

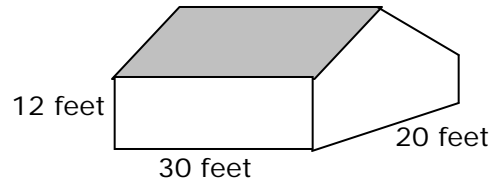
Math by Design

Windjammer Environmental Center Math Connection Questions **Answer Key**

Access for All

Sadie must find the area of the shed roof so she can order new shingles. The shape of the roof is formed by two rectangles that meet at the top. The highest point of the shed is 16 feet above ground level. The sides of the roof slope down to walls that are 12 feet high. What is the approximate area of the roof?

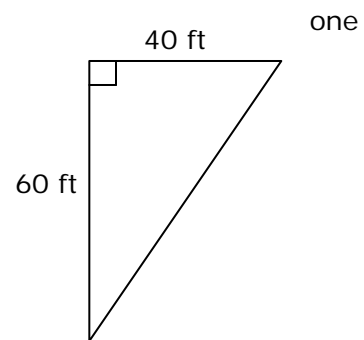
- A. 325 ft²
- B. 360 ft²
- C. 600 ft²
- D. **650 ft²**



Access for All

Ms. Fernandez is purchasing sections of fencing to enclose corner of her yard. The diagram shows the region to be enclosed. How many feet of fencing will she need to completely enclose this region?

- A. 100 ft
- B. **173 ft**
- C. 180 ft
- D. 198 ft



3 R's

The actual length of a stream is 380 meters. You are drawing a map of the area. On the map, 1 cm represents 100 meters. What is the length of the stream on the map?

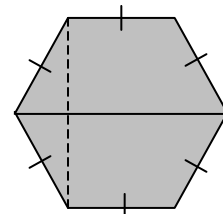
- A. **3.8 cm**
- B. 38 cm
- C. 380 cm
- D. 38,000 cm

3 R's

Mr. Williams is purchasing stones to cover an area in his back yard. The region he must cover is shown at the right.

Each side of the region is about 0.6 meters long. The height, represented by the dotted segment, is about 1 meter. The width, represented by the segment through the middle, is about 1.2 meters. If each bag of stones will cover about 1 square meter, how many bags should he buy to cover the entire region?

- A. **1 bag**
- B. 2 bags
- C. 3 bags
- D. 5 bags



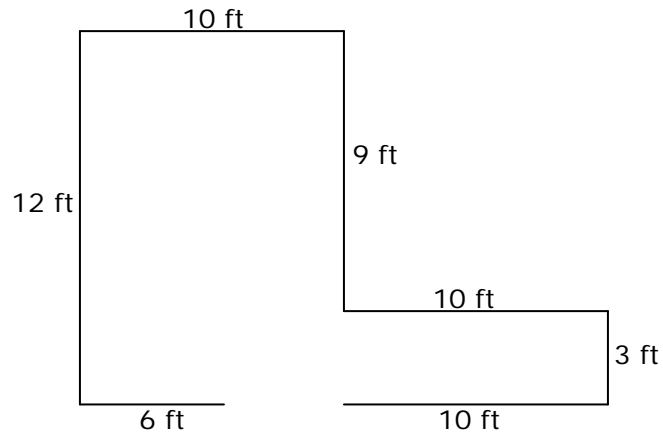
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3 R's

The figure below shows the ceiling of a room and hallway in Mrs. Bryant's house. She wants to put crown molding around the entire border of this ceiling. (The opening will not have crown molding.) How many feet of crown molding will be needed to complete the border?

- A. **60 feet**
- B. 120 feet
- C. 138 feet
- D. 150 feet



Pentagonal Plot

Jerry has a scale model of a Chevy Camaro convertible. The length of the model is 24.2 inches. If the scale is 1 inch represents 8 inches, how long is the actual car?

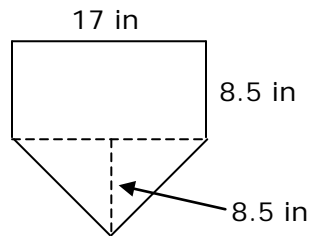
- A. 3.25 inches
- B. 19.36 inches
- C. **193.6 inches**
- D. 302.5 inches

Pentagonal Plot

Home plate on a baseball diamond has the shape of a pentagon as shown in the diagram below.

What is the area covered by home plate?

- A. 144.5 in^2
- B. **216.75 in^2**
- C. 289 in^2
- D. 614.13 in^2



Get Physically Fit

Segment PQ is located on a coordinate plane with point P at (1, -2) and Q at (3, 5). What are the coordinates of the endpoints of segment PQ after it has been reflected over the x-axis?

- A. (-1, 2) and (-3, -5)
- B. (-2, 1) and (5, 3)
- C. **(-1, -2) and (-3, 5)**
- D. **(1, 2) and (3, -5)**

Math by Design

Windjammer Environmental Center Math Connection Questions **Answer Key**

Get Physically Fit

A segment with endpoints at $(-2, 5)$ and $(1, -3)$ is translated five units to the right and three units down. What are the coordinates of the endpoints of the translated segment?

- A. $(3, 2)$ and $(6, -6)$
- B. $(-7, 8)$ and $(-4, 0)$
- C. $(-5, 0)$ and $(-2, -8)$
- D. $(3, 8)$ and $(6, 0)$

Get Physically Fit

A point is located at $(5, 2)$ in a coordinate plane. The point is translated four units to the left and five units up. What are the coordinates of the translated point?

- A. $(-1, 7)$
- B. $(1, 7)$
- C. $(9, 7)$
- D. $(-9, 7)$

Aquatic Adventure

Mr. Brown is calculating the amount of garden soil he needs to fill a cylindrical planter that has a radius of 2.5 m and a depth of 0.5 m. How much soil is needed to fill the planter?

- A. 3.9 m^3
- B. 7.9 m^3
- C. 9.8 m^3
- D. 15.7 m^3

Aquatic Adventure

Ms. Green is calculating the amount of water in her swimming pool. The pool is a cylinder with a diameter of 20 feet and a depth of 4 feet. One cubic foot holds about 7.5 gallons of water. About how much water does the swimming pool hold?

- A. 1257 gal
- B. 1885 gal
- C. 5027 gal
- D. 9425 gal

Aquatic Adventure

Sadie is purchasing a circular rug for her bedroom. The rug has a diameter of 3 meters. How much area will the rug cover?

- A. 4.7 m^2
- B. 7.1 m^2
- C. 18.8 m^2
- D. 28.3 m^2

Slam Dunk

The park has a skating rink with a diameter of 30 meters. The mayor wants to add a sidewalk all the way around the rink. Approximately how many meters is the circumference of the skating rink?

- A. 47.1 m
- B. 94.2 m
- C. 706.9 m
- D. 900.0 m

E-luminate

A point that was located at coordinates $(-3, 5)$ has been translated to the location $(4, 1)$. Which of these describes the translation that resulted in the new location?

- A. Translate 1 unit right and 4 units up.
- B. Translate 1 unit left and 4 units down.
- C. **Translate 7 units right and 4 units down.**
- D. Translate 7 units left and 4 units up.