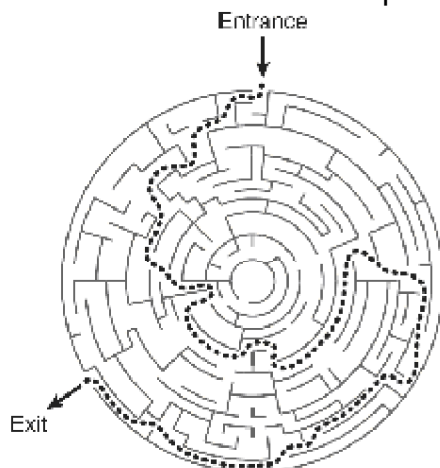


**2nd Semester Geometry Final Exam Review****Multiple Choice**

Identify the choice that best completes the statement or answers the question.

- \_\_\_\_ 1. The owner of an amusement park created a circular maze that has a diameter of 50 feet.

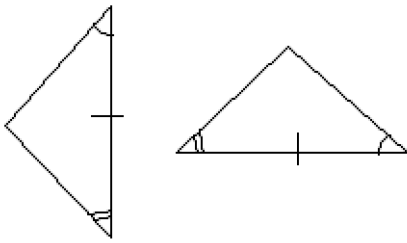


If the owner doubles the radius of the maze, which statement describes what will happen to the circumference and area of the maze?

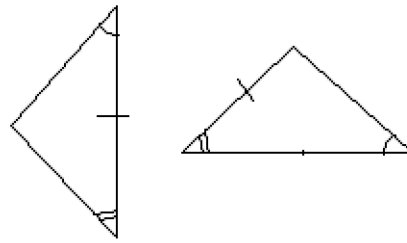
- |   |  |
|---|--|
| a. The circumference and the area will double.    | c. The circumference will double, and the area will quadruple. |
| b. The circumference and the area will quadruple. | d. The circumference will quadruple, and the area will double. |
- \_\_\_\_ 2. If an isosceles right triangle has a hypotenuse of approximately 8.5 m, what is the measure of each leg?
- |          |          |
|----------|----------|
| a. 5.3 m | c. 6.9 m |
| b. 6.0 m | d. 8.1 m |

3. In each pair of triangles, parts are congruent as marked. Which pair of triangles is congruent by ASA?

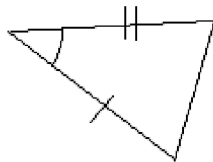
a.



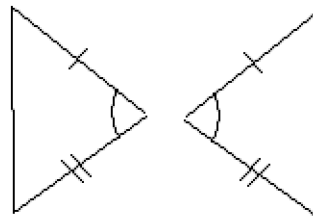
c.



b.



d.



4. A student drives 15 kilometers directly south and then 8 kilometers directly east from the school to the library. A shortcut has just opened that will allow the student to drive directly southeast from the school to reach the library.

How much shorter will the student's drive be along the new route?

- a. 2 km
- b. 6 km

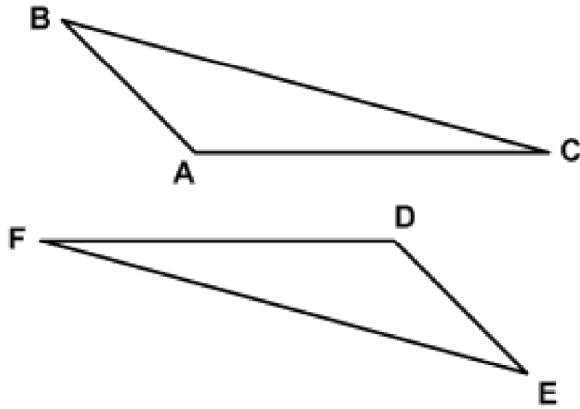
- c. 9 km
- d. 17 km



Name: \_\_\_\_\_

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\_\_\_ 7. Use the figures to answer the question.

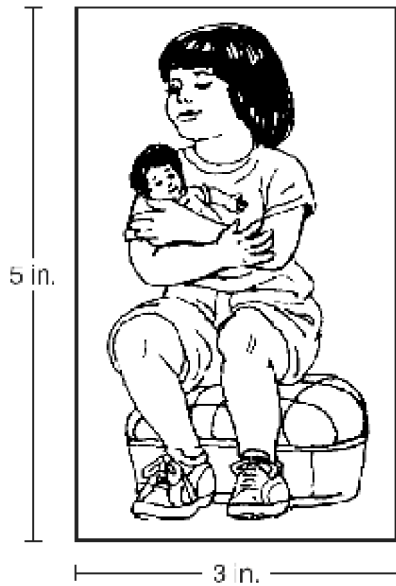


Which of these measurements is the length of segment DE if triangle ABC is congruent to triangle DEF,  $m\angle A = 7x - 49$ ,  $m\angle D = 4x + 20$ , and  $AB = 2x - 11$ ?

- a. 23
- b. 35

- c. 57
- d. 112

8. An artist painted a mural from the photograph shown.

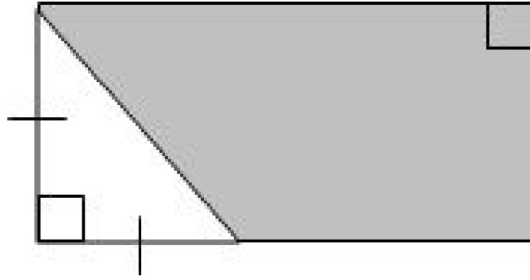


If the artist used a scale of  $\frac{1}{2}$  inch to represent 1 foot, which of the following best represents the dimensions in feet of the mural?

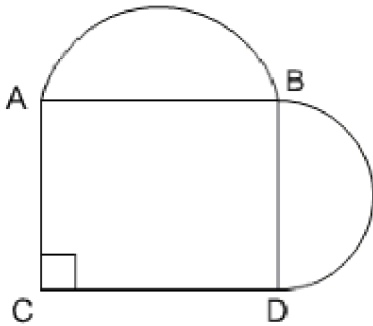
- a.  $4\frac{1}{2}$  ft by  $7\frac{1}{2}$  ft
- b.  $1\frac{1}{2}$  ft by  $2\frac{1}{2}$  ft
- c. 6 ft by 10 ft
- d. 9 ft by 15 ft



- \_\_\_ 11. What is the area of the shaded region of the following figure in simplest form?  
The width of the rectangle is  $2x + 4$  and the length is  $6x + 12$ .



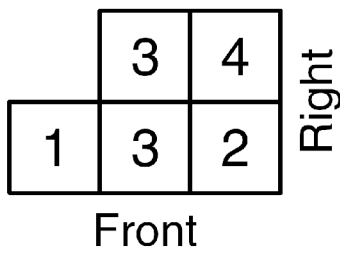
- a.  $10x^2 + 56x + 56$                       c.  $8x^2 + 32x + 32$   
b.  $10x^2 + 40x + 40$                       d.  $10x^2 + 40$
- \_\_\_ 12. The floor of a patio is made up of a rectangle and two half circles, as shown.



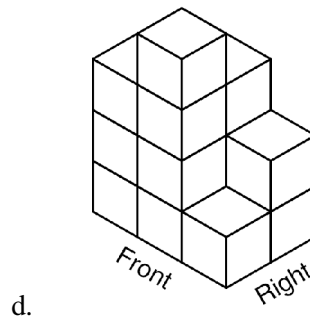
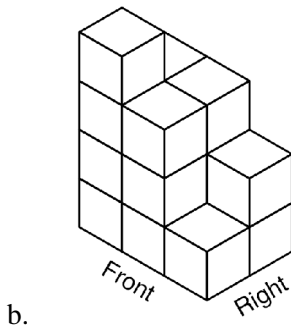
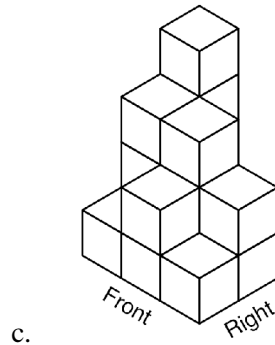
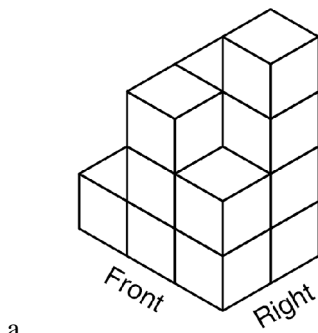
Which of these measurements is the area of this patio if  $\overline{AC}$  is 8 meters and  $\overline{CD}$  is 10 meters, rounded to the nearest square meter?

- a.  $108 \text{ m}^2$                                       c.  $144 \text{ m}^2$   
b.  $121 \text{ m}^2$                                       d.  $209 \text{ m}^2$

- \_\_\_ 13. Suppose the length of a rectangle is doubled but the width is cut in half. What will be the area of the new figure compared with the area of the original?
- a. 4 times the original area                      c.  $\frac{1}{2}$  the original area
- b. the same as the original area                d. double the original area
- \_\_\_ 14. The drawing shows the top view of a structure built with cubes as well as the number of cubes in each column of the structure.

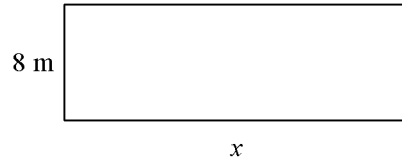
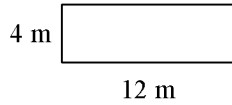


Which 3-dimensional view represents the same structure?





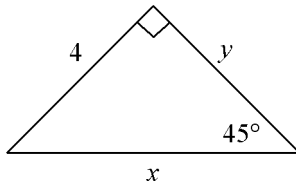
- \_\_\_\_ 15. The two rectangles are similar. Which is a correct proportion for corresponding sides?



- a.  $\frac{12}{8} = \frac{x}{4}$       b.  $\frac{12}{4} = \frac{x}{8}$       c.  $\frac{12}{4} = \frac{x}{20}$       d.  $\frac{4}{12} = \frac{x}{8}$

### Short Answer

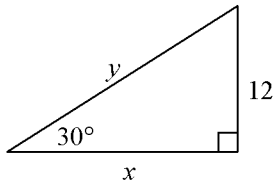
16. Find the lengths of the missing sides in the triangle. Write your answers as integers or as decimals rounded to the nearest tenth.



Not drawn to scale

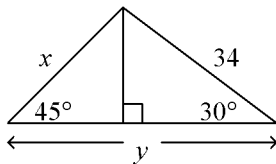
Find the value of the variable(s). If your answer is not an integer, leave it in simplest radical form.

- 17.



Not drawn to scale

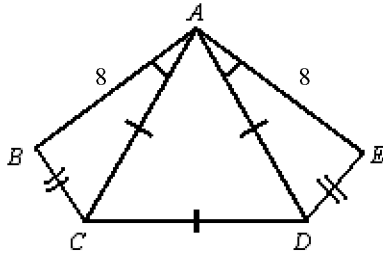
18. Find the value of  $x$  and  $y$  rounded to the nearest tenth.



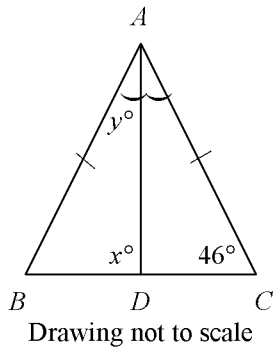
Name: \_\_\_\_\_

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19. State whether  $\triangle ABC$  and  $\triangle AED$  are congruent. Justify your answer.

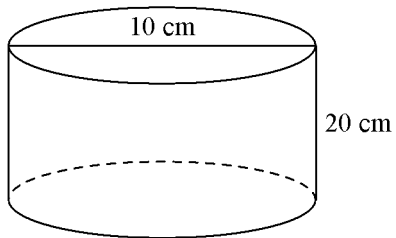


20. Find the values of  $x$  and  $y$ .



Find the surface area of the cylinder in terms of  $\pi$ .

21.



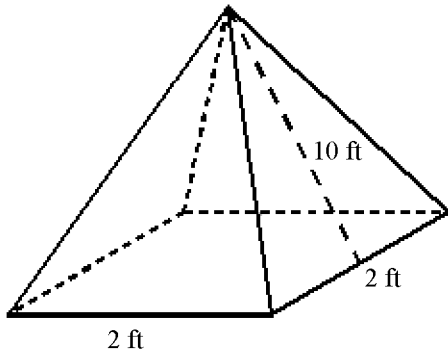
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Name: \_\_\_\_\_

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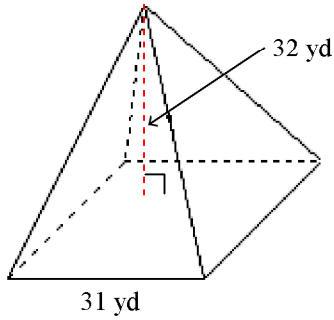
Find the surface area of the pyramid shown to the nearest whole number.

22.



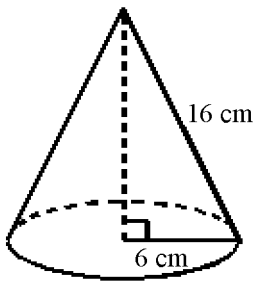
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23. Find the lateral area of the pyramid shown to the nearest whole number.



Not drawn to scale

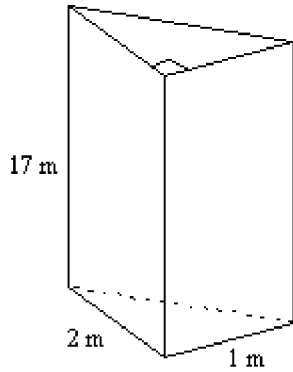
24. Find the surface area of the cone in terms of  $\pi$ .



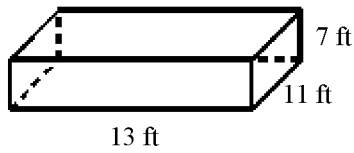
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Find the volume of the given prism. Round to the nearest tenth if necessary.

25.

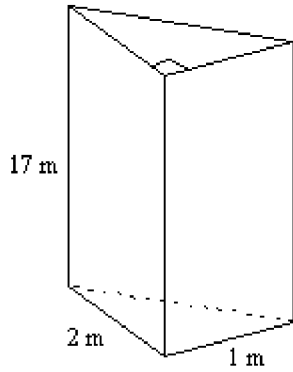


26.

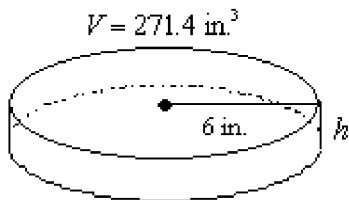


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27.

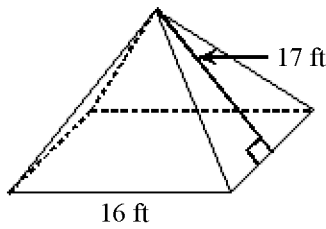


28. Find the height of the cylinder.



Find the volume of the square pyramid shown. Round to the nearest ones place as necessary.

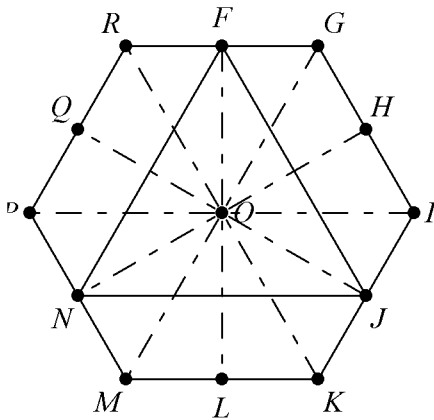
29.



Not drawn to scale

30. The vertices of a triangle are  $P(1, 2)$ ,  $Q(2, 1)$ , and  $R(4, 4)$ . Name the vertices of the image reflected in the  $x$ -axis.

The hexagon  $GIKMPR$  and  $\triangle FJN$  are regular. The dashed line segments form  $30^\circ$  angles.



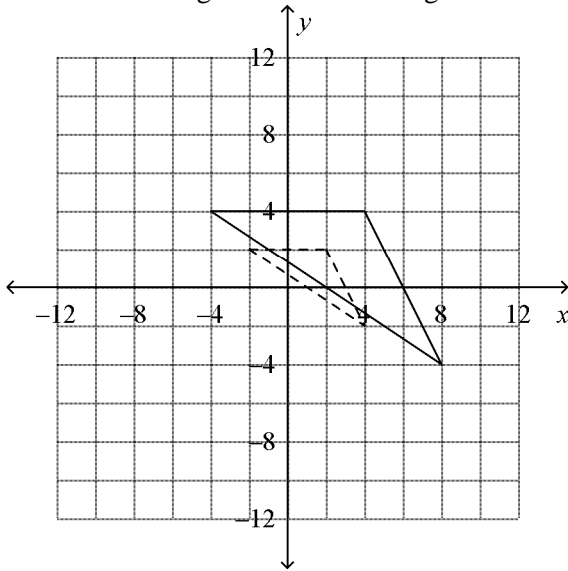
31. Find the image of point  $R$  after a rotation of  $240^\circ$  about point  $P$ .

Solve the proportion.

32.  $\frac{5}{a} = \frac{10}{14}$

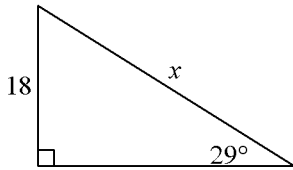
33.  $\frac{3y - 8}{12} = \frac{y}{5}$

34. The dashed triangle is a dilation image of the solid triangle. What is the scale factor?



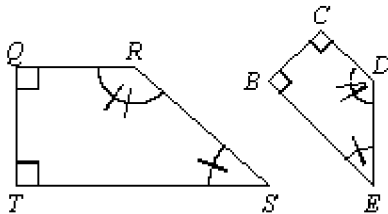
Find the value of  $x$ . Round to the nearest tenth.

- 35.



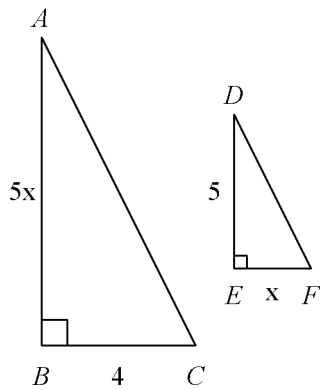
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36. On a blueprint, the scale indicates that 8 cm represent 14 feet. What is the length of a room that is 11.2 cm long and 8 cm wide on the blueprint?
37. Figure  $TQRS \sim BCDE$ . Name a pair of corresponding sides?

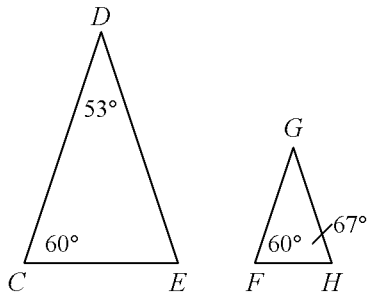


The polygons are similar, but not necessarily drawn to scale. Find the values of  $x$  and  $y$ .

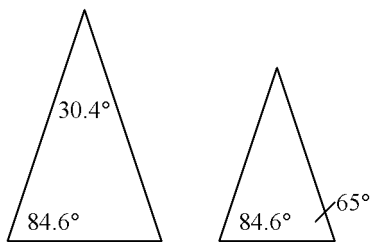
38. Triangles  $ABC$  and  $DEF$  are similar. Find the lengths of  $AB$  and  $EF$ .



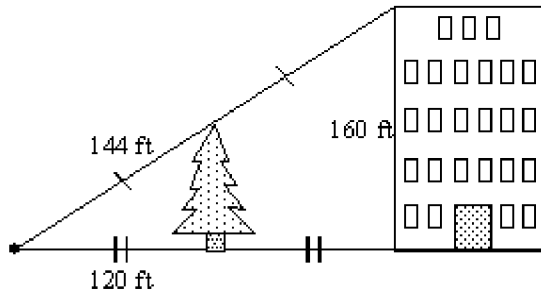
39. Write a similarity statement for the triangles.



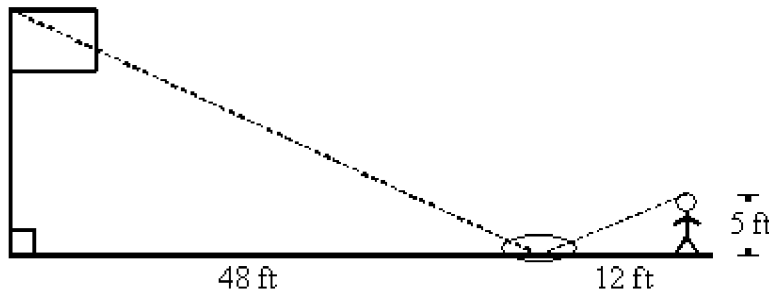
40. Are the triangles similar? If so, explain why.



41. Use the information in the diagram to determine the height of the tree to the nearest foot.



42. Michele wanted to measure the height of her school's flagpole. She placed a mirror on the ground 48 feet from the flagpole, then walked backwards until she was able to see the top of the pole in the mirror. Her eyes were 5 feet above the ground and she was 12 feet from the mirror. Using similar triangles, find the height of the flagpole to the nearest foot.



43. The vertices of a triangle are  $P(5, 64)$ ,  $Q(1, 63)$ , and  $R(5, 61)$ . Name the vertices of the image reflected in the  $y$ -axis.

**Find the volume of the sphere shown. Give each answer rounded to the nearest cubic unit.**

- 44.

