

Math by Design

Windjammer Environmental Center Selected Response Questions **Answer Key**

1. A right triangle has a hypotenuse of length 135 cm and one leg of length 80 cm. What is the length of the second leg of the triangle to the nearest cm?

A. 109 cm
B. 157 cm
C. 215 cm
D. 430 cm

2. Walt is calculating the length of the border of a triangular region he wants to enclose in his yard. The region forms a right triangle with legs 20 feet and 35 feet long. What is the perimeter of the region to the nearest 10th of a foot?

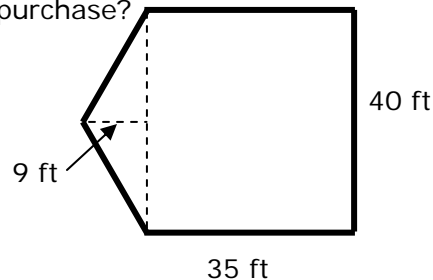
A. 83.7 feet
B. 95.3 feet
C. 105.0 feet
D. 110.0 feet

3. Antoine is using a map on which the scale is $\frac{1}{4}$ inch represents 1 mile. If the distance between two towns on the map is $3\frac{1}{2}$ inches, what is the actual distance between the towns?

A. $3\frac{1}{2}$ miles
B. 12 miles
C. $12\frac{1}{2}$ miles
D. 14 miles

4. Mrs. Cook plans to finish her deck by applying a protective sealant. The deck has a rectangular region 35 by 40 feet with a triangular region on one end. It is shown in the diagram below. One gallon of the sealant will cover about 230 square feet of surface. How many gallons of sealant should Mrs. Cook purchase?

A. 4 gallons
B. 5 gallons
C. 6 gallons
D. 7 gallons



5. Point P is located at coordinates (-6, 4). What are the coordinates of point P after it has been reflected over the y-axis?

A. (4, -6)
B. (-4, 6)
C. (6, 4)
D. (6, -4)

6. Mr. Wilson is purchasing bricks to make a border around a tree in his yard. The border will be in the shape of an octagon with each side 4 feet long. If each brick has a length of 6 inches, how many bricks will Mr. Wilson need to complete the border?

A. 24 bricks
B. 32 bricks
C. 48 bricks
D. 64 bricks

Math by Design

Windjammer Environmental Center Selected Response Questions **Answer Key**

7. Ali has found an ad showing a music box that he would like to buy for his mother. The picture of the music box is 2.3 cm long. The scale is 1 cm in the picture represents 10 cm on the actual music box. What is the actual length of the music box?
- A. 0.23 cm
 - B. 2.3 cm
 - C. 20.3 cm
 - D. 23 cm**
8. The backboard on the basketball hoop in the playground is in the shape of a semicircle with a diameter of 6 feet. What is the area of the backboard?
- A. 9.4 ft^2
 - B. 14.1 ft^2**
 - C. 28.3 ft^2
 - D. 56.5 ft^2
9. The mall has a water feature that includes a circular fountain. The radius of the fountain is 2.5 meters. What is the circumference of the fountain?
- A. 3.9 m
 - B. 7.9 m
 - C. 15.7 m**
 - D. 19.6 m
10. One vertex of a triangle is located on a coordinate plane at $(-5, -1)$. After the triangle has been translated 7 units to the right, where will this vertex be located?
- A. $(2, -1)$**
 - B. $(-5, 6)$
 - C. $(-12, -1)$
 - D. $(-5, -8)$
11. The endpoints of a segment are located on a coordinate plane at $(3, 5)$ and $(5, 0)$. After the segment has been translated 3 units to the left and 2 units down, what are the coordinates of the endpoints?
- A. $(0, 7)$ and $(2, 2)$
 - B. $(0, 3)$ and $(2, -2)$**
 - C. $(1, 2)$ and $(3, -3)$
 - D. $(6, 3)$ and $(8, -2)$
12. Mr. Smith wants to know how many bags of stones he should buy in order to fill a circular region that has a diameter of 5 feet to a depth of 6 inches. Each bag of stones will fill approximately 1 cubic foot of space. How many bags should Mr. Smith buy?
- A. 8 bags
 - B. 10 bags**
 - C. 12 bags
 - D. 15 bags

Math by Design

Windjammer Environmental Center Selected Response Questions **Answer Key**

13. Jeremy has an open can of paint. The can has a radius of 6 cm and is filled to a height of 12 cm. What is the approximate volume of the paint in the can?
- A. 226 cm^3
 - B. 339 cm^3
 - C. 452 cm^3
 - D. 1357 cm^3
14. Mrs. Dorsey has a circular window in the stairway of her house. The window has a diameter of 2 feet. What is the area of the window?
- A. 3.14 ft^2
 - B. 4 ft^2
 - C. 6.28 ft^2
 - D. 12 ft^2
15. A point was originally located on a coordinate plane at $(-4, 7)$. The point has been translated to a new location at $(1, 2)$. Which choice describes the translation that has been done to the point?
- A. 5 units left and 5 units down
 - B. 5 units right and 5 units up
 - C. 5 units left and 5 units up
 - D. 5 units right and 5 units down