

**2009 – Grade 5 - NYS Math Exam**  
**Item #1**

**Strand:** Measurement

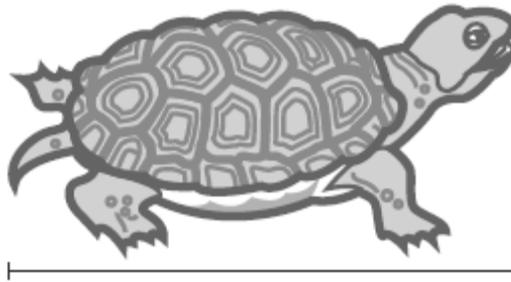
**Performance Indicator:** 5.M01 Use a ruler to measure to the nearest inch,  $\frac{1}{2}$ ,  $\frac{1}{4}$ , and  $\frac{1}{8}$  inch

**Points:** 1



Use your ruler to help you solve this problem.

How long, in inches, is the turtle shown below?



- A 3
- B 4
- C  $3\frac{3}{8}$
- D  $3\frac{1}{2}$



**2009 – Grade 5 - NYS Math Exam**  
**Item #2**

**Strand:** Number Sense and Operations

**Performance Indicator:** 5.N01 Read and write whole numbers to millions

**Points:** 1

Which number represents four hundred twenty-eight thousand six hundred eight?

- A 4,268
- B 42,868
- C 428,608
- D 428,680

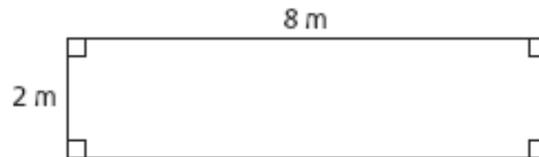
**2009 – Grade 5 - NYS Math Exam**  
**Item #3**

**Strand:** Geometry

**Performance Indicator:** 5.G01 Calculate the perimeter of regular and irregular polygons

**Points:** 1

What is the perimeter of the rectangle shown below?



[not drawn to scale]

- A 8 meters
- B 10 meters
- C 16 meters
- D 20 meters



**2009 – Grade 5 - NYS Math Exam**  
**Item #4**

**Strand:** Algebra

**Performance Indicator:** 4.A02 Use the symbols  $<$ ,  $>$ ,  $=$ , and  $\neq$  (with and without the use of a number line) to compare whole numbers and unit fractions and decimals (up to hundredths)

**Points:** 1

Which inequality below shows the decimals in order from **greatest to least**?

**A**  $7.4 > 6.5 > 4.2$

**B**  $4.2 > 6.5 > 7.4$

**C**  $7.4 < 4.2 < 6.5$

**D**  $4.2 < 7.4 < 6.5$



**2009 – Grade 5 - NYS Math Exam**  
**Item #5**

**Strand:** Number Sense and Operations

**Performance Indicator:** 5.N08 Read, write, and order decimals to thousandths

**Points:** 1

Kay won a race by seven thousandths of a second. Which number below represents seven thousandths?

- A 0.7
- B 0.07
- C 0.007
- D 7,000

**2009 – Grade 5 - NYS Math Exam**  
**Item #6**

**Strand:** Geometry

**Performance Indicator:** 5.G11 Identify and draw lines of symmetry of basic geometric shapes

**Points:** 1

Which figure below correctly shows all the possible lines of symmetry for a square?

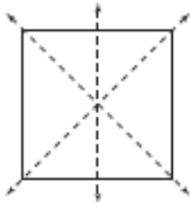


Figure 1

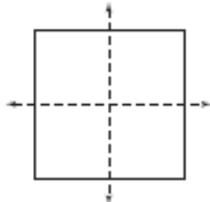


Figure 2

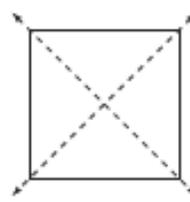


Figure 3

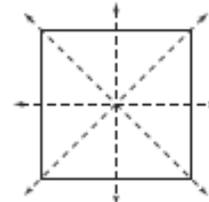


Figure 4

- A Figure 1
- B Figure 2
- C Figure 3
- D Figure 4



**2009 – Grade 5 - NYS Math Exam**  
**Item #7**

**Strand:** Algebra

**Performance Indicator:** 4.A02 Use the symbols  $<$ ,  $>$ ,  $=$ , and  $\neq$  (with and without the use of a number line) to compare whole numbers and unit fractions and decimals (up to hundredths)

**Points:** 1

Which statement is false?

A  $\frac{1}{5} = \frac{2}{10}$

B  $\frac{1}{3} = \frac{3}{9}$

C  $\frac{1}{5} = \frac{5}{25}$

D  $\frac{1}{3} = \frac{4}{9}$

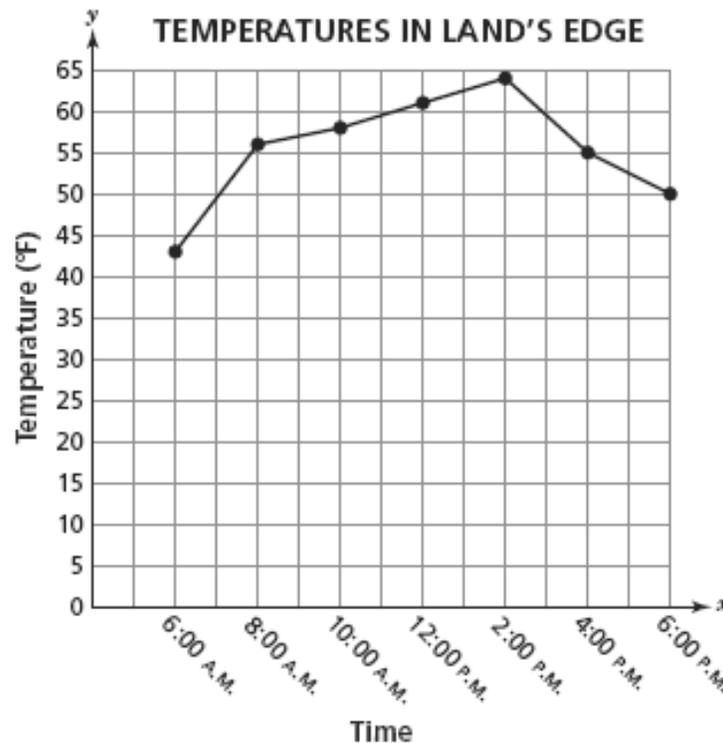
**2009 – Grade 5 - NYS Math Exam**  
**Item #8**

**Strand:** Statistics and Probability

**Performance Indicator:** 4.S04 Read and interpret line graphs

**Points:** 1

Vito recorded the temperatures in Land's Edge during a twelve-hour period. He entered the data on the line graph below.



Based on the data in the graph, which statement below is true?

- A The lowest recorded temperature was at 2:00 P.M.
- B The highest recorded temperature of the day was at 2:00 P.M.
- C The change in temperature from 6:00 A.M. to 8:00 A.M. was 10 degrees.
- D The temperatures were all between 40 degrees and 60 degrees.



**2009 – Grade 5 - NYS Math Exam**  
**Item #9**

**Strand:** Number Sense and Operations

**Performance Indicator:** 5.N01 Read and write whole numbers to millions

**Points:** 1

The estimated population of Hong Kong in 2006 was six million nine hundred forty thousand four hundred thirty-two. What is this number in **standard form**?

- A 69,432
- B 694,432
- C 6,904,432
- D 6,940,432

**2009 – Grade 5 - NYS Math Exam**  
**Item #10**

**Strand:** Geometry

**Performance Indicator:** 5.G04 Classify quadrilaterals by properties of their angles and sides

**Points:** 1

Read the riddle below.

I have 4 sides.

I have **only** one pair of parallel sides.

I have more than one right angle.

What shape am I?

Which of these shapes is the answer to the riddle?



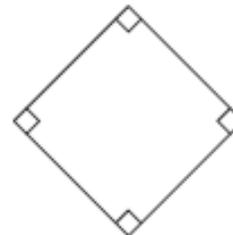
**A**



**C**



**B**



**D**

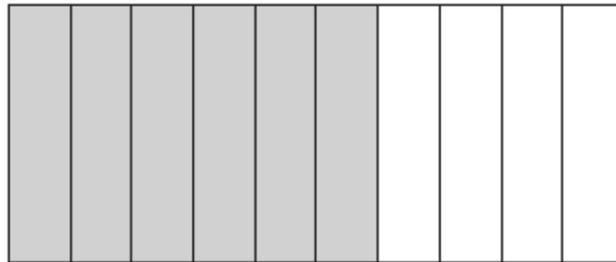
**2009 – Grade 5 - NYS Math Exam**  
**Item #11**

**Strand:** Number Sense and Operations

**Performance Indicator:** 4.N10 Develop an understanding of decimals as part of a whole

**Points:** 1

The diagram below shows a strip of paper divided into equal columns. The diagram represents one whole.



Which decimal is **greater than** the part of the diagram represented by the shaded columns?

- A 0.7
- B 0.5
- C 0.4
- D 0.2



## 2009 – Grade 5 - NYS Math Exam Item #12

**Strand:** Number Sense and Operations

**Performance Indicator:** 5.N16 Use a variety of strategies to multiply three-digit by three-digit numbers

**Points:** 1

There are 125 large bags of ice for sale at Redwood Grocery. Each bag of ice has a mass of 30 kilograms. What is the total mass of all the bags of ice?

- A 365 kilograms
- B 375 kilograms
- C 3,650 kilograms
- D 3,750 kilograms

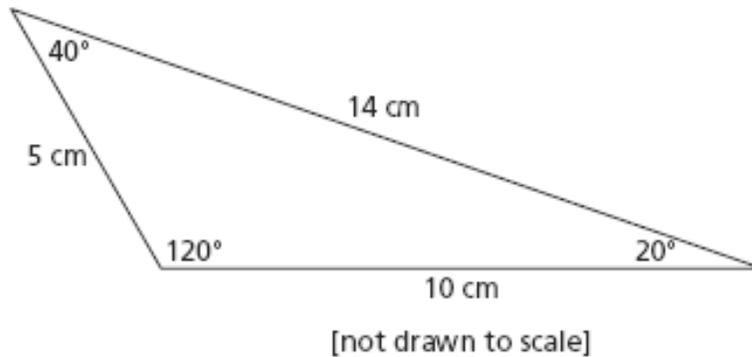
**2009 – Grade 5 - NYS Math Exam  
Item #13**

**Strand:** Geometry

**Performance Indicator:** 5.G06 Classify triangles by properties of their angles and sides

**Points:** 1

What type of triangle is shown below?



- A It is a scalene triangle because all the lengths of the sides are different.
- B It is an isosceles triangle because the lengths of two sides are the same.
- C It is an acute triangle because each of the three angles measures less than 90 degrees.
- D It is a right triangle because two of the sides are perpendicular.



**2009 – Grade 5 - NYS Math Exam**  
**Item #14**

**Strand:** Algebra

**Performance Indicator:** 5.A06 Evaluate the perimeter formula for given input values

**Points:** 1

The length of one sheet of Jack's art paper is 12 inches. The width of the sheet of paper is 9 inches. What is the perimeter of Jack's sheet of paper?

$$P = 2l + 2w$$

- A 18 inches
- B 24 inches
- C 30 inches
- D 42 inches

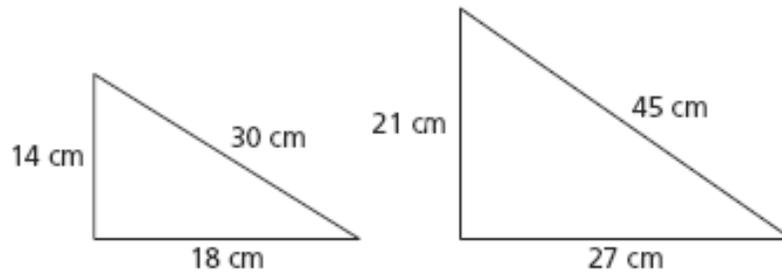
**2009 – Grade 5 - NYS Math Exam  
Item #15**

**Strand:** Geometry

**Performance Indicator:** 5.G03 Identify the ratio of corresponding sides of similar triangles

**Points:** 1

The triangles below are similar.



[not drawn to scale]

Which fraction represents the ratio of the corresponding sides of the triangles?

- A  $\frac{14}{21}$
- B  $\frac{14}{27}$
- C  $\frac{14}{30}$
- D  $\frac{14}{45}$



**2009 – Grade 5 - NYS Math Exam  
Item #16**

**Strand:** Measurement

**Performance Indicator:** 5.M05 Convert measurement within a given system

**Points:** 1

Lexi hiked a 13-kilometer trail at Great Peak. How many meters did Lexi hike?

1 kilometer = 1,000 meters
----------------------------

- A 0.13
- B 0.013
- C 1,300
- D 13,000

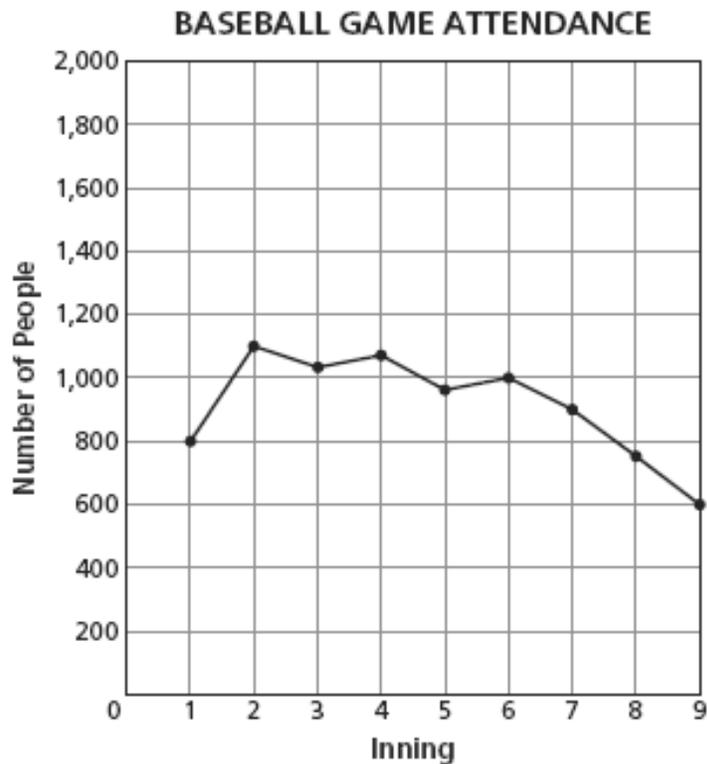
**2009 – Grade 5 - NYS Math Exam  
Item #17**

**Strand:** Statistics and Probability

**Performance Indicator:** 4.S04 Read and interpret line graphs

**Points:** 1

The line graph below shows the number of people in attendance at a baseball game at the beginning of each inning.



At the beginning of what inning were there approximately 900 people at the game?

- A 1
- B 2
- C 5
- D 7



## 2009 – Grade 5 - NYS Math Exam Item #18

**Strand:** Number Sense and Operations

**Performance Indicator:** 5.N05 Compare and order fractions including unlike denominators (with and without the use of a number line)

Note: Commonly used fractions such as those that might be indicated on ruler, measuring cup, etc.

**Points:** 1

Which list shows the fractions in order from least to greatest?

A  $\frac{1}{5}, \frac{1}{4}, \frac{1}{2}$

B  $\frac{1}{2}, \frac{1}{5}, \frac{1}{4}$

C  $\frac{1}{2}, \frac{1}{4}, \frac{1}{5}$

D  $\frac{1}{5}, \frac{1}{2}, \frac{1}{4}$

**2009 – Grade 5 - NYS Math Exam  
Item #19**

**Strand:** Number Sense and Operations

**Performance Indicator:** 5.N23 Use a variety of strategies to add, subtract, multiply, and divide decimals to thousandths

**Points:** 1

Manu has run in six different races. The distance of each race is shown below.

**MANU'S RACES**

Race	Distance
1	1.7 miles
2	0.5 mile
3	0.9 mile
4	2.1 miles
5	0.8 mile
6	1.6 miles

What is the total distance, in miles, of all six races that Manu ran?

- A 5.6
- B 6.6
- C 7.6
- D 8.6

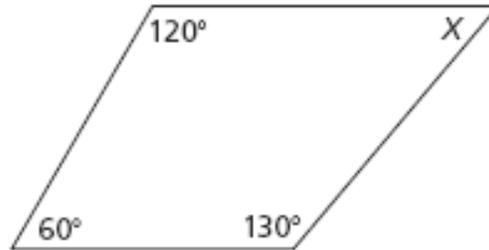
**2009 – Grade 5 - NYS Math Exam  
Item #20**

**Strand:** Geometry

**Performance Indicator:** 5.G05 Know that the sum of the interior angles of a quadrilateral is 360 degrees

**Points:** 1

What is the measure of  $\angle X$  in the quadrilateral below?



[not drawn to scale]

- A  $50^\circ$
- B  $60^\circ$
- C  $150^\circ$
- D  $310^\circ$



**2009 – Grade 5 - NYS Math Exam  
Item #21**

**Strand:** Measurement

**Performance Indicator:** 5.M07 Calculate elapsed time in hours and minutes

**Points:** 1

Tamara watched a movie that was 1 hour 45 minutes in length. If the movie started at 2:20 P.M., what time did the movie end?

- A 3:00 P.M.
- B 3:05 P.M.
- C 4:00 P.M.
- D 4:05 P.M.

**2009 – Grade 5 - NYS Math Exam**  
**Item #22**

**Strand:** Number Sense and Operations

**Performance Indicator:** 4.N23 Add and subtract proper fractions with common denominators

**Points:** 1

Leo wrote  $\frac{2}{10}$  of the songs for a concert. Kim wrote  $\frac{3}{10}$  of the songs for the same concert.  
What fraction of the total number of songs for the concert did Leo and Kim write?

- A  $\frac{1}{2}$
- B  $\frac{1}{4}$
- C  $\frac{1}{5}$
- D  $\frac{1}{10}$



**2009 – Grade 5 - NYS Math Exam**  
**Item #23**

**Strand:** Number Sense and Operations

**Performance Indicator:** 5.N17 Use a variety of strategies to divide three-digit numbers by one- and two-digit numbers

**Points:** 1

The school photographer plans to place 360 photos onto 24 pages of a school yearbook. If he places the same number of photos on each page, how many photos will the school photographer place on each page?

- A 13
- B 14
- C 15
- D 16

**2009 – Grade 5 - NYS Math Exam  
Item #24**

**Strand:** Geometry

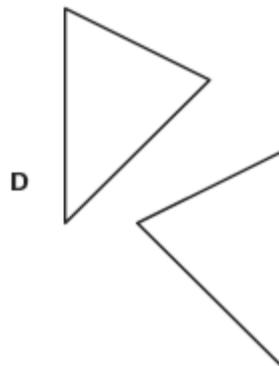
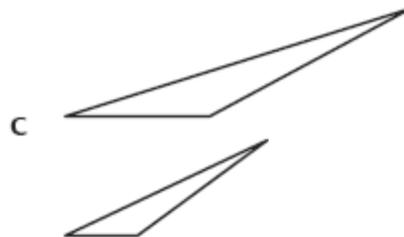
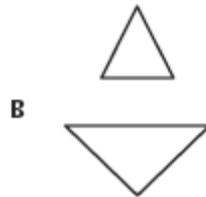
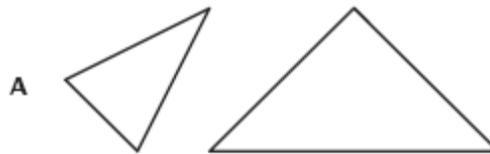
**Performance Indicator:** 5.G09 Identify pairs of congruent triangles

**Points:** 1



Use your ruler to help you solve this problem.

Which pair of triangles are congruent?





**2009 – Grade 5 - NYS Math Exam**  
**Item #25**

**Strand:** Number Sense and Operations

**Performance Indicator:** 5.N13 Calculate multiples of a whole number and the least common multiple of two numbers

**Points:** 1

What is the least common multiple (LCM) of 6 and 9?

- A 15
- B 18
- C 36
- D 54



## 2009 – Grade 5 - NYS Math Exam Item #26

**Strand:** Statistics and Probability

**Performance Indicator:** 5.S03 Calculate the mean for a given set of data and use to describe a set of data

**Points:** 1

A clerk records the number of bags of cat food sold at her shop during a five-day period. The data is recorded below.

27, 13, 26, 14, 15

What is the mean (average) number of bags of cat food sold?

- A 19
- B 17
- C 14
- D 13

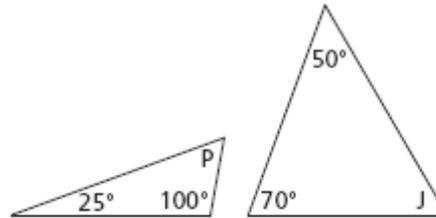
**2009 – Grade 5 - NYS Math Exam**  
**Item #27**

**Strand:** Geometry

**Performance Indicator:** 5.G08 Find a missing angle when given two angles of a triangle

**Points:** 2

Malik draws the two triangles shown below. He asks Zoe to calculate, without using a protractor, the measures for  $\angle P$  and for  $\angle J$ .



[not drawn to scale]

What measures should Zoe write for  $\angle P$  and for  $\angle J$ ?

*Show your work.*

**Answer**  $\angle P$  \_\_\_\_\_ degrees

$\angle J$  \_\_\_\_\_ degrees



## 2009 – Grade 5 - NYS Math Exam Item #28

**Strand:** Number Sense and Operations

**Performance Indicator:** 5.N23 Use a variety of strategies to add, subtract, multiply, and divide decimals to thousandths

**Points:** 2

Kenny went to lunch and ordered his meal from the menu shown below.  
All prices include tax.

### MENU

Sandwiches and Sides	Cost
Vegetable burger	\$5.95
Cheeseburger	\$6.95
Double cheeseburger	\$8.95
Side salad	\$2.50
Potato salad	\$1.50
French fries	\$1.50

Kenny ordered a cheeseburger, a side salad, and French fries. He paid for his lunch with a \$20 bill. How much change did Kenny receive?

*Show your work.*

*Answer* \$ \_\_\_\_\_

**2009 – Grade 5 - NYS Math Exam  
Item #29**

**Strand:** Measurement

**Performance Indicator:** 5.M08 Measure and draw angles using a protractor

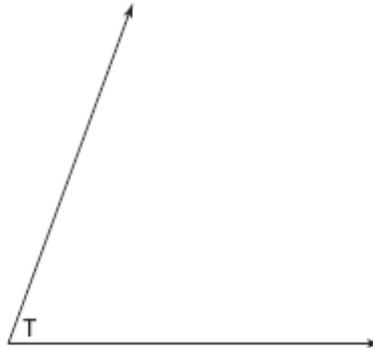
**Points:** 2

**29**



Use your protractor to help you solve this problem.

Ella drew  $\angle T$ , as shown below.



**Part A**

What is the measure of  $\angle T$ ?

**Answer** \_\_\_\_\_ degrees

**Part B**

In the space below, draw an angle with a measure that is twice the size of  $\angle T$ .

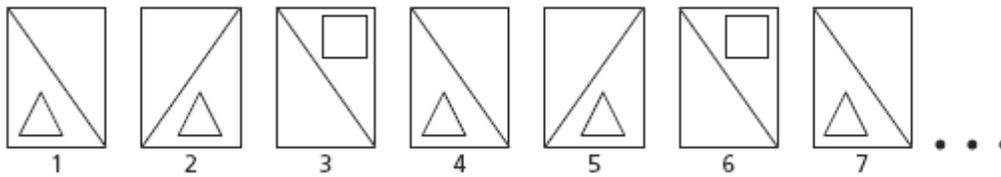
**2009 – Grade 5 - NYS Math Exam**  
**Item #30**

**Strand:** Algebra

**Performance Indicator:** 5.A08 Create algebraic or geometric patterns using concrete objects or visual drawings (e.g., rotate and shade geometric shapes)

**Points:** 2

**30** Edwin drew the repeating pattern below.



In the space below, draw the 8th, 9th, and 10th figures in the pattern.

**2009 – Grade 5 - NYS Math Exam  
Item #31**

**Strand:** Geometry

**Performance Indicator:** 5.G04 Classify quadrilaterals by properties of their angles and sides

**Points:** 3

**31**



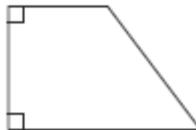
Use your ruler to help you solve this problem.



Use your protractor to help you solve this problem.

**Part A**

Gail's teacher asked her to identify two properties of the quadrilateral below.



[not drawn to scale]

On the lines below, complete Gail's statements about the quadrilateral.

This quadrilateral has exactly \_\_\_\_\_ right angles.

This quadrilateral has exactly \_\_\_\_\_ opposite parallel sides.

**Part B**

Shelby's teacher asked her to draw a figure with the properties listed below:

- It is a quadrilateral.
- There are two pairs of opposite parallel sides.
- The opposite parallel sides are the same length.
- All the angles have the same degree measure.

In the space below, draw Shelby's figure.

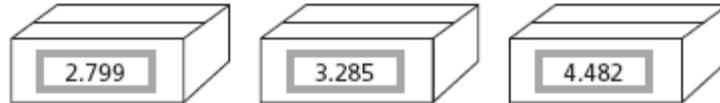
**2009 – Grade 5 - NYS Math Exam  
Item #32**

**Strand:** Number Sense and Operations

**Performance Indicator:** 5.N08 Read, write, and order decimals to thousandths

**Points:** 3

- 32** On Monday, RPU Racing Company received boxes of new parts for one of its race cars. The numbers below show the lengths, in centimeters, of the parts.



**Part A**

Write the length of each of the car parts rounded to the nearest hundredth.

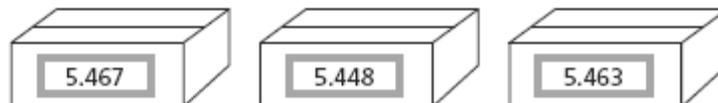
**Answer** \_\_\_\_\_ centimeters

\_\_\_\_\_ centimeters

\_\_\_\_\_ centimeters

**Part B**

On Tuesday, RPU Racing Company received boxes of new parts for another car. The numbers below show the lengths, in centimeters, of the parts.



Write the measures of these car parts in order from **least** to **greatest**.

**Least** \_\_\_\_\_ centimeters

\_\_\_\_\_ centimeters

**Greatest** \_\_\_\_\_ centimeters

On the lines below, explain how you determined your answer.

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**2009 – Grade 5 - NYS Math Exam  
Item #33**

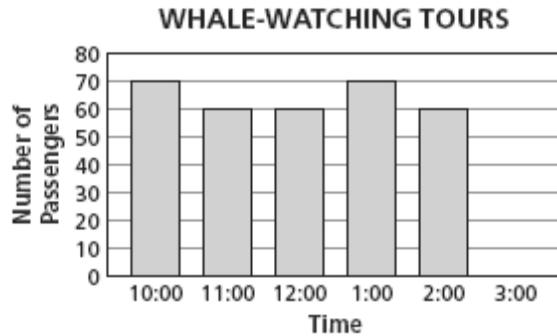
**Strand:** Statistics and Probability

**Performance Indicator:** 5.S04 Formulate conclusions and make predictions from graphs

**Points:** 3

**33**

Sheri operates whale-watching boat tours. The graph below shows the number of passengers on five of the tours for one day.



**Part A**

Sheri's goal is to have 380 passengers each day. How many passengers are needed on the 3:00 tour for Sheri to reach her goal?

*Show your work.*

**Answer** \_\_\_\_\_ passengers

**Part B**

Use the data in the graph to explain whether Sheri is likely to meet her goal.

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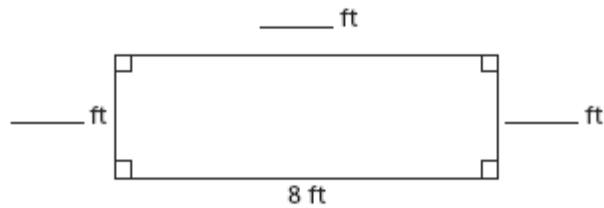
**2009 – Grade 5 - NYS Math Exam  
Item #34**

**Strand:** Geometry

**Performance Indicator:** 5.G01 Calculate the perimeter of regular and irregular polygons

**Points:** 3

The perimeter of the rectangle shown below is 26 feet. One side of the rectangle measures 8 feet. Label the measures, in feet, of the remaining three sides of the rectangle.



[not drawn to scale]

In the space below, use words, numbers, or symbols to explain or show how you determined what numbers to use to label the sides of the rectangle.