

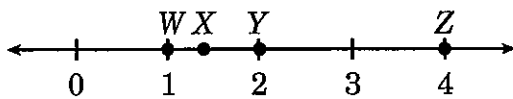
1. A surveyor determined that the distance across a pond is  $\sqrt{2,255}$  feet. **Approximately**, what is this distance?

A 22.6 ft  
B 25.0 ft  
C 47.5 ft  
D 1,127.5 ft

2. The area of a square is 800 square meters. The length of its side is between which two numbers?

A 27 m and 28 m  
B 28 m and 29 m  
C 200 m and 201 m  
D 400 m and 401 m

3. Which point represents  $\sqrt{2}$  on the number line below?



A W  
B X  
C Y  
D Z

4. Which number below is an irrational number?

A  $\frac{2}{3}$   
B 2.35  
C  $\sqrt{25}$   
D  $\sqrt{5}$

5. Which number has the greatest value?

A 1.5  
B  $\frac{30}{100}$   
C  $\sqrt{\frac{1}{9}}$   
D  $\sqrt{3}$

6. Which choice lists the three lengths in order from greatest to least?

A 4.5, 3,  $\sqrt{18}$   
B  $\sqrt{18}$ , 4.5, 3  
C 4.5,  $\sqrt{18}$ , 3  
D 3, 4.5,  $\sqrt{18}$

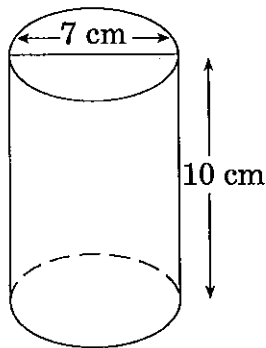
7. Which choice is more than 12 but less than 13?
- A  $\sqrt{170}$
- B  $\sqrt{150}$
- C  $\sqrt{144}$
- D  $\sqrt{140}$
8. The area of a triangle is 51 square meters. The height is one-half the length of the base. What is the **approximate** height of the triangle?
- A 7.0 meters
- B 7.1 meters
- C 14.0 meters
- D 14.3 meters

9. The drama club is selling tickets to a play for \$10 each. The cost to rent the theater and costumes is \$500. In addition, the printers are charging \$1 per ticket to print the tickets. How many tickets must the drama club sell to make a profit?
- A 54
- B 55
- C 56
- D 57

### End of Goal 1 Sample Items

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1. If the length of a rectangle is doubled, what will happen to its area?
- A The area will be the same.
- B The area will be twice as large.
- C The area will be three times as large.
- D The area will be four times as large.
2. The diagram below shows a company's current packaging of its plant food.



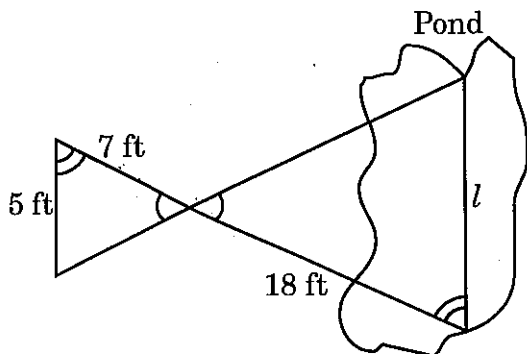
The company will double the radius but keep the height the same. What effect will this change have on the volume of the container?

- A The new volume will be one and a half times the original volume.
- B The new volume will be twice the original volume.
- C The new volume will be three times the original volume.
- D The new volume will be four times the original volume.

3. A hole shaped like a rectangular prism is 3 feet wide, 5 feet long, and 3 feet deep. If the hole is made 2 feet deeper, by how much will the volume of the hole increase?
- A 30 cubic feet
- B 75 cubic feet
- C 90 cubic feet
- D 130 cubic feet
4. A  $5 \times 7$  photo is enlarged so that its new dimensions are  $10 \times 14$ . How does the area of the enlarged photo compare to the area of the original photo?
- A The area of the enlarged photo is five square units larger than the area of the original photo.
- B The area of the enlarged photo is seven square units larger than the area of the original photo.
- C The area of the enlarged photo is two times the area of the original photo.
- D The area of the enlarged photo is four times the area of the original photo.

5. The side measurements of a cube are tripled. What is the ratio of the surface area of the original cube to the surface area of the larger one?
- A 1 : 3  
B 1 : 6  
C 1 : 9  
D 1 : 12
6. At noon, the shadow of a flagpole is 19 feet long. At the same time, the shadow of a 12-foot-high wall is 4 feet long. What is the height of the flagpole?
- A 48 feet  
B 57 feet  
C 62 feet  
D 75 feet
7. Marissa's shadow is 8 feet long, and she is 5.5 feet tall. At the same time of day, a building casts a 20-foot shadow. Which proportion can be used to find the height,  $x$ , of the building?
- A  $\frac{x}{8} = \frac{5.5}{20}$   
B  $\frac{x}{20} = \frac{5.5}{8}$   
C  $\frac{x}{12} = \frac{5.5}{8}$   
D  $\frac{x}{5.5} = \frac{12}{8}$

8. Jake wanted to measure the length,  $l$ , of the pond, so he drew this diagram of two similar triangles.



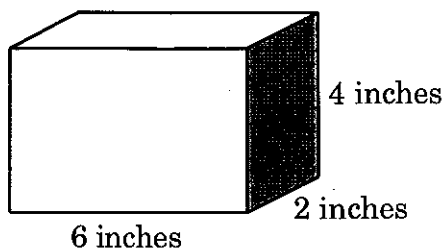
What is the **approximate** length,  $l$ , of the pond?

- A 25 feet
- B 19 feet
- C 18 feet
- D 13 feet

### End of Goal 2 Sample Items

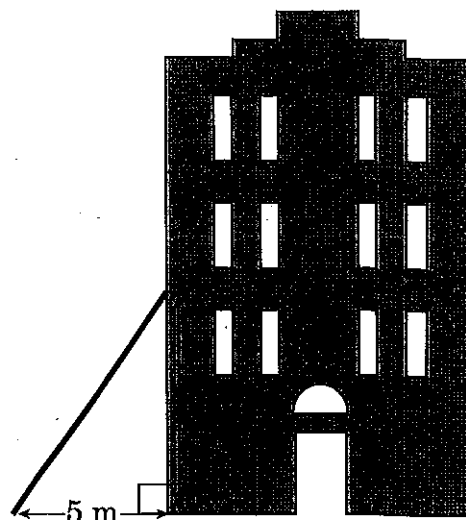
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1. What is the maximum number of cubes with a side length of 2 inches that can fit in this box?



- A 48  
B 24  
C 12  
D 6
2. The hypotenuse of a right triangle measures 20.75 in., and one of the legs measures 17 in. What is the **approximate** length of the other leg of the triangle?
- A 2 in.  
B 7 in.  
C 12 in.  
D 27 in.

3. A ladder leans against the side of a building. The base of the ladder is 5 meters from the building, and the top is 12 meters above the ground.



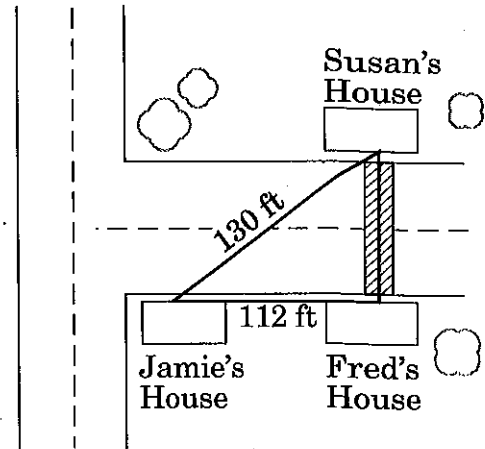
What is the length of the ladder?

- A 11 meters  
B 13 meters  
C 17 meters  
D 169 meters

4. What is the *approximate* length of the diagonal of a square with side length of 20 centimeters?

A 14.1 cm  
B 20.0 cm  
C 25.0 cm  
D 28.3 cm

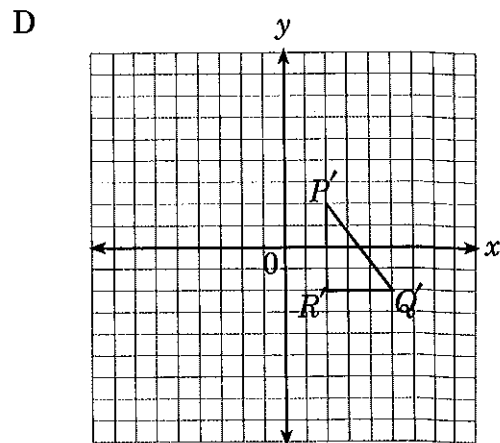
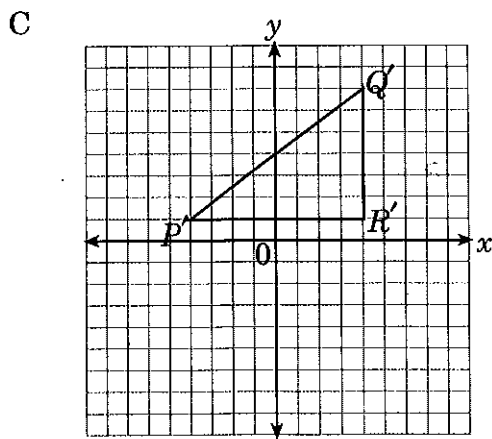
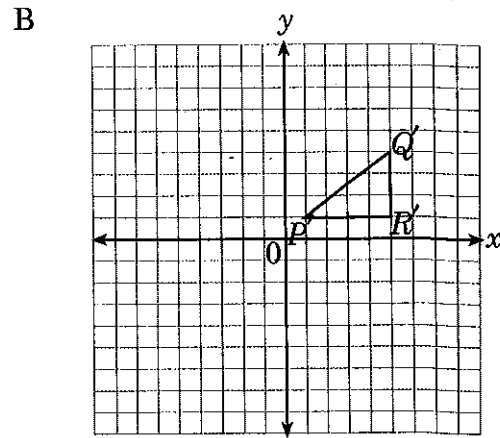
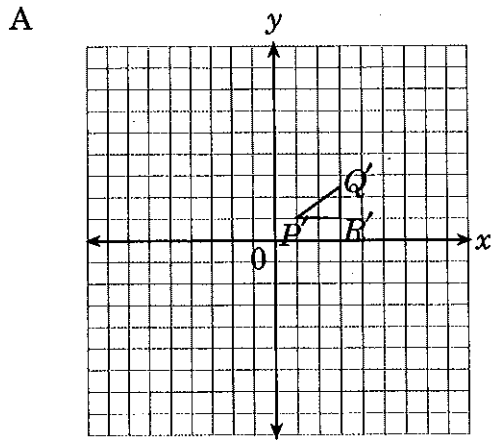
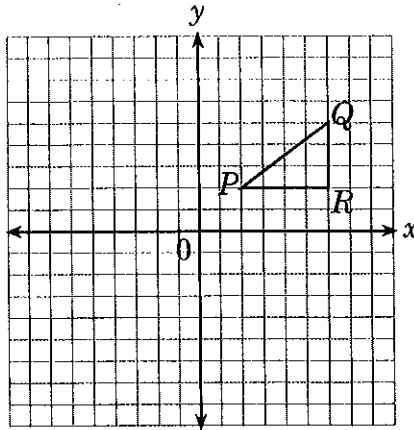
5. Jamie and Fred are meeting Susan at her house. Jamie must use the crosswalk in front of Fred's house to cross the street.



What is the total distance Jamie must walk?

A 66 ft  
B 130 ft  
C 178 ft  
D 199 ft

6. Which choice illustrates a dilation of  $\triangle PQR$  with a scale factor of  $\frac{1}{2}$ ?

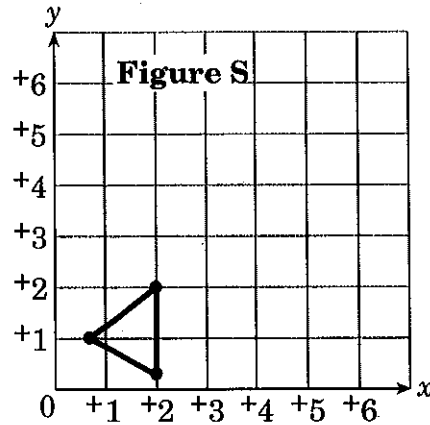
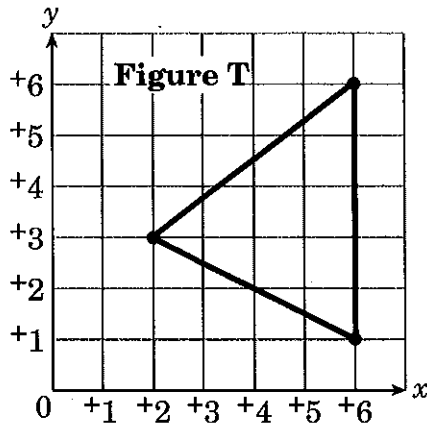




7. A triangle has the following vertices:  $(-1, 1)$ ,  $(6, -2)$ , and  $(3, 5)$ . If the triangle undergoes a dilation with a scale factor of 3, what will be the vertices of the image?

- A  $(-3, 3), (18, -6), (9, 15)$   
B  $(3, 3), (18, 6), (9, 15)$   
C  $(-3, 3), (18, 6), (9, 15)$   
D  $(3, 3), (18, -6), (9, 15)$

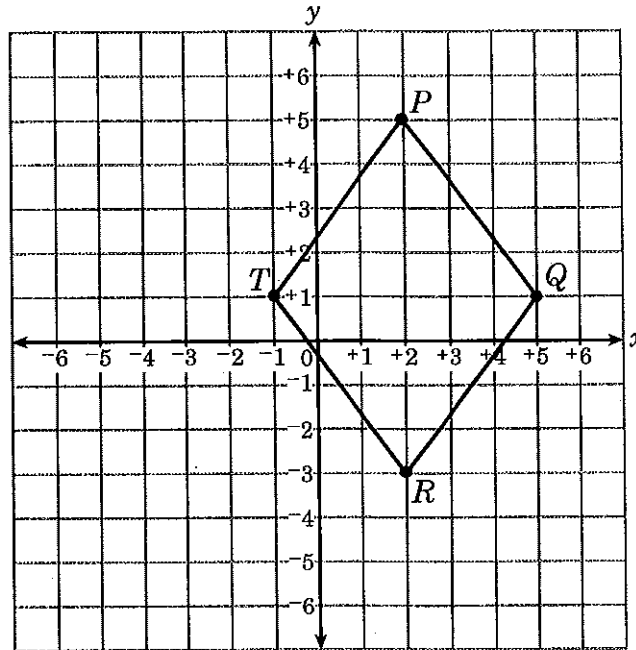
8. Figure S is the result of a dilation of Figure T.



What is the scale factor of the dilation?

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

9. Rhombus  $PQRT$  is shown below.



$P'Q'R'T'$  is the image produced by dilating  $PQRT$  by a scale factor of 4. What is the length of the diagonal  $P'R'$ ?

- A 2 units
- B 8 units
- C 12 units
- D 32 units

### End of Goal 3 Sample Items

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