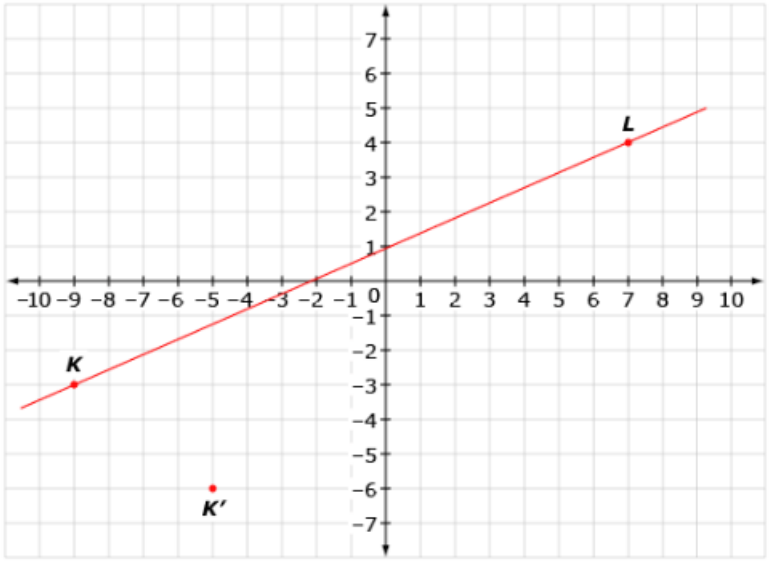
Level 4: Geometry Posttest Answer Key

Question 1:

Use the graph to answer the following question.



Which coordinates for Point L' make $\overline{K'L'}$ parallel to $\overline{KL}$?

a. (−4, −4)

b. (0, −3)

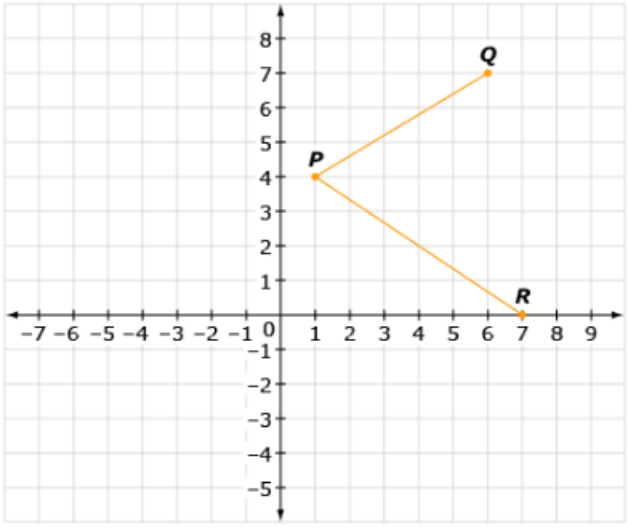
c. (9, 0)

d. (11, 1)

Continue

Question 2:

Study the figure below.



If the line PQ is translated so that point P' is at (−2, 3) and point R' is at (4, −1), which coordinates for Q' will make $\angle R'P'Q'$ equal to $\angle RPQ$?

a. (5, 5)

b. (4, 9)

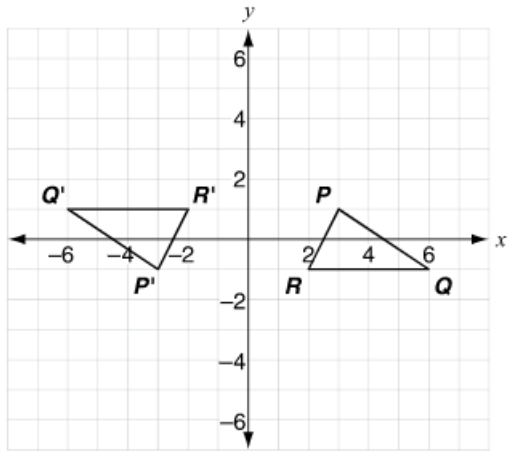
c. (3, 6)

d. (7, 3)

Continue

Question 3:

Triangle $P'Q'R'$ is the image of $\triangle PQR$ under a transformation.



Which transformation was used to tranform $\triangle PQR$ into $\triangle P'Q'R'$?

a. reflection over the y-axis

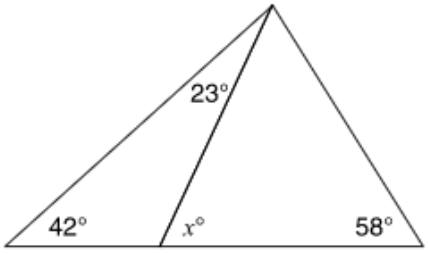
b. reflection over the x-axis

c. rotation 180° clockwise about the origin

d. translation 6 units to the left and 4 units down

Question 4:

What is the value of x?



a. 42

b. 57

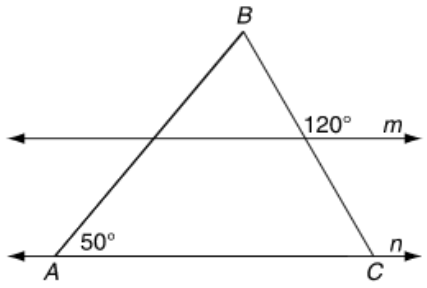
c. 65

d. 80

Continue

Question 5:

In this diagram, lines m and n are parallel.



What is the measure of $\angle ABC$?

a. 40°

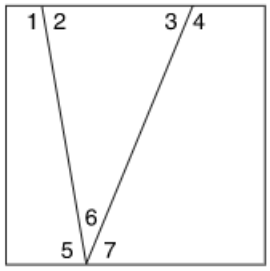
b. 50°

c. 60°

d. 70°

Question 6:

This diagram shows the first step of an origami project. A square piece of paper is folded to make two intersecting creases.



Which two angles must be congruent?

a. ∠1 and ∠4

b. ∠2 and ∠3

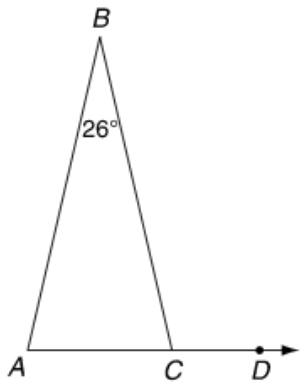
c. ∠3 and ∠7

d. ∠4 and ∠5

Continue

Question 7:

The triangle in this diagram is isosceles.



What is the measure, in degrees, of $\angle BCD$?

a. 64°

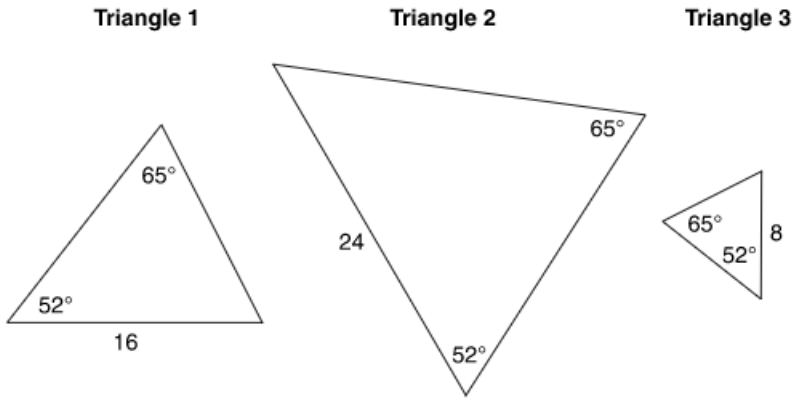
b. 77°

c. 103°

d. 154°

Question 8:

Look at these three triangles.



[Figures not drawn to scale]

Which triangles are similar?

a. Triangle 1 and Triangle 2 only

b. Triangle 2 and Triangle 3 only

c. All three triangles are similar.

d. None of the triangles are similar.

Continue

Question 9:

A candy store sells solid, spherical candies in two sizes. The large candies have a diameter twice the diameter of the small candies. How many times greater is the volume of a large candy than the volume of a small candy?

a. 2 times greater

b. 4 times greater

c. 6 times greater

d. 8 times greater

Question 10:

A popcorn company sells popcorn in a cylindrical container. Customers have asked for a container that holds four times as much popcorn as the original container. Which procedure could be used to determine the dimensions for a new cylindrical container that would satisfy the customers' demand?

a. Multiply both the radius and height of the old container by 2.

b. Multiply both the radius and height of the old container by 4.

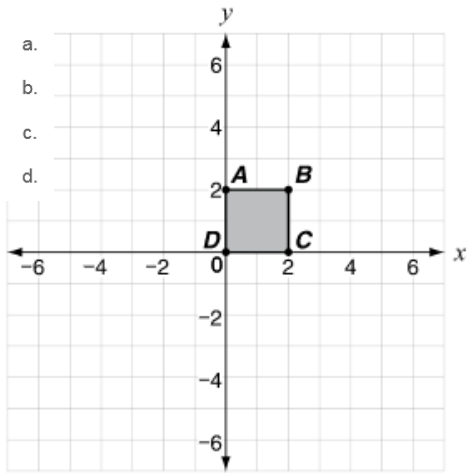
c. Multiply the radius of the old container by 2 and keep the height the same.

d. Multiply the radius of the old container by 4 and keep the height the same.

Question 11:

Square *ABCD* is shown on the coordinate grid below.

a.
b.
c.
d.



Square *ABCD* is dilated with center at (0, 0) and a scale factor of 2. What are the coordinates of the image of point *B*?

(4 ,4)

Continue

Question 12:

A drinking cup in the shape of a cone has a radius of 1.5 inches and a height of 2.5 inches. What is the volume, in cubic inches, of this cup? Use 3.14 for π. Round your answer to the nearest tenth of a cubic inch.

5.9 in^3

Question 13:

Martin needs to fill a cylindrical container with sand.

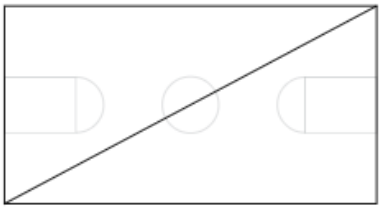
- Sand bags at a home improvement store each contain 0.5 cubic feet of sand.
- The radius of Martin's container is 2 feet.
- The height of Martin's container is 6 inches.

What is the least number of bags Martin needs to buy? Use 3.14 for π.

13 bags

Question 14:

The figure below shows the approximate length and the width of a basketball court.



Based on these dimensions, what is the length of the diagonal of the basketball court, rounded to the nearest foot?

a. 72 ft

b. 80 ft

c. 106 ft

d. 144 ft

Continue

Question 15:

Jack and Marty leave a park at the same time.

- Jack travels north at a rate of 3 miles per hour.
- Marty travels east at a rate of 4 miles per hour.

What is the shortest distance between Jack and Marty $\frac{1}{2}$ hour after they leave the park?

a. 2.5 miles

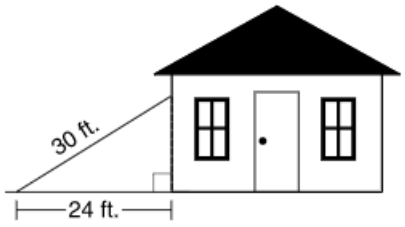
b. 5 miles

c. 6 miles

d. 6.25 miles

Question 16:

The bottom of a 30-foot ladder is located 24 feet from the side of a house, as shown.



What is the height from the ground to the top of the ladder?

a. 6 ft

b. 18 ft

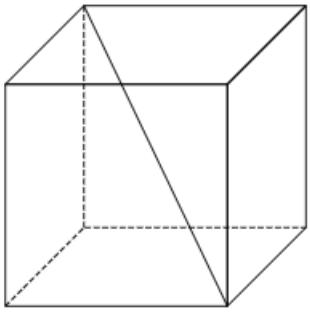
c. 27 ft

d. 36 ft

Continue

Question 17:

Look at this cube.



The volume of the cube is 64 cubic inches. What is the distance, in inches, from one corner of the cube to its opposite corner?

a. $\sqrt{32}$

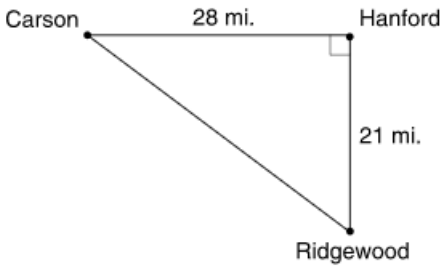
b. $\sqrt{48}$

c. $\sqrt{128}$

d. $\sqrt{192}$

Question 18:

The locations of three cities on a map form a right triangle.



What is the distance between Carson and Ridgewood?

a. 18.5 mi

b. 24.2 mi

c. 35 mi

d. 49 mi

Continue

Question 19:

Anna skates 65 meters from one corner of a rectangular ice rink to its opposite corner. The ice rink is 33 meters wide.

What is the length of the ice rink?

a. 46.3 m

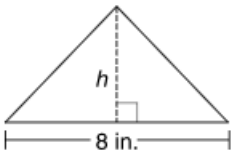
b. 56 m

c. 64.7 m

d. 73 m

Question 20:

An isosceles triangle has a base length of 8 inches.



The perimeter of the triangle is 20 inches. What is the height of the triangle, *h*, in inches?

a. $\sqrt{20}$

b. $\sqrt{28}$

c. $\sqrt{32}$

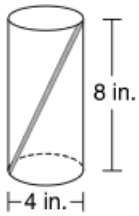
d. $\sqrt{52}$

Continue

Question 21:

This question has two parts. Be sure to answer both a and b.

A stick is placed inside this cylindrical container so that it touches both bases along its diagonal.



a. What is the length of the stick in inches? Round your answer to the nearest tenth.

8.9 in

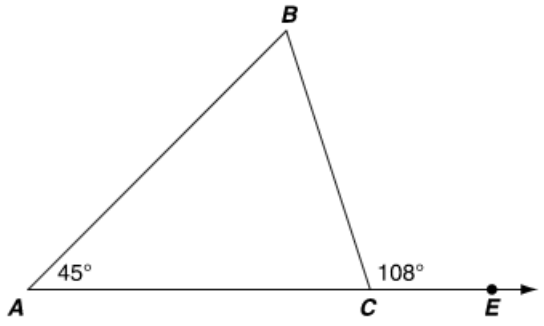
The stick is cut off to be exactly 8 inches long, then allowed to lean against the side of the cylindrical container.

b. What is the length, in inches, from the top of the container to the top of the stick? Round your answer to the nearest tenth.

1.1 in

Question 22:

Look at this diagram.



- The measure of angle *A* is 45°.
- The measure of angle *BCE* is 108°.

What is the measure of angle *B* in degrees?

63 °

Stop