about the uneven nature of the flight convey a central idea of the excerpt.
- E. Incorrect. Paragraph 5 explains that the rudder was unbalanced and the effect that this issue had on the flight, but the rudder was only part of the reason for the short flight. The length of the flight is not a central idea of the excerpt.
  - F. Incorrect. Although paragraph 5 does explain that the equipment contributed to the difficulty of controlling the plane’s flight, the lack of control over the flight is not a central idea of the excerpt, which focuses instead on the Wright brothers’ achievement of a successful flight despite the challenges involved.
  - G. **CORRECT.** The details in paragraph 5 describe the difficulties that the weather conditions and mechanical issues presented and how Orville’s flight was successful despite those problems. The Wright brothers’ ability to overcome difficult circumstances and complete the first flight is a central idea of the excerpt.
  - H. Incorrect. While paragraph 5 does emphasize the difficulty caused by the wind, it does not describe a “gradual change” in the wind, only that it was irregular.

- 31.** The question asks how the sentence from paragraph 5 helps convey Orville Wright’s perspective about the first flight.
- A.** Incorrect. Although the sentence from paragraph 5 refers to the velocity of the wind during the flight, there is no indication that Orville felt a sense of frustration with the windy conditions. Instead, the sentence emphasizes the “speed of the machine relative to the air” and presents the equivalent flight length if the machine had flown through calm air (“the length of the flight was equivalent to a flight of 540 feet made in calm air”), details that emphasize the importance of the Wrights’ accomplishment.
  - B. CORRECT.** In the sentence from paragraph 5, Orville uses the wind velocity and the machine speed to highlight the distance that the plane covered while in the air and to determine the distance that it would have flown on a day with calm winds, which emphasizes the magnitude of the accomplishment.
  - C.** Incorrect. Since Orville does not suggest in the sentence from paragraph 5 how far the plane traveled under the actual conditions of high winds, the comparison is incomplete. Additionally, this statement does not address the reason that he would make such a comparison, which allowed him to describe the flight in more impressive terms (540 feet versus 120 feet).
  - D.** Incorrect. Unlike the wind velocity calculations made in preparation for the flight, which might help in determining the success of future flights, the comparative calculations that Orville provides in the sentence from paragraph 5 help interpret the results of the first flight (by describing how fast and far the machine flew relative to the flying conditions) and thereby communicate its success. The calculations of the first flight’s relative speed and equivalent distance would not affect the success of future flights, but the information does provide context for understanding the Wright brothers’ accomplishment.
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- 32.** The question asks how the sentence contributes to paragraph 5.
- E.** Incorrect. The sentence focuses on the “sudden dart” of the plane, which ended the flight. According to the paragraph, this sudden dart was caused by the difficulty of controlling the front rudder “on account of its being balanced too near the center.” The sentence does not detail the need for the pilot to have quick reflexes.
  - F. CORRECT.** The sentence presents the idea that the difficulty of operating the machine brought the flight to a quicker end than it might otherwise have had. According to paragraph 5, “control of the front rudder was difficult on account of its being balanced too near the center. This gave it a tendency to turn itself when started.” These sentences show that one such “dart” shortened the flight.
  - G.** Incorrect. Although it describes the abrupt end of the flight, the sentence does not describe the shift in wind speed. The word “dart” refers instead to a change in the height, or altitude, of the machine.
  - H.** Incorrect. Although it includes the detail that the flight ended “a little over 120 feet from the point at which it rose into the air,” the sentence does not provide an overview of the entire flight’s progression. The sentence from paragraph 5 omits the flight’s takeoff and only describes its rather abrupt ending.

- 33.** The question asks what idea is **most** clearly conveyed by the words “only,” “nevertheless,” and “finally” in the sentence from paragraph 5.
- A.** Incorrect. Although the duration of the flight was short and a successful flight had taken a long time to achieve, the words in the sentence from paragraph 5 are used to emphasize the remarkable nature of the flight, not the length of time it had taken the Wright brothers to be successful.
  - B.** Incorrect. While it is easy to imagine that the Wright brothers had hope for longer flights, the words in the sentence from paragraph 5 do not relate directly to this sentiment; instead, they describe the groundbreaking success of their flight.
  - C.** Incorrect. While the capabilities of the aircraft were demonstrated during the flight, the words in the sentence from paragraph 5 apply not only to the machine but also to the efforts of the people who designed it, built it, and actually made it fly.
  - D. CORRECT.** The words in the sentence from paragraph 5 suggest that, though the first flight may not have lasted very long or taken the pilot very far, the Wright brothers accomplished something no one had been able to do before: successfully pilot an airplane in flight.
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- 34.** The question asks which sentence from the excerpt **best** supports the idea that the Wright brothers had to adapt their plans for the flight in order to accommodate weather conditions.
- E.** Incorrect. Although the sentence from paragraph 1 mentions the rainy weather and frozen puddles, it does not specifically explain how these weather conditions forced the brothers to adapt their plans for the flight.
  - F. CORRECT.** The sentence from paragraph 1 reveals that the Wright brothers adapted by making a risk calculation, based on the wind speed, before the flight. The high speed of the wind could cause difficulties in flight while simultaneously allowing for a slower, more controlled landing.
  - G.** Incorrect. The sentence from paragraph 4 does mention wind, but it describes what Orville was doing during the attempted flight, not the factors he considered before the flight in order to adapt the plan.
  - H.** Incorrect. Although the sentence from paragraph 5 mentions the “irregularity of the air” during the flight, the sentence does not describe how the brothers adapted their plans for the flight based on the weather.

- 35.** The question asks how the use of chronological structure contributes to the development of ideas in the excerpt.
- A. CORRECT.** Through the chronological structure, Orville addresses all stages of the flight in a way that builds from flight concerns and preparations for takeoff to his experiences during the flight and his successful landing.
  - B.** Incorrect. While obstacles are presented within the excerpt, the chronological structure emphasizes the events that ended in the successful achievement of flight on that day rather than how the Wright brothers overcame obstacles.
  - C.** Incorrect. The chronological structure of the excerpt does not show that the Wright brothers applied lessons learned from their previous attempts at flight; instead, the structure describes Orville's December 17 attempt.
  - D.** Incorrect. While Orville's narrative certainly shows a strong need to analyze wind speed, this idea is not conveyed through the chronological structure of the excerpt. Additionally, the description of the first flight on December 17 indicates that it did not take place in ideal conditions ("We realized the difficulties of flying in so high a wind" [paragraph 1] and "The course of the flight up and down was exceedingly erratic, partly due to the irregularity of the air" [paragraph 5]).

## Cross-Purposes

- 36.** The question asks how the similarity in the construction of lines 1 and 8 contributes to the meaning of the poem.
- E. CORRECT.** In line 1, the first speaker asserts, “What I am is *built*: concrete and steel,” and in line 8 the second speaker states, “*What I am is motion. I am water, and I am older.*” The similarity in the construction of these lines contributes to the meaning of the poem by establishing each speaker’s defining feature.
  - F.** Incorrect. The focus of the lines is defining the speakers’ individuality, not how one speaker resolves a problem created by the other.
  - G.** Incorrect. The structure is not stating in line 1 that it is limited because it was built to stand in place; on the contrary, the structure is stating that this sense of purpose and permanence is its strength.
  - H.** Incorrect. Although in these lines the first speaker asserts “I am . . . *built*: concrete and steel” (line 1) and the second speaker asserts “*I am . . . motion*” (line 8), the construction of these lines does not contrast the stability and instability of the speakers. Rather, each speaker highlights its own features.
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- 37.** The question asks how lines 2–4 and 12–14 contribute to the development of a central idea in the poem.
- A.** Incorrect. Although the phrases “remain[ing] at the apex of the leap” in line 3 and “*I catch everything*” in line 13 suggest the idea of endurance and control, the lines do not establish that both the structure and the water have endurance and control, because the water also states, “*I pool / and flow wherever gravity takes me*” (lines 10–11).
  - B. CORRECT.** The lines “I am what every athlete / wants” (lines 2–3) and “*I am the blood flowing in the runner’s chest*” (line 12) communicate that each speaker is an object of admiration and a powerful force.
  - C.** Incorrect. The lines describe opposing characteristics: the structure’s description conveys stillness—remaining “up in the air” (line 4)—while the water’s description conveys movement—“*flowing in the runner’s chest*” (line 12).
  - D.** Incorrect. The first speaker states, “I am what every athlete / wants” in lines 2–3, and the second speaker states, “*I am the blood flowing in the runner’s chest*” in line 12. The similarity of these metaphors may seem to suggest interrelationship, but the structures do not reveal surprise that they are interrelated.

- 38.** The question asks which idea the use of the words “siblings” and “my sisters and brothers” in lines 31–32 conveys in the poem.
- E.** Incorrect. Although in line 29 the structure refers to itself as “being rebuilt” or taking on new forms, this idea is expressed to reinforce the idea that the structure’s presence is eternal (“a friend of time,” line 30). The use of the words “siblings” and “my sisters and brothers” in lines 31–32 does suggest that a variety of structures exist, but no comparison is drawn to suggest that the varieties of structures are more diverse than the forms of water.
  - F.** Incorrect. While the use of the words “siblings” and “my sisters and brothers” in lines 31–32 conveys the idea that structures can be replicated by being built, it does not convey the idea that the number of human-made structures is rapidly increasing.
  - G.** Incorrect. Although in line 33 the structure states, “We stitch across the rip you make,” suggesting that water passes under structures, the use of the words “siblings” and “my sisters and brothers” in lines 31–32 does not convey the idea that the structures that the water passes under are similar-looking.
  - H. CORRECT.** The use of the words “siblings” and “my sisters and brothers” in lines 31–32 conveys the idea that the structure is powerful because it is one of many and because these structures “stitch across the rip” (line 33) that water makes.
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- 39.** The question asks what the comparison in lines 33–35 shows about the structure.
- A.** Incorrect. Although the structure states in line 33 that structures like itself “stitch across the rip” water makes, which may seem to suggest that the structures restore beauty to a ruined landscape, the language in the lines is used only to suggest that the structure is a tool used to unify the physical landscapes that humans inhabit.
  - B.** Incorrect. While the water states that it enables “*empires to rise*” (line 25), implying that it is needed for society to thrive, the structure never expresses the idea that it serves the purpose of bringing people together through its existence.
  - C.** Incorrect. Although the phrases “We stitch across” (line 33) and “We bind you up” (line 35) suggest the existence of boundaries, the comparisons made in lines 33–35 do not help show that the structure provides clear boundaries for natural environments.
  - D. CORRECT.** The speaker states, “We are steel thread to the human needle” (line 34), which illustrates that the structure and others like it are tools used by humans to “bind . . . up” (line 35) or overcome “the rip” (line 33) that the water creates in the earth.

40. The question asks how the last stanza conveys a central idea in the poem.
- E. Incorrect. Although in the last stanza the water states, “*my vapors cling. / They bring out your softness, your rust,*” the water does not depend on the structure; instead, the water destroys it over time. The structure depends on the power of water for its ability to fulfill its function.
  - F. Incorrect. The last stanza refers to the opposing speaker (the structure) and not to any other structure.
  - G. Incorrect. While in the last two lines of the poem the water states, “*Because I am, / above all else, patient. I will wait for you,*” implying that the water can withstand the ravages of time, the phrase “*your softness, your rust*” (line 38) indicates that the structure cannot. Therefore, the last stanza does not reveal that the passage of time will render both the structure and the water obsolete.
  - H. **CORRECT.** In lines 36–38, the water describes how its “*vapors cling*” to the structure, bringing out the structure’s “*softness*” and “*rust,*” destroying the structure over time. Also, in line 42, the water says it is “*patient*” and “*will wait for*” the structure, suggesting that the speaker will be around long after the structure is gone.
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41. The question asks how the implication in lines 41–42 is supported by other lines in the poem.
- A. **CORRECT.** The words “*patient*” and “*wait*” in line 42 suggest that the water has the ability to outlast the structure, because the water doesn’t weaken as it ages.
  - B. Incorrect. Although the statement “*No human / built me*” in lines 9–10 suggests that the speaker existed prior to humans, which may seem to support the idea of endurance in line 42, this answer is incorrect because in lines 41–42 the speaker is referring to outlasting the structure, not humans.
  - C. Incorrect. While the statement “*It all washes down through me*” in line 14 suggests that everything in the natural world is interrelated, the water sets itself apart from the human-made structure because it asserts that it will outlast the other structure and is “*above all else, patient*” (line 42).
  - D. Incorrect. In line 26, the water’s knowledge does not make its ability to wait any stronger—rather, its seemingly unending lifespan does.

42. The question asks how the poet develops the two points of view.
- E. Incorrect. While the poem relates how the water views the structure as “*an artifact / slowly decaying*” (lines 23–24) and the structure refers to itself as “a friend of time” (line 30), the poet does not give an account of a discussion about the future of human civilization.
  - F. Incorrect. While the speakers do discuss their impact on the environment, there is no narrator speaking for them.
  - G. Incorrect. Although the structure states it is made of “concrete and steel” (line 1) and is a “steel thread to the human needle” (line 34), only the water claims to possess power over nature, stating that “*all washes down through me*” (line 14) and “*what I am is power*” (line 22).
  - H. **CORRECT.** The poet develops the speakers’ points of view by personifying (giving human characteristics to something nonhuman such as an object or animal) the structure and the water, allowing them to debate by criticizing each other and declaring their own importance.
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43. The question asks how the form of the poem contributes to its meaning.
- A. Incorrect. The equal number of lines in each stanza may give the two speakers an equal voice, but that balance does not contribute to the meaning of the poem: the debate over their importance. The poem does not suggest that they are equals, just that they are opposing forces.
  - B. Incorrect. Italics are used mainly to designate the voice of the second speaker (the water). Although the structure and the water portray themselves as rivals in the poem, the use of italics does not indicate an increase in tension between the two but rather shows which is speaking.
  - C. **CORRECT.** The alternating positions of the stanzas create the appearance of a conversation in which the speakers share their opposing points of view.
  - D. Incorrect. The lack of rhyme scheme or meter is intended to create a conversational tone rather than reflect the changes the water causes or experiences.



**Excerpt from “Scribe Like an Egyptian”**

- 44.** The question asks for a sentence from the excerpt that supports the idea that different levels of education were available to scribes.
- E.** Incorrect. The sentence from paragraph 1 provides evidence that Egyptian scribes used two different forms of writing, but it does not address the topic of education or the different levels of education that were available to scribes.
  - F.** Incorrect. The advantages and purposes of hieratic script are described in this sentence from paragraph 2, but this explanation of the advantages and purposes does not suggest that there were different levels of education for scribes.
  - G.** Incorrect. The fact that scribes could learn their trade through apprenticeships as discussed in this sentence from paragraph 4 does provide evidence that another method of learning to be a scribe was possible, but this process was for a limited entry into becoming a scribe, not the continued education scribes would need in order to work in specific areas.
  - H. CORRECT.** By explaining that certain professions required additional years of training, this sentence from paragraph 6 supports the idea that different levels of education existed for scribes.
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- 45.** The question asks for an explanation of the author’s purpose for including a sentence in paragraph 2 that describes the two types of hieroglyphs and the main uses of this particular writing system.
- A.** Incorrect. The sentence explains that hieroglyphs were used for formal inscriptions, but it does not suggest that these inscriptions were limited to royal and religious contexts.
  - B.** Incorrect. The sentence describes the two basic types of hieroglyphs, ideograms and phonograms, but it does not address how experts interpret the ancient writing system. A sentence earlier in the paragraph explains that the hieroglyphs were deciphered by Champollion, but it does not explain how he deciphered them.
  - C.** Incorrect. Although the sentence explains that the hieroglyphs were typically used for formal inscriptions, it does not provide an explanation of the significance or importance of hieroglyphs in the Egyptian language.
  - D. CORRECT.** The sentence explains that hieroglyphs included both phonograms and ideograms that were used in formal inscriptions and funeral papyri; therefore, this sentence achieves the purpose of describing the basic features of hieroglyphs as conveying either words and ideas or sounds, in addition to explaining the common uses for the writing system.

46. The question asks for the **best** summary of the process that schools used to train scribes.
- E. Incorrect. This summary incorrectly explains that scribes were expected to learn 450 hieratic signs instead of 450 hieroglyphs along with their hieratic versions as explained in paragraph 6. In paragraph 5, the author explains that scribes copied texts as part of the process of learning the scripts rather than as practice after the signs had already been memorized.
  - F. **CORRECT.** Paragraph 5 explains that students began by learning hieratic script and studied for about five or six years by using “exemplar documents and extracts from popular texts to copy, to practice their hieratic handwriting.” The paragraph also explains that during this time, they learned only the basics of hieroglyphic script.
  - G. Incorrect. Although paragraph 5 does explain that the scribes spent five or six years learning hieratic script, it does not suggest that hieroglyphs were learned only during apprenticeships.
  - H. Incorrect. This summary correctly explains that scribes learned two types of scripts, but the second sentence of the summary is incorrect. In paragraph 5, the author explains that the students copied from exemplar texts, but the author clearly states that the purpose of this copy work was “to practice their hieratic handwriting” and does not suggest that the copy work was used to practice hieroglyphs. Paragraph 6 explains that scribes could make lists and write letters as part of their professional skills but does not suggest that copy work was used to help them learn these tasks.
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47. The question asks for the claim that is **best** supported by the details in paragraphs 3 and 4.
- A. Incorrect. While paragraph 4 does explain that boys from poorer families had more challenges in receiving an education, the paragraph also provides examples of obtaining a patron or getting an apprenticeship as ways that these aspiring scribes could attain an education. Furthermore, the details in paragraph 3 do not provide any support for the claim that “common citizens” had difficulty getting an education because that paragraph focuses on the example of one person who was able to become a king as a result of his background as a scribe.
  - B. **CORRECT.** In paragraph 3, the author provides an example of a person who used his skills as a scribe to rise through the ranks of society by describing the achievements of Horemheb to support the idea that “no matter how humble his origins, an educated Egyptian could achieve almost anything.” The author continues in paragraph 4 to explain that with the proper support, some young Egyptians could become educated, thereby opening more opportunities for themselves.
  - C. Incorrect. Paragraph 4 explains that schools were supported by the government and religious institutions, but it also explains that apprenticeships were a method of learning the craft of the scribe. As the paragraph indicates, boys could also be helped in their education by support from “a wealthier relative or patron.”
  - D. Incorrect. In paragraph 4, the author details the kinds of sacrifices that were necessary for some poorer families to ensure education for their sons. However, as paragraph 3 reveals in its example of Horemheb, who was born of middle-ranking parents, the sacrifice of time and money was not required for all families.

- 48.** The question asks why hieratic script was especially valuable in a bureaucratic government.
- E. CORRECT.** Hieratic script is described in paragraph 1 as being simpler for the “multitude of everyday documents” generated by the government and as “quicker to write and more economical of space” in paragraph 2. The logical conclusion based on these details is that hieratic script was more efficient for the large amounts of documentation produced by the government.
  - F.** Incorrect. In paragraph 4, the author explains that “education was not available to all,” suggesting that only people who were educated could read and write. The excerpt as a whole does not provide sufficient information to indicate what portion of the general public would be able to comprehend material written in hieratic script.
  - G.** Incorrect. The idea that becoming a scribe could lead to taking different positions in society is addressed in paragraphs 3, 4, and 6. However, the use of hieratic script in the fields of medicine, law, or religion does not necessarily explain the value of the script for the bureaucratic government referenced in the question.
  - H.** Incorrect. Although different professions such as doctors and lawyers used hieratic script, the author uses these professions as examples of different job opportunities for scribes in paragraph 6. There is no discussion in the excerpt about different professions communicating with each other, and these professions were not necessarily part of the bureaucratic government.
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- 49.** The question asks how the diagram of ancient Egyptian class structure supports the topic of the excerpt.
- A. CORRECT.** The focus of the excerpt is the opportunities available to scribes in different professions and how people became scribes and therefore improved their position. By illustrating the position of the scribes in the class structure of ancient Egypt, the diagram supports the idea that scribes were valuable members of society.
  - B.** Incorrect. The professions of the different social classes are shown in the diagram, but it does not address specific tasks. Furthermore, the main topic of the excerpt is the role of the scribes in society rather than the tasks performed by the different social classes.
  - C.** Incorrect. While the diagram does show the position of scribes in the social hierarchy, it does not provide an illustration of movement between the different classes or rankings, so the diagram does not support the idea that scribes were able to improve their social standing.
  - D.** Incorrect. The diagram shows the class structure as hierarchical and can support readers’ efforts to compare the different social positions. However, the role of scribes in society, rather than a general comparison of different classes, is the main focus of the excerpt.

- 50.** The question asks for a statement with which the author would **most** strongly agree.
- E.** Incorrect. The author only addresses boys who entered the profession of scribes. While the author does address the role of the family in supporting a boy's education or securing an apprenticeship, the author does not provide any discussion to support the idea that boys were only encouraged to follow the professions of their male relatives.
  - F.** Incorrect. The author explains that communication using hieroglyphs was not widely practiced in everyday correspondence and that hieratic script was the more popular form of writing. While being able to read and use hieroglyphs would have been helpful, it was not common for citizens to use this formal form of communication. In addition, scribes were trained to learn hieroglyphs and hieratic script as part of their education, so prior ability to read or compose hieroglyphs was not a requirement.
  - G. CORRECT.** As described in paragraph 2, hieratic script was more efficient and economical than hieroglyphs. Because this script was used for "everyday purposes," it was the more practical of the scripts as hieroglyphs were reserved for "formal inscriptions."
  - H.** Incorrect. In paragraph 6, the author indicates that "any half-competent scribe" could become employed in making and updating lists. While the paragraph later indicates that scribes would need to study several more years to be employed in a wider range of professions, there is no indication that employment as a scribe would be unavailable to a boy who studied for only a few years.

**Excerpt from “Niagara Falls”**

- 51.** The question asks for a specific detail from paragraph 2 that conveys the central idea that the Falls communicate a feeling of “unintelligible disaster” (paragraph 1).
- A.** Incorrect. Although the author describes the water as “richly diaphanous as a precious stone” and states that it “glow[s] from within with a deep, inexplicable light” in paragraph 2, the comparison does not convey the central idea that the Falls communicate a feeling of “unintelligible disaster” (paragraph 1); rather, the description communicates a feeling of awe.
  - B.** Incorrect. The details in paragraph 2 about the flow of colors in the water are described as an “ever-altering wonder,” which conveys a sense of beauty, not a sense of disaster.
  - C.** Incorrect. The rainbows in paragraph 2 are described as “vivid” and accompanying someone “courteously” while he or she walks, which contributes to the idea that the appearance and disappearance of the rainbows are a pleasant experience and not disastrous.
  - D. CORRECT.** The sound of falling is described in paragraph 2 as “a noise of unspecified ruin,” so this option is correct because it best connects with the idea of “unintelligible disaster” mentioned in paragraph 1.
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- 52.** The question asks for the effect of the comparison being made in the sentence in paragraph 2.
- E.** Incorrect. Neither “lacework and woven foam” (paragraph 2) nor the quality of being extremely level are related to timelessness.
  - F.** Incorrect. Although curtains are sometimes used to create privacy, the purpose of comparing the Falls to a “long curtain of lacework and woven foam” (paragraph 2) is not to convey the secretive nature of the Falls but rather to illustrate their beauty and uniformity.
  - G. CORRECT.** The word “lacework” in the sentence from paragraph 2 suggests an elegant piece of craftsmanship, and the “one long curtain” and “extraordinarily level” aspects of the Falls mean that the Falls are uniform or consistent.
  - H.** Incorrect. Although the author states in paragraph 1 that the Falls inspire a “feeling of colossal power,” in paragraph 2 the author describes the American Falls as “delicate and fragile.” Therefore, the purpose of the comparison in paragraph 2 is not to communicate the intense strength of the Falls.

- 53.** The question asks for the statement that **best** describes how the sentence from paragraph 3 fits into the overall structure of the excerpt.
- A.** Incorrect. Although in paragraph 2 the author describes the beauty of the Falls as both an “ever-altering wonder” and an “assault of wind and spray,” in paragraph 3 the author does not signal a change from the positive aspects of the Falls to the negative aspects. Instead, the author provides a description of the river and the rapids below the Falls.
  - B.** Incorrect. While the author compares the water of the river to “a slipping floor of marble, green with veins of dirty white, made by the scum that was foam” in paragraph 3, the statement that the lower rapids are “more terrifying than the Falls, because less intelligible” does not indicate a progression from the literal description of the water to a discussion of timeless truths. Instead, the author is merely describing all aspects of the rapids, both literally and figuratively.
  - C. CORRECT.** The first sentence of paragraph 3 moves the description “beyond the foot of the Falls” to “the river” and then the paragraph begins to describe this location in further detail (“a dull sage green,” “hurries more swiftly,” “smooth and ominous,” “waters boil and eddy”) before reinforcing this shift by confirming it again with the words “These are the lower rapids, a sight more terrifying than the Falls.”
  - D.** Incorrect. Although the author states that the waters of the rapids “boil and eddy” and suggests that the rapids are “less intelligible,” these statements do not introduce a contrast between the obvious and the hidden features of the rapids. They merely describe a feature and the sight of the lower rapids.
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- 54.** The question asks for the sentence from the excerpt that **best** supports the idea that the essence of the Falls lies in their emotional impact.
- E. CORRECT.** The first sentence in the excerpt establishes that “the real secret of the beauty and terror of the Falls” lies in “the feeling of colossal power and of unintelligible disaster.” This option states that “if that [feeling] were taken away, . . . the heart would be gone,” meaning that the emotional impact of the Falls is essential.
  - F.** Incorrect. While “delicate” and “fragile” are words that can be connected with certain kinds of emotions, in the sentence in the option they are connected with physical beauty.
  - G.** Incorrect. While the sentence in the option describes the power of the Falls to engage one in thought, it does not best support the idea that the essence of the Falls lies in their emotional impact.
  - H.** Incorrect. The sentence in the option describes thoughts one may have while watching the Falls and is not focused on the Falls’ emotional impact.

55. The question asks how the sentence from paragraph 4 contributes to the development of ideas in the excerpt.
- A. Incorrect. The sentence focuses on the idea that the Falls are a great place for contemplation but does not clarify that these thoughts are life-changing.
  - B. Incorrect. The sentence does not describe focused thoughts of a personal nature; the grand, sweeping nature of the Falls inspires thoughts of the same caliber as “the passage of empires.”
  - C. Incorrect. The sentence is about how the Falls inspire great thoughts but is not about how difficult it is to grasp the grandeur of the Falls.
  - D. **CORRECT.** The description of “cloudy thoughts of destiny and the passage of empires” in the sentence refers to the types of thoughts a person might have while observing the Falls.
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56. The question asks how paragraph 4 of the excerpt **mainly** illustrates the idea that human life and history ultimately end in the same way.
- E. Incorrect. In paragraph 4, the author compares the rainbows visible in the Falls to “the arts and beauty,” which share the rainbows’ dependence on “the stream of life”—that is, they are “caused by it, thrown upon its spray, but unable to stay or direct or affect it, and ceasing when it ceased.” This comparison does not illustrate the idea that human life and history ultimately end in the same way but rather that art and beauty, like human beings, are unable to “stay or direct or affect” their ultimate fate.
  - F. **CORRECT.** The author concludes in paragraph 4 that the movement of the Falls can be compared to people and history when he writes, “both men and nations are hurried onwards to their ruin or ending as inevitably as this dark flood.” This comparison illustrates the idea that human life and history ultimately end in the same way.
  - G. Incorrect. Although in paragraph 4 the author states that “One is drawn back, strangely, to a contemplation of the Falls” and provides an account of “a friend, who said that the rainbows over the Falls were like the arts and beauty and goodness, with regard to the stream of life,” the author does not provide details to show that every observer’s experience with the Falls is different. Rather, the author explains that “the Victorian lies very close below the surface in every man” (paragraph 4).
  - H. Incorrect. While the setting at night does provide a place of contemplation, the author notes the “dark flood” as the overall illustration of the human experience.

57. The question asks for the statement the author would **most likely** agree with.
- A. **CORRECT.** In paragraph 4, the author states that the Falls make a person feel “with an almost insupportable and yet comforting certitude, that both men and nations are hurried onwards to their ruin or ending.” Later, the final sentence says, “With some such thoughts does the platitudinous heart win from the confusion and thunder of a Niagara peace.”
  - B. Incorrect. Although in paragraph 4 the author states that “one can sit and let great cloudy thoughts of destiny and the passage of empires drift through the mind; for such dreams are at home by Niagara” and that “a man’s life is of many flashing moments,” the author does not suggest that one will always have regrets no matter where one’s path goes in life.
  - C. Incorrect. While the excerpt discusses fear when experiencing the power of the Falls, the excerpt does not support the idea that one should defy fear.
  - D. Incorrect. The excerpt states in paragraph 4 that art is “unable to stay.”



## Form B

# Sample Test – Mathematics Explanations of Correct Answers

- 58. (250)** Let  $x$  represent the number of two-door cars that will be sold next month. Use the information in the table to set up a proportion:

$$\frac{x}{1,000} = \frac{2,250}{9,000}$$
$$x = \frac{(2,250)(1,000)}{9,000} = \frac{2,250}{9} = 250$$

- 59. (13.5)** Let  $w$  represent the width of the actual garden. Set up a proportion based on the information given:

$$\frac{w}{9} = \frac{3}{2}$$
$$w = \frac{3(9)}{2} = \frac{27}{2} = 13.5$$

- 60. (12)** The greatest possible number of children in the class is the greatest common factor of 72, 60, and 84. Write the prime factorization of each number:

$$72 = 2^3 \times 3^2$$
$$60 = 2^2 \times 3 \times 5$$
$$84 = 2^2 \times 3 \times 7$$

Then, find the factors that all three have in common, which is  $2^2 \times 3 = 12$ .

- 61. (8)** Calculate simple interest ( $y$ ) by multiplying the initial deposit ( $p$ ) by the interest rate ( $r$ ) by the number of years ( $t$ ):

$$prt = y$$
$$900(0.05)t = 360$$
$$45t = 360$$
$$t = 8$$

62. (7)

$$\frac{(21)(14)x}{(49)(48)} = 0.875$$

$$\left(\frac{21}{49}\right)\left(\frac{14}{48}\right)x = 0.875$$

$$\left(\frac{3}{7}\right)\left(\frac{7}{24}\right)x = 0.875$$

$$\left(\frac{1}{8}\right)x = 0.875$$

$$x = (0.875)(8) = 7$$

63. (C) The first step is to rewrite the problem replacing all subtraction with adding the opposite:

$$3\frac{1}{4} - 1\frac{2}{3} - \left(-4\frac{1}{2}\right)$$

$$3\frac{1}{4} + \left(-1\frac{2}{3}\right) + 4\frac{1}{2}$$

Then, rewrite all the fractions using a common denominator of 12, which is the least common multiple of the fractions' denominators, 4, 3, and 2:

$$3\frac{3}{12} + \left(-1\frac{8}{12}\right) + 4\frac{6}{12}$$

Next, combine the positive numbers and, finally, add the negative number to the sum by subtracting the number with the least absolute value from the number with the greatest absolute value and using the sign of the number with the greatest absolute value:

$$7\frac{9}{12} + \left(-1\frac{8}{12}\right)$$

$$6\frac{1}{12}$$

- 64. (G)** Let  $x$  represent the distance, in kilometers, between Fran's house and Bryant State Park. Set up a proportion to solve for  $x$ :

$$\frac{x}{4.5} = \frac{3}{2} \quad \text{Cross multiply.}$$

$$2x = 3(4.5) \quad \text{Apply the multiplicative inverse property; divide both sides of the equation by 2.}$$

$$x = \frac{13.5}{2} = 6\frac{3}{4} \approx 7$$

- 65. (A)**

$$2x + 4 = y \quad \text{Apply the additive inverse property; subtract 4 from both sides of the equation.}$$

$$2x = y - 4 \quad \text{Apply the multiplicative inverse property; divide both sides of the equation by 2.}$$

$$x = \frac{y - 4}{2}$$

- 66. (E)** First, subtract Luis's time from Bryan's time:  $11.74 - 11.69 = 0.05$ .

Then, convert to a fraction:

$$0.05 = \frac{5}{100} = \frac{1}{20}$$

- 67. (B)** Use the information in the bullet points to reason which box plot could represent the data set of test scores.

Since none of the students scored 100, the maximum value on the box plot must be less than 100.

If 75% of the students scored less than 82, then 25% scored 82 points or more.

Since the third quartile (Q3) indicates  $\frac{3}{4}$  (75%) of the data is to the left and  $\frac{1}{4}$  (25%) of the data is to the right, it is reasonable that Q3 would be at or about 82.

Given that the lowest score in the class was 54, the minimum point on the box plot must be 54.

The box plot graph in option B is the only one that meets all three criteria.

- 68. (F)**

$$n = 0.13 + \frac{207}{100} =$$

$$\frac{13}{100} + \frac{207}{100} =$$

$$\frac{220}{100} = \frac{11}{5}$$

- 69. (A)** Let  $x$  represent the length of one of the 10 remaining sides:

$$25 + 35 + 10x = 100$$

$$60 + 10x = 100$$

$$10x = 40$$

$$x = 4$$

- 70. (E)** After Shio-Chen draws a yellow card and a green card, the remaining cards are 3 green, 6 yellow, and 6 red. The probability of drawing a green card from that group is:

$$\frac{3}{3 + 6 + 6} = \frac{3}{15} = \frac{1}{5}$$

- 71. (D)** Let  $n$  represent a number in the sequence, and let  $x$  represent the number that comes just before  $n$ :

$$n = 3 + 2x$$

$$93 = 3 + 2x$$

$$90 = 2x$$

$$45 = x$$

- 72. (H)** Let  $d$  represent the distance between the two houses, in miles. Write a proportion to solve for  $d$ :

$$\frac{d}{5.4} = \frac{3}{2}$$

$$d = \frac{3(5.4)}{2} = \frac{16.2}{2} = 8.1$$

- 73. (B)** The total number of degrees in a circle is 360. The measure of the angle between adjacent spokes is  $\frac{360}{15} = 24^\circ$ .

- 74. (G)** First, find the value of  $m$  for each value of  $t$ :

$$\text{For } t = 1:$$

$$1m = 72$$

$$m = 72$$

$$\text{For } t = 2:$$

$$2m = 72$$

$$m = 36$$

$$\text{For } t = 3:$$

$$3m = 72$$

$$m = 24$$

Then, add those three values together:

$$72 + 36 + 24 = 132$$

- 75. (C)** First, find the area of the rectangle, in square feet:

$$16 \times 8 = 128$$

Then, find the area of the triangle:

$$\frac{1}{2} \times 4 \times 16 = 32$$

To find the area of the shaded region, subtract the area of the triangle from the area of the rectangle:

$$128 - 32 = 96 \text{ sq ft}$$

- 
- 76. (E)** Let  $x$  represent the number of gallons of orange juice. Since the shipment contains equal amounts of the two types of juice,  $x$  also represents the number of gallons of grapefruit juice. Write an equation to solve for  $x$ :

$$\begin{aligned} 2x + 3x &= 250 \\ 5x &= 250 \\ x &= 50 \end{aligned}$$

- 77. (C)** Let  $n$  represent the least of the five numbers. Then the next four consecutive numbers are  $(n + 1)$ ,  $(n + 2)$ ,  $(n + 3)$ ,  $(n + 4)$ . Write an equation to solve for  $n$ :

$$\begin{aligned} n + (n + 1) + (n + 2) + (n + 3) + \\ (n + 4) &= 110 \end{aligned}$$

$$5n + 10 = 110$$

$$5n = 100$$

$$n = 20$$

- 
- 78. (H)** Since  $m$  and  $n$  are positive, the value of  $mn$  is also positive. Of the five options given:

$-mn$  is negative.

$(-m)(-n)$  is positive.

$|mn|$  is positive.

$|^{-mn}|$  is positive.

$|(-m)(-n)|$  is positive.

There are 4 expressions that are positive, and each one is equal to  $mn$ .

**79. (C)** A set of 10 data points is given. The first step for determining the quartiles and minimum and maximum values of the box plot is to order the data from smallest to greatest value. For this data set the order is:

3.5 3.8 3.9 4.5 4.6  
4.8 5.4 6.0 6.2 6.5

The minimum value is the smallest decimal, 3.5, and the maximum value is the greatest decimal, 6.5.

To determine the **median** in a set with an even number of values, locate the two middle values (5th and 6th in this case): 4.6 and 4.8. Determine the mean, or average, of the two middle numbers by adding them together and dividing

the sum by 2:

$$\frac{4.6 + 4.8}{2} = \frac{9.4}{2} = 4.7$$

To determine the value of the **first quartile** (Q1), locate the middle value of the 5 terms to the left of the median:

3.5 3.8 **3.9** 4.5 4.6

To determine the value of the **third quartile** (Q3), locate the middle value of

the 5 terms to the right of the median:

4.8 5.4 **6.0** 6.2 6.5

Box plot C identifies the correct minimum, maximum, median, and quartiles of the data set.

- 80. (G)** First, find the number of peaches sold:

$$50 - (8 + 6 + 12 + 6) =$$
$$50 - 32 = 18$$

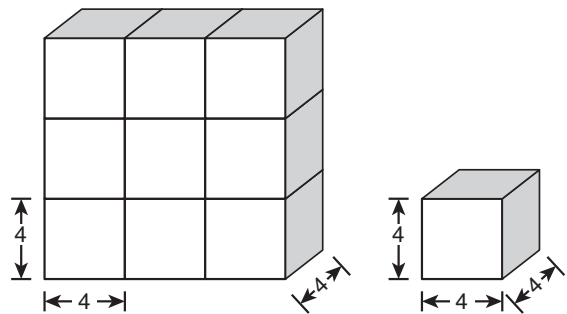
Then, find the percentage:

$$\frac{18}{50} = 0.36 = 36\%$$

- 81. (D)** First, determine the volume of each congruent cube. All the side lengths of the cubes are equal, so the length, width, and height of each cube is 4 units. To determine the volume of each cube, multiply length  $\times$  width  $\times$  height:

$$4 \times 4 \times 4 = 64$$

So, the volume of each cube is 64 cubic units.



The prism is comprised of 9 of these cubes, so multiply the volume of each cube (64) by the total number of cubes (9) to determine the volume, in cubic units, of the prism:

$$64 \times 9 = 576$$

- 82. (G)** Let  $p$  represent the population of Waterville in 2006. The population per square mile is:

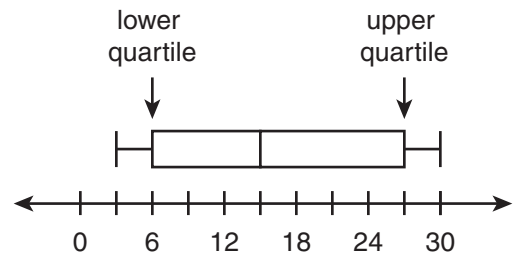
$$\frac{p}{50} = 1,500$$

Solve for  $p$ :

$$p = 1,500(50) = 75,000$$

The population decrease from 2005 to 2006 is  $84,000 - 75,000 = 9,000$ .

- 83. (C)** First, determine the values of the upper and lower quartiles of the set of data:



- The upper quartile value is indicated by the vertical line segment at the far right edge of the box plot above the hash mark representing 27.
- The lower quartile value is indicated by the vertical line segment at the far left edge of the box plot above the hash mark representing 6.

To determine the interquartile range, subtract the lower quartile value (6) from the upper quartile value (27):

$$27 - 6 = 21$$



- 84. (F)** First, find the median of set N. There are 17 integers in set N, so the 9th integer is the median. The 9th integer is 14.

The least integer in set L is equal to the median of set N, so the least integer in set L is 14.

There are 25 integers in set L, so the median is the 13th integer. That integer is 26.

- 85. (D)** The ratio of  $x$  to  $y$  is 1:2, so  $\frac{x}{y} = \frac{1}{2}$  or  $x = \frac{1}{2}y$ . Similarly, the ratio of  $y$  to  $z$  is 2:5, so  $\frac{y}{z} = \frac{2}{5}$ . Solve for  $z$  in terms of  $y$ :

$$5y = 2z$$

$$\frac{5}{2}y = z$$

Use the given sum of  $x$ ,  $y$ , and  $z$  to find the value of  $y$ :

$$x + y + z = 40$$

$$\frac{1}{2}y + y + \frac{5}{2}y = 40$$

$$4y = 40$$

$$y = 10$$

- 86. (F)** The sum of 4 consecutive integers can be expressed as:

$$\begin{aligned}n + (n + 1) + (n + 2) + (n + 3) \\= 4n + 6\end{aligned}$$

Set that expression equal to each of the options and solve for  $n$ :

Option E:

$$4n + 6 = -12$$

$$4n = -18$$

$$n = -\frac{18}{4} \text{ is not an integer.}$$

Option F:

$$4n + 6 = -10$$

$$4n = -16$$

$$n = -4 \text{ is an integer.}$$

Option G:

$$4n + 6 = -8$$

$$4n = -14$$

$$n = -\frac{14}{4} \text{ is not an integer.}$$

Option H:

$$4n + 6 = -4$$

$$4n = -10$$

$$n = -\frac{10}{4} \text{ is not an integer.}$$

The only option for which  $n$  is an integer answer is  $-10$ .

---

**87. (C)** There are 5 stores where the video game is priced at \$10.99 and a total of 5 stores where it is priced at either \$12.99 or \$13.99, so the median price must be \$11.99.

---

**88. (F)** Solve  $xy = 30$ , the given equation, for  $x$ :

$$xy = 30$$
$$x = \frac{30}{y}$$

Then:

$$10 \div x = 10 \div \frac{30}{y} = 10 \times \frac{y}{30} = \frac{1}{3}y$$

---

**89. (B)** First, find the lengths of the given segments:

$$QR = 5\frac{1}{6} - 3 = 2\frac{1}{6}$$

$$PQ = 3 - 1\frac{1}{3} = 1\frac{2}{3}$$

Then, find the difference:

$$2\frac{1}{6} - 1\frac{2}{3} =$$

$$\frac{13}{6} - \frac{5}{3} =$$

$$\frac{13}{6} - \frac{10}{6} =$$

$$\frac{3}{6} = \frac{1}{2}$$

**90. (F)** Since the distance from W to X is 70% of the distance from W to Y, the distance from X to Y is 30% of the distance from W to Y. Let  $d$  represent the distance from W to Y. Then 15 miles is 30% of  $d$ .

$$0.30d = 15$$

$$d = \frac{15}{0.30} = 50$$

So, the distance from W to X, in miles, is  $50 - 15 = 35$ .

---

**91. (D)** Multiply the numbers of highways between each pair of cities:

$$3 \times 4 \times 3 = 36$$

92. (G) Take each ratio and solve for dogs:

$$\frac{p}{d} = \frac{4}{1}$$

$$4d = p$$

$$d = \frac{1}{4}p$$

And

$$\frac{d}{c} = \frac{3}{2}$$

$$d = \frac{3}{2}c$$

Set the two expressions for  $d$  equal to each other and solve for  $\frac{p}{c}$ :

$$\frac{1}{4}p = \frac{3}{2}c$$

$$p = 6c$$

$$\frac{p}{c} = \frac{6}{1}$$

So, the ratio of people to cats is 6:1.

93. (B) Let  $x$  represent the side length of square T, in centimeters. Then the side length of square S is  $(x - 1)$ .

The area of square S is:

$$(x - 1)(x - 1) = 9$$

$$(x - 1)^2 = 9$$

$$x - 1 = 3$$

$$x = 4$$

So the side length of square T is 4 cm, and the area of square T is 16 sq cm.

The difference between the areas, in square centimeters, is  $16 - 9 = 7$ .

- 94. (H)** First, distribute the negative sign, which is the same as multiplying both terms in the parentheses by  $-1$ .

Next, combine like terms:

$$\frac{1}{2}x + 7 - \left(x - \frac{9}{2}\right)$$

$$\frac{1}{2}x + 7 - x + \frac{9}{2}$$

$$-\frac{1}{2}x + \frac{23}{2}$$

Then, factor the common factor of  $-\frac{1}{2}$  from both terms, paying careful attention to the signs:

$$-\frac{1}{2}x + \frac{23}{2} = -\frac{1}{2}(x - 23)$$

---

**95. (A)**  $\frac{1}{x} - \frac{1}{2x} = \frac{2}{2x} - \frac{1}{2x} = \frac{1}{2x}$

---

- 96. (G)** The total number of people who participated in the competition was  $1 + 5 + 10 + 4,984 = 5,000$ . The total number who placed first, second, or third was  $1 + 5 + 10 = 16$ .

$$\frac{16}{5,000} = \frac{32}{10,000} = 0.0032 = 0.32\%$$

- 97. (B)** Let  $A$  represent the measure of angle  $A$ , and let  $B$  represent the measure of angle  $B$ , in degrees. Since the angles are complementary,  $A + B = 90$ . The question states that  $B = 3A$ , or  $A = \frac{B}{3}$ . Substitute that expression for  $A$  in the first equation and solve for  $B$ :

$$A + B = 90$$

$$\frac{B}{3} + B = 90$$

$$\frac{4B}{3} = 90$$

$$4B = 270$$

$$B = 67.5$$

- 
- 98. (G)** Let  $h$  represent the height of the tree in 2003. Then the height of the tree in 2013 is  $3h$ . Calculate the percent increase:

$$\frac{3h - h}{h} = \frac{2h}{h} = 2 = 200\%$$

- 99. (B)** If 1 gallon is equal to 16 cups, and 1 cup is equal to 8 fluid ounces, then

$$\begin{aligned} 1 \text{ gallon} &= \\ (16)(8 \text{ fluid ounces}) &= \\ 128 \text{ fluid ounces} & \\ 128 &= 2^7 \end{aligned}$$

$$1 \text{ gallon} = 2^7 \text{ fluid ounces}$$

$$\text{So, } x = 7.$$

- 100. (H)** The length of one side of the puzzle is  $\sqrt{64} = 8$  inches. The length of one side of the block is  $\sqrt[3]{64} = 4$  inches.

The ratio of the side of the puzzle to the side of the block is 8:4, which reduces to 2:1.

- 101. (A)** Let  $x$  represent Rosa's score on the third test, and let  $y$  represent her score on the fourth test.

$$\frac{81 + 83 + x + y}{4} = 85$$

$$164 + x + y = 340$$

$$x + y = 176$$

If Rosa scores 100 on the fourth test, then the least score she can earn on the third test is 76.

- 102. (H)** The fraction of the pizza that the Barnes family eats is  $\frac{11}{18}$ . Let  $x$  represent the number of slices of pizza that the Ramirez family eats. Then the fraction of the pizza that the Ramirez family eats is  $\frac{x}{15}$ . Write an inequality and solve for  $x$ :

$$\frac{x}{15} \leq \frac{11}{18}$$

$$x \leq \frac{11 \times 15}{18}$$

$$x \leq \frac{165}{18}$$

$$x \leq 9\frac{1}{6}$$

So, the greatest number of whole slices of pizza the Ramirez family can eat is 9.

- 103. (D)**

$$0^3 + 4^0 + 2^{-1} + (-1)^2$$

$$= 0 + 1 + \frac{1}{2} + 1$$

$$= 2\frac{1}{2} = 2.5$$

**104. (G)** The “without replacement” statement means that the bag contained four slips for the first draw, three slips for the second draw, two slips for the third draw, and one slip for the last draw. Following the branch from the top and navigating down to the box, the 1 was chosen first, the 2 was chosen second, and the 4 was chosen third. The only remaining number is 3. The element would be 1243.

**105. (A)** First, recognize that the temperature decreased. This means that the order of subtraction matters and that the result is a negative number:

$$^{-}0.7 - 4.2 = ^{-}4.9$$

The temperature decreased 4.9 degrees. Divide by 3.5 to get the average change per hour:

$$^{-}4.9 \div 3.5 = ^{-}1.4$$

**106. (G)** First, change 6 feet to yards:

$$6 \text{ feet} \times \frac{1 \text{ yard}}{3 \text{ feet}} = 2 \text{ yards}$$

Then, multiply the dimensions of the pool to find the volume, in cubic yards:

$$20 \times 14 \times 2 = 560$$

**107. (B)** First, list the products:

$$\begin{aligned} 3 \times 4 &= 12 \\ 3 \times 5 &= 15 \\ 3 \times 6 &= 18 \\ 3 \times 7 &= 21 \\ 4 \times 5 &= 20 \\ 4 \times 6 &= 24 \\ 4 \times 7 &= 28 \\ 5 \times 6 &= 30 \\ 5 \times 7 &= 35 \\ 6 \times 7 &= 42 \end{aligned}$$

Of the 10 products, 3 are odd. The fraction is  $\frac{3}{10}$ .

**108. (E)** A quotient of 10 with a remainder of 5 means the quotient is

$$10 + \frac{5}{25} = 10\frac{1}{5} = 10.20$$

**109. (C)** The perimeter (or circumference) of one of the three semicircles is  $\frac{1}{2}(\text{diameter})\pi = \frac{1}{2}(2\pi) = \pi$ . Since there are 3 semicircles that make up the perimeter, the perimeter is  $3\pi$ .

**110. (E)** Each time Micha draws a card, the probability of drawing the number 5 is  $\frac{1}{5}$ . To find the probability of drawing the number 5 three times, multiply:

$$\frac{1}{5} \times \frac{1}{5} \times \frac{1}{5} = \frac{1}{125}$$

**111. (D)**

$$\frac{10 \text{ m}}{1 \text{ sec}} \times \frac{3,600 \text{ sec}}{1 \text{ h}} \times \frac{1 \text{ ft}}{0.3 \text{ m}} = \frac{36,000 \text{ ft}}{0.3 \text{ h}} = 120,000 \frac{\text{ft}}{\text{hr}}$$

**112. (H)**  $6.\overline{34} - 4.\overline{12} = 2.\overline{22} = 2.\overline{2}$

$x = 2.2222\dots$  Set  $x$  equal to the repeating decimal.

$10x = 22.2222\dots$  Multiply both sides by 10.

$-x = -2.2222\dots$  Subtract  $10x$  and  $x$ .

$9x = 20$  Apply the multiplicative inverse property; divide both sides by 9.

$$x = \frac{20}{9}$$

**113. (C)** First, find the area of the rectangle in the graph:

$$3 \times 5 = 15$$

Then, find the areas of the two right triangles that are not shaded:

Upper triangle:

$$\frac{1}{2} \times 4 \times 3 = 6$$

Lower triangle:

$$\frac{1}{2} \times 2 \times 5 = 5$$

The area of the shaded region, in square units, is calculated by subtracting the total area of the two right triangles from the area of the rectangle:

$$15 - (6 + 5) = 15 - 11 = 4$$

**114. (H)** Let  $w$  represent the number of additional white marbles.

Set the probability of drawing a white marble equal to  $\frac{3}{5}$  and solve the equation for  $w$ :

$$\begin{aligned} \frac{16 + w}{14 + 10 + 16 + w} &= \frac{3}{5} \\ \frac{16 + w}{40 + w} &= \frac{3}{5} \\ 5(16 + w) &= 3(40 + w) \\ 80 + 5w &= 120 + 3w \\ 2w &= 40 \\ w &= 20 \end{aligned}$$



# Form B

## Sample Test – Answer Key

You can read explanations for each answer online here. If you are in 9th grade, you can find examples of additional types of math topics you might see on your test, here.

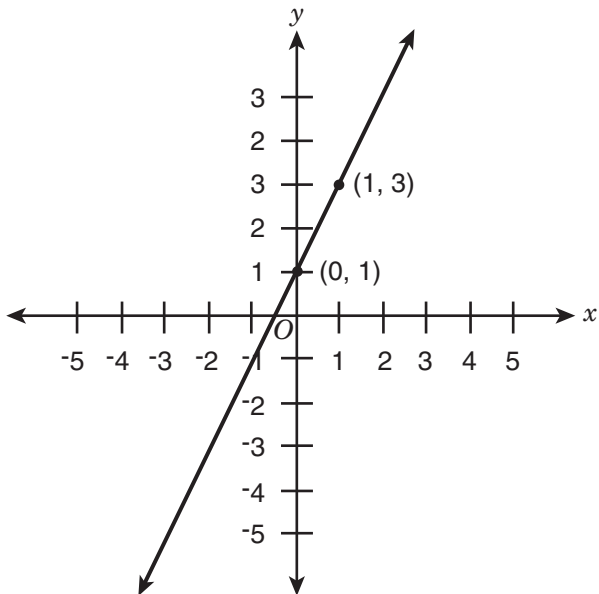
### Answer Key for Sample Form B

1. B	14. H	27. A	40. H	53. C	66. E	79. C	92. G	105. A
2. F	15. C	28. G	41. A	54. E	67. B	80. G	93. B	106. G
3. D	16. F	29. B	42. H	55. D	68. F	81. D	94. H	107. B
4. E	17. D	30. G	43. C	56. F	69. A	82. G	95. A	108. E
5. C	18. G	31. B	44. H	57. A	70. E	83. C	96. G	109. C
6. E	19. D	32. F	45. D	58. 250	71. D	84. F	97. B	110. E
7. D	20. E	33. D	46. F	59. 13.5	72. H	85. D	98. G	111. D
8. F	21. A	34. F	47. B	60. 12	73. B	86. F	99. B	112. H
9. B	22. H	35. A	48. E	61. 8	74. G	87. C	100. H	113. C
10. F	23. D	36. E	49. A	62. 7	75. C	88. F	101. A	114. H
11. A	24. E	37. B	50. G	63. C	76. E	89. B	102. H	
12. E	25. C	38. H	51. D	64. G	77. C	90. F	103. D	
13. C	26. F	39. D	52. G	65. A	78. H	91. D	104. G	

# Grade 9

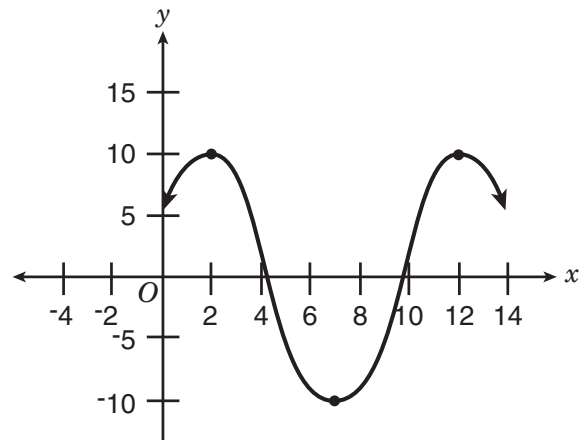
## Mathematics Sample Questions

1. A function is given on the coordinate plane.



The function is linear. What is the  $y$ -value for  $x = -4$ ?

2. What is the difference in  $x$ -values in the graph from where the function first begins decreasing to where it begins decreasing again?

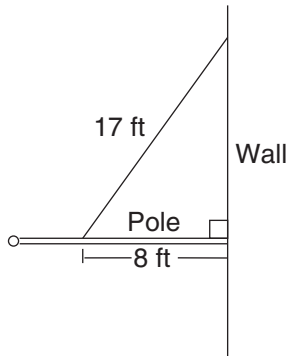


- 3.

$$\begin{cases} y = \frac{3}{2}x - 1 \\ x + 2y = 6 \end{cases}$$

What is the value of  $x$  in the solution to the system of equations shown above?

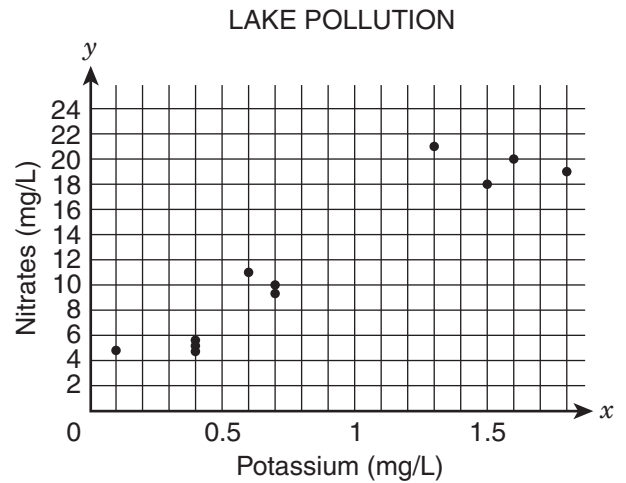
4.



The diagram above shows a pole connected to a wall at a  $90^\circ$  angle. A 17-foot wire is attached to the pole at a point 8 feet out from the wall. How many feet above the pole is the wire attached to the wall?

- E. 9
- F. 13
- G. 15
- H. 16

5. A researcher recorded pollution data that measured the presence of potassium and nitrates in some lakes. The scatter plot shows the data.



Which statement describes the data shown in the graph?

- A. The data show a nonlinear association.
- B. The data show multiple outliers.
- C. The data show a positive association.
- D. The data show a negative association.

6. How much greater is  $(1.8 \times 10^6)$  than  $(7.3 \times 10^5)$ ?

- E.  $1.07 \times 10^5$
- F.  $1.13 \times 10^5$
- G.  $1.07 \times 10^6$
- H.  $1.13 \times 10^6$

---

7. How is  $0.\overline{6} \times 0.\overline{2}$  written as a fraction in simplest form?

A.  $\frac{4}{27}$

B.  $\frac{2}{15}$

C.  $\frac{4}{33}$

D.  $\frac{3}{25}$

---

8. If  $2x - 6 = 8y - 10$  and  $x > 5$ , what is the **least** possible integer value of  $y$ ?

E. 1

F. 2

G. 3

H. 6

9. A data set relates a car's average gas mileage,  $y$ , in miles per gallon, to its engine size,  $x$ , in liters. The equation for the line of best fit is  $y = -3.25x + 34.5$ . What is the meaning of the slope of the line as it relates to gas mileage and engine size?

A. For each decrease of 1 L in engine size, the gas mileage decreases by 3.25 mpg.

B. For each increase of 1 L in engine size, the gas mileage decreases by 3.25 mpg.

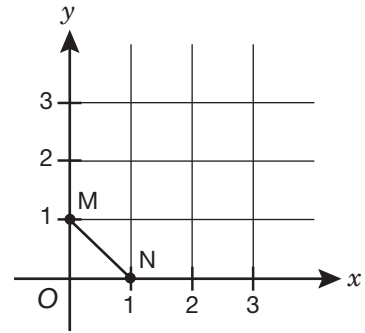
C. For each increase of 1 mpg in gas mileage, the engine size decreases by 3.25 L.

D. For each decrease of 3.25 mpg in gas mileage, the engine size decreases by 1 L.

10. On Saturday, the temperature changed at a constant rate from 2:00 a.m. until 2:00 p.m. At 4:00 a.m., the temperature was  $47^\circ$  F. At 10:00 a.m., the temperature was  $32^\circ$  F. What was the temperature at 2:00 a.m. on Saturday?

- E.  $15^\circ$  F
- F.  $37^\circ$  F
- G.  $42^\circ$  F
- H.  $52^\circ$  F

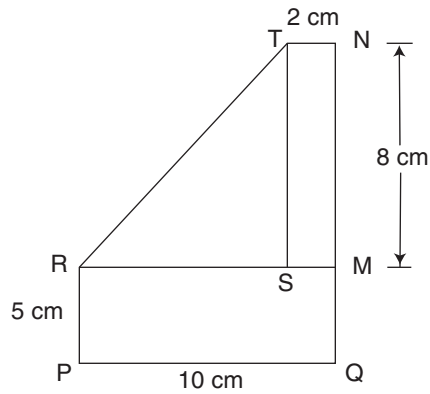
11.



If  $\overline{MN}$  is rotated  $90^\circ$  clockwise about the origin, what are the coordinates of  $N'$ ?

- A. (1, 0)
- B. (0, 1)
- C. (0, -1)
- D. (-1, 0)

12.



In the diagram above,  $STNM$  and  $PRMQ$  are rectangles, and point  $S$  is on  $\overline{RM}$ . What is the length of  $\overline{RT}$ , in centimeters?

- E. 8
- F.  $\sqrt{80}$
- G. 10
- H.  $\sqrt{128}$

13.

$$N = \sqrt{y + (2x - 1)^2}$$

In the equation shown above,  $y > 0$  and  $N \geq 0$ . What value of  $x$  will result in the **least** possible value of  $N$ ?

- A.  $-\frac{1}{2}$
- B. 0
- C.  $\frac{1}{4}$
- D.  $\frac{1}{2}$

## Grade 9

# Mathematics Explanations of Correct Answers

1. (-7) The function goes through points (0, 1) and (1, 3). Use those points to determine the equation of the function:

$$\text{Slope: } \frac{3 - 1}{1 - 0} = \frac{2}{1} = 2$$

It can be determined from the graph that the y-intercept is 1.

$$\text{Equation: } y = 2x + 1$$

Now plug in  $x = -4$  to find  $y$ :

$$y = 2(-4) + 1 = -8 + 1 = -7$$

- 
2. (10) The function first begins decreasing at (2, 10) and begins decreasing again at (12, 10). The difference in x-values is  $12 - 2 = 10$ .

3. (2) First, solve the second equation for  $y$ :

$$x + 2y = 6$$

$$2y = 6 - x$$
 Apply the additive inverse property; subtract  $x$  from both sides of the equation.

$$y = \frac{6 - x}{2}$$
 Apply the multiplicative inverse property; divide both sides of the equation by 2.

Now set the two expressions for  $y$  equal to each other:

$$\frac{3}{2}x - 1 = \frac{6 - x}{2}$$
 Apply the multiplicative inverse property; multiply both sides by 2.

$$3x - 2 = 6 - x$$
 Apply the additive inverse property; add  $x$  to both sides of the equation.

$$4x - 2 = 6$$
 Apply the additive inverse property; add 2 to both sides of the equation.

$$4x = 8$$
 Apply the multiplicative inverse property; divide both sides of the equation by 4.

$$x = 2$$

4. **(G)** Let  $x$  represent the distance between the pole and the point where the wire attaches to the wall. Use the Pythagorean theorem to find  $x$ :

$$\begin{aligned}x^2 + 8^2 &= 17^2 \\x^2 + 64 &= 289 \\x^2 &= 225 \\x &= \sqrt{225} = 15\end{aligned}$$

5. **(C)** According to the scatter plot, as the potassium value increases, so does the nitrates value. Therefore, this is a positive association.

6. **(G)** In order to subtract the expressions, rewrite them so that they have the same exponent on the 10.

$$\begin{aligned}(1.8 \times 10^6) - (7.3 \times 10^5) &= \\(1.8 \times 10^6) - (0.73 \times 10^6) &= \\(1.8 - 0.73) \times 10^6 &= \\1.07 \times 10^6 &= \end{aligned}$$

7. **(A)** Rewrite the repeating decimals as fractions:

$$x = 0.666666\dots \quad \text{Let } x \text{ equal the repeating decimal.}$$

$$10x = 6.66666\dots \quad \text{Multiply both sides of the equation by 10 to move the decimal one place to the right.}$$

$$10x = 6.6666\dots \quad \text{Subtract the two equations.}$$

$$\underline{-x = -0.6666\dots}$$

$$9x = 6.0000\dots \quad \text{Apply the multiplicative inverse property; divide both sides by 9.}$$

$$x = \frac{6}{9} = \frac{2}{3} \quad \text{Simplify the fraction to lowest terms (if needed).}$$

Perform the same process for  $0.\overline{2}$ :

$$\begin{aligned}10x &= 2.2222\dots \\ \underline{-x} &= \underline{-0.2222\dots} \\ 9x &= 2.0000\dots \\ x &= \frac{2}{9}\end{aligned}$$

Then multiply:

$$\frac{2}{3} \times \frac{2}{9} = \frac{4}{27}$$



8. (F) Solve for  $x$ :

$$x = 4y - 2$$

Since  $x > 5$ , then  $4y - 2 > 5$ . So,  
 $y > \frac{7}{4}$  or 1.75. Since  $y$  is an integer, the  
least possible integer value of  $y$  is 2.

9. (B) The slope of the line of best fit is

-3.25. Slope is  $\frac{\text{change in } y}{\text{change in } x}$ ,

or in this case,  $\frac{\text{change in gas mileage}}{\text{change in engine size}}$ .

So, for every 1 L increase in engine size,  
the gas mileage decreases by 3.25 mpg.

10. (H) The problem gives two points:  
(4:00, 47) and (10:00, 32). Use that  
information to find the rate of change:

$$\frac{32 - 47}{10 - 4} = \frac{-15}{6} = \frac{-5}{2}$$

So, the temperature change was  $-\frac{5}{2}^\circ\text{F}$   
each hour.

To find the temperature at 2:00 a.m.,  
which is 2 hours before 4:00 a.m.,  
subtract  $-\frac{5}{2}$  from 47 twice:

$$47 - 2\left(-\frac{5}{2}\right) = 47 + 5 = 52$$

Therefore, the temperature at 2:00 a.m.  
was  $52^\circ\text{F}$ .

11. (C) The new position of  $A(k, h)$  after  
rotating  $90^\circ$  clockwise will be  $A'(k, -h)$ .  
Rotating  $90^\circ$  clockwise moves the line  
segment to the fourth quadrant. So,  $M'$   
becomes  $(1, 0)$  and  $N'$  becomes  $(0, -1)$ .

- 12. (H)** Triangle RTS is a right triangle. First, find the lengths of the two legs (TS and RS). Then the Pythagorean theorem can be used to find the length of  $\overline{RT}$ .

In rectangle STNM, TN is 2 cm, so SM is also 2 cm. Similarly, NM is 8 cm, so TS is also 8 cm.

In rectangle PRMQ, PQ is 10 cm, so RM is also 10 cm. Since  $RM = RS + SM$ , use the values of RM and SM to calculate the length of  $\overline{RS}$ , in centimeters:

$$\begin{aligned}RS + SM &= RM \\RS + 2 &= 10 \\RS &= 8\end{aligned}$$

Now use the Pythagorean theorem to find the length of  $\overline{RT}$ :

$$\begin{aligned}(RS)^2 + (TS)^2 &= (RT)^2 \\8^2 + 8^2 &= (RT)^2 \\64 + 64 &= (RT)^2 \\128 &= (RT)^2 \\\sqrt{128} &= RT\end{aligned}$$

- 13. (D)** In order to minimize the value of  $N$ , find the least possible value of  $(2x - 1)^2$ . Since this expression is squared, the least possible value is 0.

$$(2x - 1)^2 = 0 \quad \text{Take the square root of both sides of the equation.}$$

$$2x - 1 = 0 \quad \text{Apply the additive inverse property; add 1 to both sides of the equation.}$$

$$2x = 1 \quad \text{Apply the multiplicative inverse property; divide both sides of the equation by 2.}$$

$$x = \frac{1}{2}$$

### Answer Key for Grade 9 Mathematics

1. -7	6. G	11. C
2. 10	7. A	12. H
3. 2	8. F	13. D
4. G	9. B	
5. C	10. H	

# Grade 8

## Grid-In Sample Problems

1.  $1 \text{ dollar} = 0.5 \text{ sind}$   
 $1 \text{ dollar} = 26 \text{ ricks}$

Tariq has 120 ricks. He wants to convert the ricks to sinds, according to the rates above. Rounding to the nearest hundredth, how many sinds will he receive for his 120 ricks? (Assume there are no exchange fees.)

---

2. Solve for  $x$ :

$$2(x - 4) - (4x + 1) = 3$$

---

3. Selena earns 4% commission on every laptop she sells. The laptops at her store sell for \$800 each. If she earned \$384 in commission this week, how many laptops did she sell?

4. If  $x$  is a positive integer and  $y$  is a negative integer, what is the **greatest** possible value of  $xy$ ?
- 

5. Rafiq earns 12% commission on every car he sells. Last week, Rafiq earned \$10,800 in commissions. If the cars he sold had an average price of \$18,000, how many cars did he sell?
- 

6. Solve for  $x$ :

$$\frac{5 - 2x}{3} = 9$$

---

7. A map uses a scale of 2 centimeters:15 miles. Two towns are 360 miles apart. How far apart, in centimeters, are these towns on the map?

- 
8. Solve for  $x$ :

$$\frac{3x + 4}{2} = 14$$

- 
9. Mr. Gomez bought  $x$  packages of pencils for his classroom. Each package of pencils cost \$2.50 before tax. He paid a total of \$81.00, which included 8% sales tax. How many packages of pencils did he buy?

10. What is the **greatest** integer less than

$$-\frac{23}{7}?$$

# Grade 8

## Grid-In Explanations of Correct Answers

1. **(2.31)** First, use the given conversions to calculate how many sinds are in 1 rick:

$$1 \text{ dollar} = 0.5 \text{ sind}$$

$$1 \text{ dollar} = 26 \text{ ricks}$$

Since both quantities are equal to 1 dollar, set the sinds and ricks equal to each other:

$$26 \text{ ricks} = 0.5 \text{ sind}$$

Multiply both sides by 2:

$$52 \text{ ricks} = 1 \text{ sind}$$

Tariq has 120 ricks, so:

$$\frac{120}{52} \text{ ricks} \cong 2.31 \text{ sinds}$$

Since the answer is a positive decimal, skip the first column. The response begins on the second column on the left-hand side.

	2	.	3	1
-	.	●	.	.
0	0	0	0	0
1	1	1	●	
●	2	2	2	
3	3	●	3	
4	4	4	4	
5	5	5	5	
6	6	6	6	
7	7	7	7	
8	8	8	8	
9	9	9	9	

2. (-6)

$2(x - 4) - (4x + 1) = 3$  Apply the distributive property; distribute the 2 through the first set of parentheses and distribute the negative sign through the second set of parentheses.

$2x - 8 - 4x - 1 = 3$  Combine like terms.

$-2x - 9 = 3$  Apply the additive inverse property; add 9 on both sides of the equal sign.

$-2x = 12$  Apply the multiplicative inverse property; divide by  $-2$  on both sides of the equal sign.

$$x = -6$$

Since the answer is a negative single digit, fill in the negative sign and enter the digit 6 in the second column.

-	6			
●	.	.	.	.
	0	0	0	0
	1	1	1	1
	2	2	2	2
	3	3	3	3
	4	4	4	4
	5	5	5	5
●	6	6	6	6
	7	7	7	7
	8	8	8	8
	9	9	9	9

3. **(12)** Let  $x$  be the number of laptops Selena sold this week. Her commission on 1 laptop, in dollars, would be  $800(0.04)$ . Her total commission for the week is  $800(0.04)x$ . Set up an equation to solve:

$$(800)(0.04)x = 384$$

$$32x = 384$$

$$x = 12$$

Since the answer is a positive whole number, skip the first column and begin inputting your answer in the second column.

	1	2		
-	.	.	.	.
0	0	0	0	0
●	1	1	1	1
2	●	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

4. **(-1)** Since  $x$  is a positive integer,  $x = 1, 2, 3$ , etc. Since  $y$  is a negative integer,  $y = -1, -2, -3$ , etc. Because one factor is negative and one is positive, the value of  $xy$  must be negative. In order to find the greatest possible value of  $xy$ , we will need to find the smallest positive integer of  $x$ , which is 1, and the greatest negative integer of  $y$ , which is  $-1$ . Therefore, the value of  $xy$  is  $-1$ .

Since the answer is a negative single digit, fill in the negative sign and enter the digit 1 in the second column.

-	1			
●	.	.	.	.
0	0	0	0	0
●	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

5. (5) Let  $x$  be the number of cars Rafiq sold last week. His commission, in dollars, on 1 car would be  $18,000(0.12) = 2,160$ . His total commission is  $2,160x$ . Set up an equation to solve:

$$2,160x = 10,800$$

$$x = 5$$

Since the answer is a positive whole number, skip the first column and begin inputting your answer in the second column.

	5			
-	.	.	.	.
	0	0	0	0
	1	1	1	1
	2	2	2	2
	3	3	3	3
	4	4	4	4
	●	5	5	5
	6	6	6	6
	7	7	7	7
	8	8	8	8
	9	9	9	9

6. (-11)

$$\frac{5 - 2x}{3} = 9$$

Multiply both sides by 3 to eliminate the fraction.

$$5 - 2x = 27$$

Apply the additive inverse property; subtract 5 from both sides of the equation.

$$-2x = 22$$

Apply the multiplicative inverse property; divide both sides of the equation by  $-2$ .

$$x = -11$$

Since the answer is a negative integer, fill in the negative sign and enter the two digits in the second and third columns.

-	1	1		
●	.	.	.	.
	0	0	0	0
	●	●	1	1
	2	2	2	2
	3	3	3	3
	4	4	4	4
	5	5	5	5
	6	6	6	6
	7	7	7	7
	8	8	8	8
	9	9	9	9

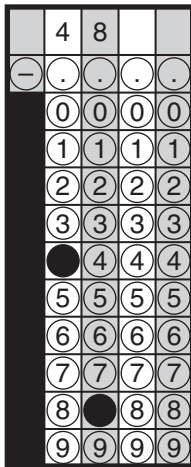


7. (48) Set up a proportion to solve:

$$\frac{x \text{ cm}}{360 \text{ mi}} = \frac{2 \text{ cm}}{15 \text{ mi}}$$

$$x = \frac{2(360)}{15} = 48$$

Since the answer is a positive whole number, skip the first column and begin inputting your answer in the second column.



8. (8)

$$\frac{3x + 4}{2} = 14$$

Apply the multiplicative inverse property; multiply both sides by 2 to eliminate the fraction.

$$3x + 4 = 28$$

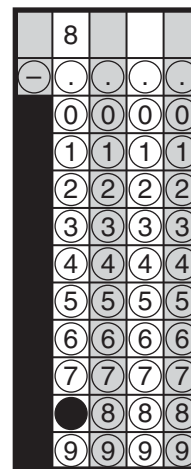
Apply the additive inverse property; subtract 4 from both sides of the equation.

$$3x = 24$$

Apply the multiplicative inverse property; divide both sides of the equation by 3.

$$x = 8$$

Since the answer is a positive whole number, skip the first column and begin inputting your answer in the second column.



9. (30) The total amount Mr. Gomez spent, in dollars, before tax is  $2.50x$ . The tax is  $(2.50x)(0.08)$ . Set up an equation to solve:

$$2.50x + 2.50x(0.08) = 81.00$$

$$2.50x + 0.2x = 81.00$$

$$2.70x = 81.00$$

$$x = 30$$

Mr. Gomez bought 30 packages of pencils.

Since the answer is a positive whole number, skip the first column and begin inputting your answer in the second column.

	3	0		
-	.	.	.	.
0	●	0	0	
1	1	1	1	
2	2	2	2	
●	3	3	3	
4	4	4	4	
5	5	5	5	
6	6	6	6	
7	7	7	7	
8	8	8	8	
9	9	9	9	

10. (-4) First, convert the improper fraction to a mixed number:

$$-\frac{23}{7} = -3\frac{2}{7}$$

The two closest integers to this fraction are  $-4$  and  $-3$ . The integer less than

$$-\frac{23}{7} \text{ is } -4.$$

Since the answer is a negative single digit, fill in the negative sign and enter the digit 4 in the second column.

-	4			
●	.	.	.	.
0	0	0	0	
1	1	1	1	
2	2	2	2	
3	3	3	3	
●	4	4	4	
5	5	5	5	
6	6	6	6	
7	7	7	7	
8	8	8	8	
9	9	9	9	





Test Booklet Letter \_\_\_\_\_

Test Booklet Number \_\_\_\_\_

Student's First Name (please print) \_\_\_\_\_

Student's Last Name (please print) \_\_\_\_\_

**PART 1 ENGLISH LANGUAGE ARTS**

- |                    |                    |                    |                    |
|--------------------|--------------------|--------------------|--------------------|
| 1 (A) (B) (C) (D)  | 16 (E) (F) (G) (H) | 31 (A) (B) (C) (D) | 46 (E) (F) (G) (H) |
| 2 (E) (F) (G) (H)  | 17 (A) (B) (C) (D) | 32 (E) (F) (G) (H) | 47 (A) (B) (C) (D) |
| 3 (A) (B) (C) (D)  | 18 (E) (F) (G) (H) | 33 (A) (B) (C) (D) | 48 (E) (F) (G) (H) |
| 4 (E) (F) (G) (H)  | 19 (A) (B) (C) (D) | 34 (E) (F) (G) (H) | 49 (A) (B) (C) (D) |
| 5 (A) (B) (C) (D)  | 20 (E) (F) (G) (H) | 35 (A) (B) (C) (D) | 50 (E) (F) (G) (H) |
| 6 (E) (F) (G) (H)  | 21 (A) (B) (C) (D) | 36 (E) (F) (G) (H) | 51 (A) (B) (C) (D) |
| 7 (A) (B) (C) (D)  | 22 (E) (F) (G) (H) | 37 (A) (B) (C) (D) | 52 (E) (F) (G) (H) |
| 8 (E) (F) (G) (H)  | 23 (A) (B) (C) (D) | 38 (E) (F) (G) (H) | 53 (A) (B) (C) (D) |
| 9 (A) (B) (C) (D)  | 24 (E) (F) (G) (H) | 39 (A) (B) (C) (D) | 54 (E) (F) (G) (H) |
| 10 (E) (F) (G) (H) | 25 (A) (B) (C) (D) | 40 (E) (F) (G) (H) | 55 (A) (B) (C) (D) |
| 11 (A) (B) (C) (D) | 26 (E) (F) (G) (H) | 41 (A) (B) (C) (D) | 56 (E) (F) (G) (H) |
| 12 (E) (F) (G) (H) | 27 (A) (B) (C) (D) | 42 (E) (F) (G) (H) | 57 (A) (B) (C) (D) |
| 13 (A) (B) (C) (D) | 28 (E) (F) (G) (H) | 43 (A) (B) (C) (D) |                    |
| 14 (E) (F) (G) (H) | 29 (A) (B) (C) (D) | 44 (E) (F) (G) (H) |                    |
| 15 (A) (B) (C) (D) | 30 (E) (F) (G) (H) | 45 (A) (B) (C) (D) |                    |

**PART 2 MATHEMATICS**

58	59	60	61	62
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0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1
2 2 2 2	2 2 2 2	2 2 2 2	2 2 2 2	2 2 2 2
3 3 3 3	3 3 3 3	3 3 3 3	3 3 3 3	3 3 3 3
4 4 4 4	4 4 4 4	4 4 4 4	4 4 4 4	4 4 4 4
5 5 5 5	5 5 5 5	5 5 5 5	5 5 5 5	5 5 5 5
6 6 6 6	6 6 6 6	6 6 6 6	6 6 6 6	6 6 6 6
7 7 7 7	7 7 7 7	7 7 7 7	7 7 7 7	7 7 7 7
8 8 8 8	8 8 8 8	8 8 8 8	8 8 8 8	8 8 8 8
9 9 9 9	9 9 9 9	9 9 9 9	9 9 9 9	9 9 9 9

- |                    |                    |                     |                     |
|--------------------|--------------------|---------------------|---------------------|
| 63 (A) (B) (C) (D) | 76 (E) (F) (G) (H) | 89 (A) (B) (C) (D)  | 102 (E) (F) (G) (H) |
| 64 (E) (F) (G) (H) | 77 (A) (B) (C) (D) | 90 (E) (F) (G) (H)  | 103 (A) (B) (C) (D) |
| 65 (A) (B) (C) (D) | 78 (E) (F) (G) (H) | 91 (A) (B) (C) (D)  | 104 (E) (F) (G) (H) |
| 66 (E) (F) (G) (H) | 79 (A) (B) (C) (D) | 92 (E) (F) (G) (H)  | 105 (A) (B) (C) (D) |
| 67 (A) (B) (C) (D) | 80 (E) (F) (G) (H) | 93 (A) (B) (C) (D)  | 106 (E) (F) (G) (H) |
| 68 (E) (F) (G) (H) | 81 (A) (B) (C) (D) | 94 (E) (F) (G) (H)  | 107 (A) (B) (C) (D) |
| 69 (A) (B) (C) (D) | 82 (E) (F) (G) (H) | 95 (A) (B) (C) (D)  | 108 (E) (F) (G) (H) |
| 70 (E) (F) (G) (H) | 83 (A) (B) (C) (D) | 96 (E) (F) (G) (H)  | 109 (A) (B) (C) (D) |
| 71 (A) (B) (C) (D) | 84 (E) (F) (G) (H) | 97 (A) (B) (C) (D)  | 110 (E) (F) (G) (H) |
| 72 (E) (F) (G) (H) | 85 (A) (B) (C) (D) | 98 (E) (F) (G) (H)  | 111 (A) (B) (C) (D) |
| 73 (A) (B) (C) (D) | 86 (E) (F) (G) (H) | 99 (A) (B) (C) (D)  | 112 (E) (F) (G) (H) |
| 74 (E) (F) (G) (H) | 87 (A) (B) (C) (D) | 100 (E) (F) (G) (H) | 113 (A) (B) (C) (D) |
| 75 (A) (B) (C) (D) | 88 (E) (F) (G) (H) | 101 (A) (B) (C) (D) | 114 (E) (F) (G) (H) |



