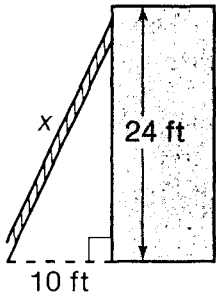


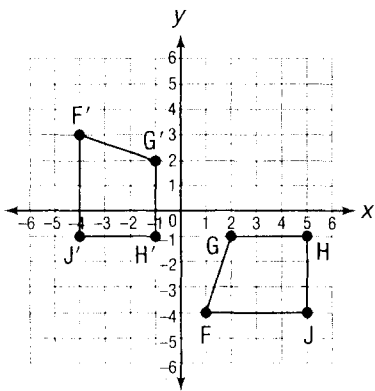
# CHAPTER 4 REVIEW

- On a coordinate plane, the coordinates of the vertices of  $\triangle JKL$  are  $J(2, 5)$ ,  $K(3, 1)$ , and  $L(7, 1)$ . What will be the coordinates of its image,  $\triangle J'K'L'$ , after a  $180^\circ$  rotation about the origin?
  - $J'(-2, 5)$ ,  $K'(-3, 1)$ , and  $L'(-7, 1)$
  - $J'(5, -2)$ ,  $K'(1, -3)$ , and  $L'(1, -7)$
  - $J'(2, -5)$ ,  $K'(3, -1)$ , and  $L'(7, -1)$
  - $J'(-2, -5)$ ,  $K'(-3, -1)$ , and  $L'(-7, -1)$
  
- On a coordinate plane,  $\triangle P'Q'R'$  is the image of  $\triangle PQR$  after the dilation described by  $(x, y) \rightarrow (0.25x, 0.25y)$ . Which statement about this dilation is **not** true?
  - The center of the dilation is the origin.
  - The area of  $\triangle P'Q'R'$  is  $\frac{1}{4}$  the area of  $\triangle PQR$ .
  - The length of side  $P'Q'$  is  $\frac{1}{4}$  the length of side  $PQ$ .
  - The orientation of the vertices of  $\triangle P'Q'R'$  is the same as the orientation of the vertices of  $\triangle PQR$ .

- On a coordinate plane, which transformation results in an image that is similar to, but **not** congruent to, the original figure?
  - $(x, y) \rightarrow (-y, x)$
  - $(x, y) \rightarrow (-x, y)$
  - $(x, y) \rightarrow (kx, ky)$ , where  $0 < k < 1$
  - $(x, y) \rightarrow (x + k, y + k)$ , where  $0 < k < 1$
  
- A contractor needs to climb to the roof of a building that is 24 feet tall. He wants to place the ladder so it is 10 feet from the base of the building, as shown in the diagram below. How long,  $x$ , should the ladder be?
 

- 14 feet
- 21 feet
- 26 feet
- 28 feet

5. Which sequence of transformations could be used to prove that trapezoid  $FGHJ$  is congruent to trapezoid  $F'G'H'J'$ ?

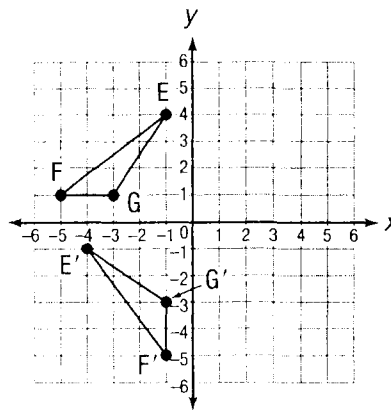


- A.  $90^\circ$  clockwise rotation followed by a translation of 4 units up
- B.  $90^\circ$  clockwise rotation followed by a reflection across the  $x$ -axis
- C.  $180^\circ$  rotation followed by a translation of 2 units down
- D.  $180^\circ$  rotation followed by a reflection across the  $x$ -axis
6. The size of a rectangular computer screen is given by the length of its diagonal. The length of the diagonal is 24 inches and the width is 21 inches. What is the approximate height of the screen?
- A. 9.0 inches
- B. 11.6 inches
- C. 31.9 inches
- D. 45.0 inches

7. A cone-shaped paper drinking cup is filled with water. The height of the cup is 10 centimeters and the diameter is 5 centimeters. Which measurement is **closest** to the volume of water that the cup holds?

- A.  $65.42 \text{ cm}^3$
- B.  $130.83 \text{ cm}^3$
- C.  $196.25 \text{ cm}^3$
- D.  $261.67 \text{ cm}^3$

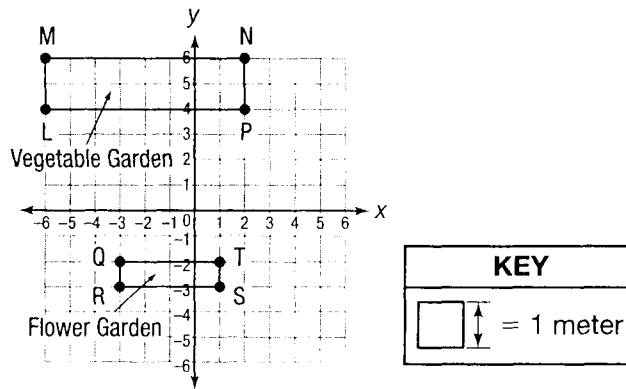
8. Which transformation maps  $\triangle EFG$  onto  $\triangle E'F'G'$ ?



- A. reflection across the  $x$ -axis
- B.  $90^\circ$  clockwise rotation about the origin
- C.  $270^\circ$  clockwise rotation about the origin
- D. translation of 7 units up and 1 unit left

Use the information and diagram below for questions 9 and 10.

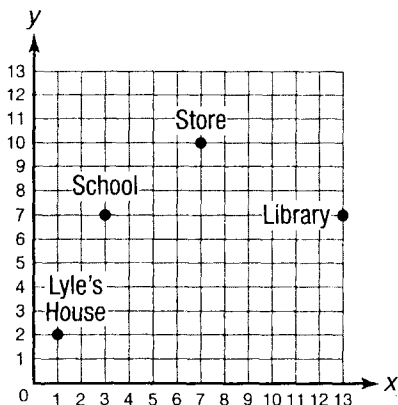
Ms. Kowalski designed her rectangular gardens so they are similar figures.



9. Which sequence of transformations could be applied to LMNP to prove that it is similar to QRST?
- reflection across the  $x$ -axis; then a dilation by a factor of  $\frac{1}{3}$
  - reflection across the  $x$ -axis; then a dilation by a factor of  $\frac{1}{2}$
  - reflection across the  $y$ -axis; then a dilation by a factor of  $\frac{1}{3}$
  - reflection across the  $y$ -axis; then a dilation by a factor of  $\frac{1}{2}$
10. Ms. Kowalski decides to separate the flower garden into two congruent triangular sections. To do this, she runs a piece of garden twine directly from point Q to point S. What is the minimum length of twine she needs?
- $\sqrt{8}$  meters
  - 3 meters
  - $\sqrt{17}$  meters
  - 5 meters
11. Which could be the side lengths of a right triangle?
- 5 ft, 6 ft, 7 ft
  - 5 ft, 10 ft, 15 ft
  - 6 ft, 10 ft, 12 ft
  - 9 ft, 12 ft, 15 ft
12. The distance between points C(6,  $n$ ) and D(2, 0) is 5 units. What is one possible value of  $n$ ?
- 0
  - 3
  - 4
  - 6

Use the information and map below for questions 13 and 14.

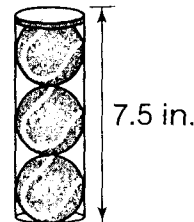
The map shows the locations of Lyle's house, his school, the grocery store, and the library. Each unit on the map represents 1 kilometer.



13. If Lyle travels directly from his house to the library, how far will he walk?
- 13 kilometers
  - 12 kilometers
  - 10 kilometers
  - 9 kilometers
14. If Lyle bikes directly from his house to the store, how far will he bike?
- 4 kilometers
  - 10 kilometers
  - 12 kilometers
  - 14 kilometers

Use the information and diagram below for questions 15 and 16.

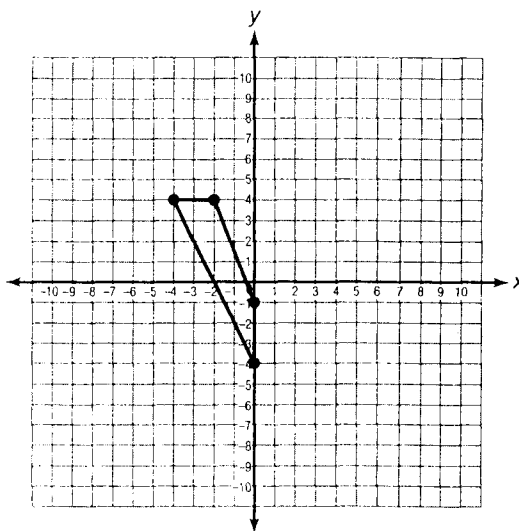
Three spherical tennis balls fit snugly into a cylindrical container that is 7.5 inches high.



15. What is the approximate volume of one tennis ball?
- 1.4 cubic inches
  - 8.2 cubic inches
  - 36.8 cubic inches
  - 65.4 cubic inches
16. The space in the container not occupied by the tennis balls consists of air. What is the volume of air inside the container?
- 61.3 cubic inches
  - 28.6 cubic inches
  - 24.5 cubic inches
  - 12.3 cubic inches

17. Violet is taking an art class. She creates this shape on a coordinate plane. She thinks it looks like half of the letter V, the first letter in her name.

A. Describe a transformation Violet could use to make the other half of the letter V in one step. Then perform that transformation on the coordinate plane.



B. Violet says that the original shape and its image after the transformation are congruent. Is she correct? Explain.

17. **Continued.** Please refer to the previous page for task explanation.

**C.** Violet decides she wants to make the letter V larger. Dilate the letter V in Part A by a scale factor of 2.5, with the origin as the center of dilation, to show how she can make it larger. Show or explain how you performed the dilation.

**D.** Violet says the dilated letter V and the original letter V are similar, but not congruent. Is she correct? Explain how you know.