

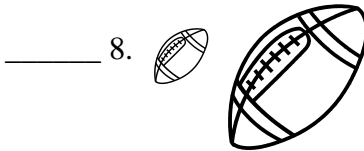
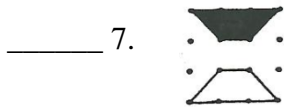
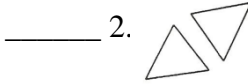
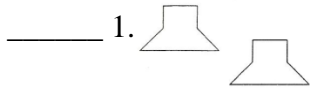
Identify the following transformations as

A. translation

B. reflection

C. rotation

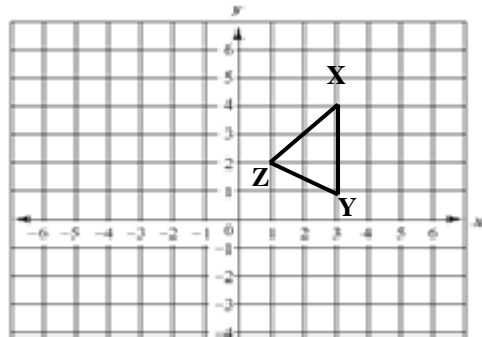
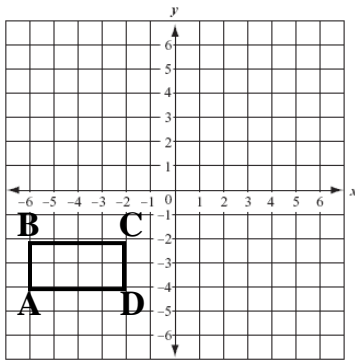
D. dilation



Sketch the following images using the rules given. Label all points for the transformed images.

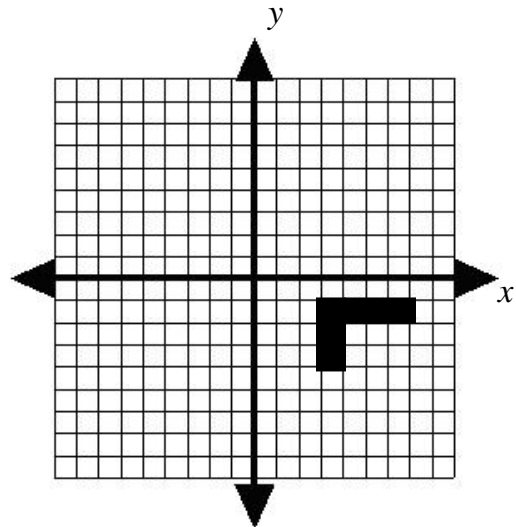
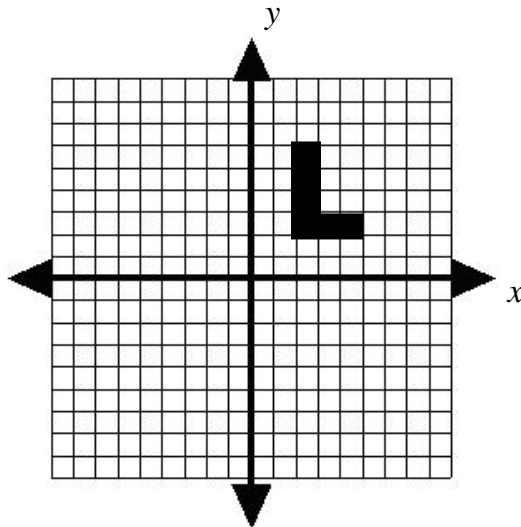
10. Translate  $\square ABCD$  using the rule  $(x + 8, y + 4)$ .

11. Translate  $\triangle XYZ$  using the rule  $(x - 4, y + 1)$ .

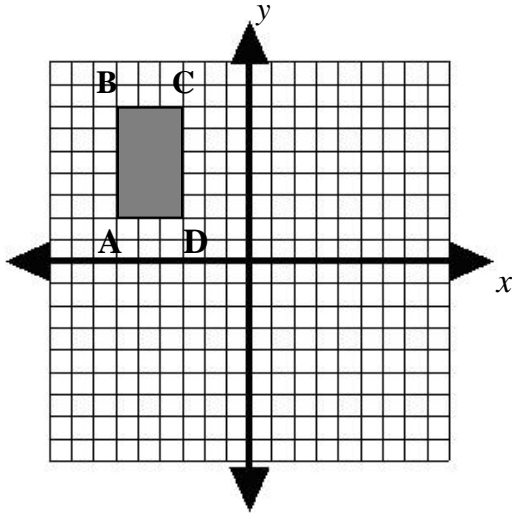


12. Reflect the figure across the  $x$ -axis.

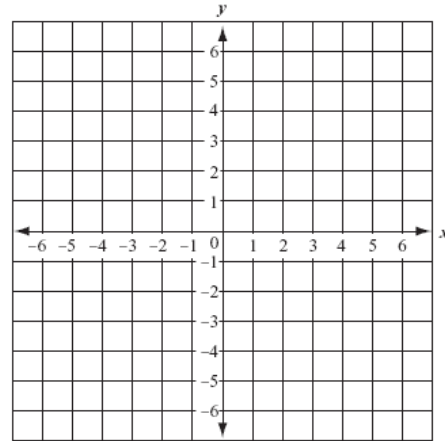
13. Reflect the figure across the  $y$ -axis.



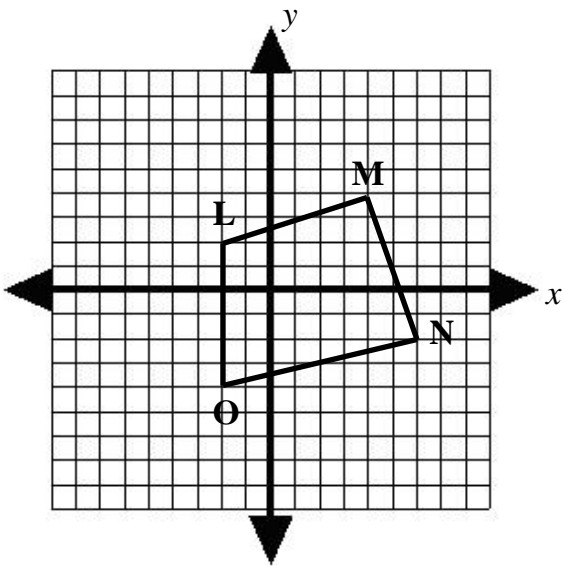
14. Rotate  $\square$  ABCD  $90^\circ$  clockwise



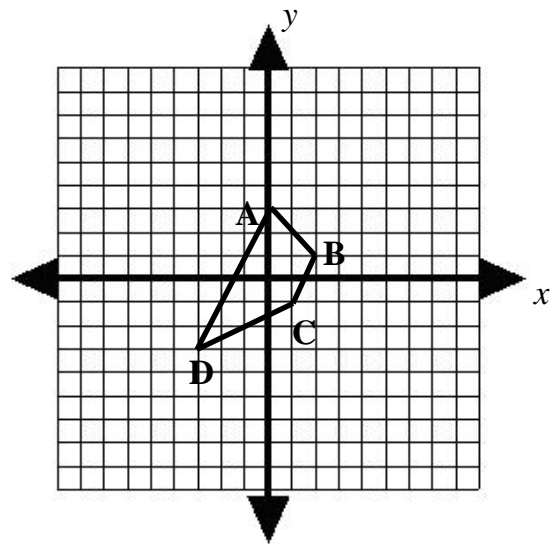
15. Quadrilateral NEAL has vertices N (3, 5); E (4, 4); A (3, 2); and L (1, 3). Graph quadrilateral NEAL. Rotate  $180^\circ$  and graph N'E'A'L'.



16. Use a scale factor of 0.5 to dilate quadrilateral LMNO.



17. Use a scale factor of 2 to dilate trapezoid ABCD.

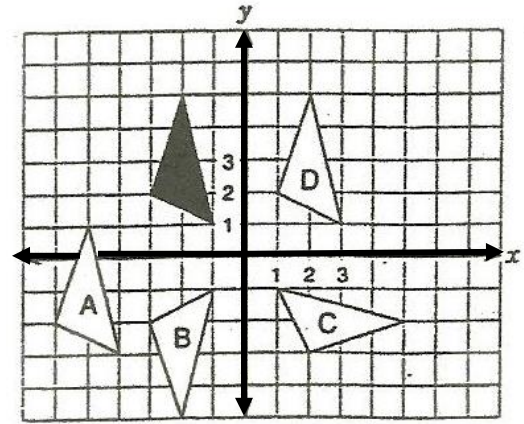


**Choose the correct answer. Place the letter for the correct answer in the blanks.**

\_\_\_\_\_ 18. Ms. Ross placed a picture of an equilateral triangle on an overhead projector in her math class. The overhead projector dilated the triangle's image on the screen by a scale factor of 2.5. If the length of each side of the actual triangle is 4 centimeters, what is the length of each side of the dilated triangle on the screen?  
 A. 10 cm      B. 25 cm      C. 8 cm      D. 12 cm

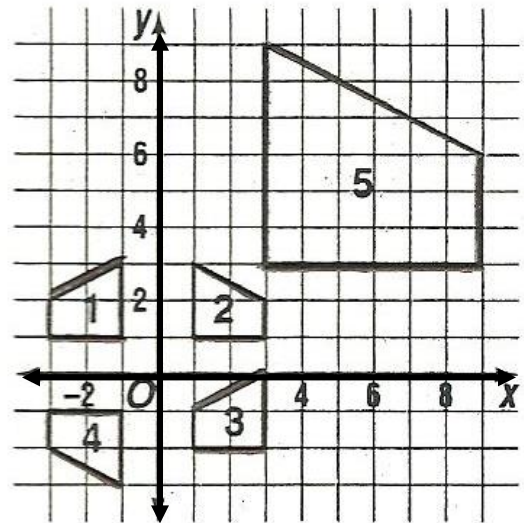
\_\_\_\_\_ 19. Which rule describes the translation left 5, down 5?  
 A.  $(x, y) \rightarrow (x + 5, y + 5)$       B.  $(x, y) \rightarrow (x - 5, y - 5)$   
 C.  $(x, y) \rightarrow (x + 5, y - 5)$       D.  $(x, y) \rightarrow (x - 5, y + 5)$

Use the graph at right for questions 20-22.



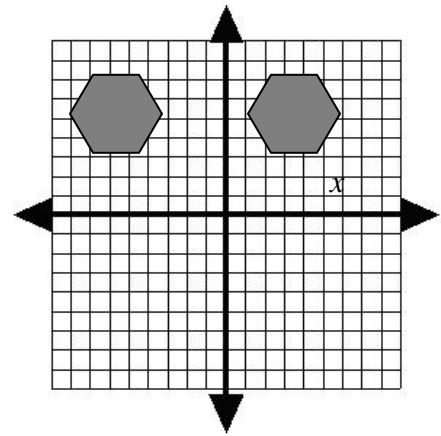
- \_\_\_\_\_ 20. Which white triangle shows where the black triangle would be translated  $(x + 4, y)$ ?  
 A. A      B. B      C. C      D. D
- \_\_\_\_\_ 21. Which white triangle shows the black triangle reflected across the  $x$ -axis?  
 A. A      B. B      C. C      D. D
- \_\_\_\_\_ 22. Which white triangle shows where the black triangle would be translated  $(x - 3, y - 4)$ ?  
 A. A      B. B      C. C      D. D

Use the graph at right for questions 23-26.

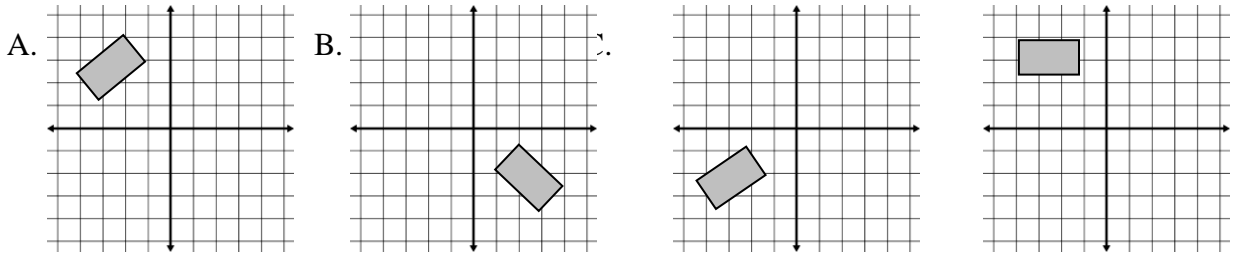
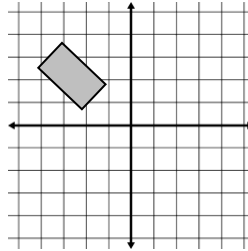


- \_\_\_\_\_ 23. What kind of transformation can you use on figure 1 to get to figure 2?  
 A. dilation              B. reflection  
 C. rotation              D. translation
- \_\_\_\_\_ 24. Which figure do you get if you rotate figure 2 by  $180^\circ$  clockwise around point  $O$ ?  
 A. figure 1              B. figure 3  
 C. figure 4              D. figure 5
- \_\_\_\_\_ 25. Which figure can you get by translating figure 3?  
 A. figure 1              B. figure 2              C. figure 4              D. figure 5
- \_\_\_\_\_ 26. Suppose you want to dilate figure 2 to get figure 5. If you use point  $O$  as the center of dilation, what scale factor should you use?  
 A. 1                      B. 2                      C. 3                      D. 4
- \_\_\_\_\_ 27. Point  $K$  is located at  $(2, 3)$ . If Point  $K$  is translated 4 units left and 3 units down, what will Point  $K$ 's new coordinates be?  
 A.  $(-2, 0)$               B.  $(-1, -1)$               C.  $(6, 0)$               D.  $(5, -1)$
- \_\_\_\_\_ 28. Beatrice translated trapezoid  $RSTU$  to trapezoid  $R'S'T'U'$ . Vertex  $S$  was at  $(4, 1)$ . If vertex  $S'$  is at  $(-3, 4)$ , which best describes this translation?  
 A. move 7 units left and 3 units up              B. move 1 unit left and 3 units up  
 C. move 3 units down and 7 units right              D. move 8 units left and 4 units up

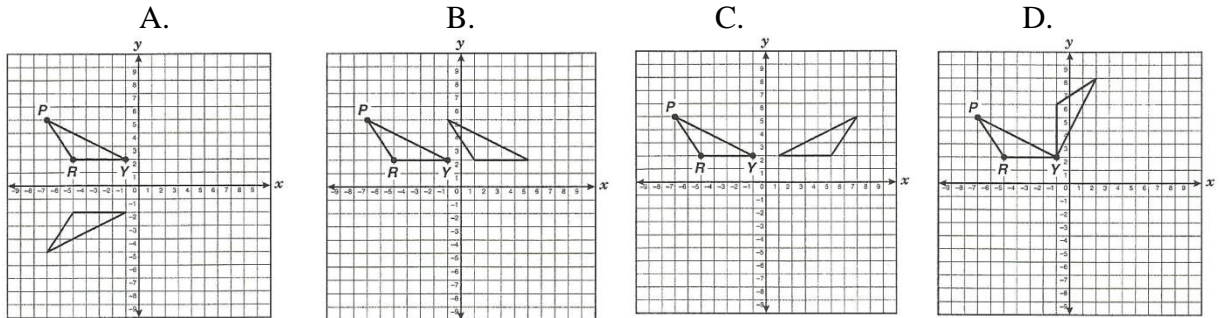
- \_\_\_\_\_ 29. Which is most likely the type of transformation that takes place from figure 1 to figure 2 on the coordinate graph at the right?
- A. reflection across the  $y$ -axis
  - B. translation
  - C. rotation about the origin
  - D. reflection across the  $x$ -axis



- \_\_\_\_\_ 30. If the figure at the right is rotated  $180^\circ$  clockwise about the origin, which best represents the new figure?

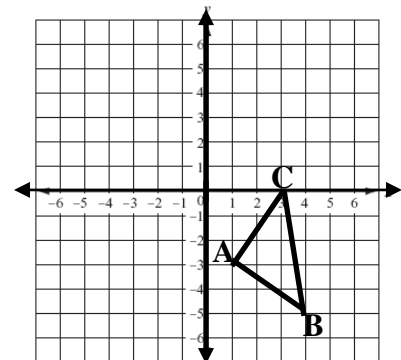


- \_\_\_\_\_ 31. Triangle PRY is reflected across the  $y$ -axis. Which of the following shows this?



Use the diagram at the right to answer questions 32-33.

- \_\_\_\_\_ 32. Triangle  $A'B'C'$  is the image of  $\triangle ABC$  under a  $90^\circ$  counterclockwise rotation around the origin. In what quadrant will  $\triangle A'B'C'$  be located?
- A. quadrant I
  - B. quadrant II
  - C. quadrant III
  - D. quadrant IV



- \_\_\_\_\_ 33. If  $\triangle ABC$  is rotated  $180^\circ$ , what will be the coordinates for Point  $B'$ ?
- A. (5, -4)
  - B. (5, 4)
  - C. (-5, 4)
  - D. (-4, 5)

## Math SOL 7.8—Transformations

### Answer Key

1. A
2. B
3. C
4. C
5. A
6. D
7. B
8. D
9. C
10.  $A' (2, 0)$ ;  $B' (2, 2)$ ;  $C' (6, 2)$ ;  $D' (6, 0)$
11.  $X' (-1, 5)$ ;  $Y' (-1, 2)$ ;  $Z' (-3, 3)$
12. See graph (figure should be in quadrant 4)
13. See graph (figure should be in quadrant 3)
14.  $A' (2, 6)$ ;  $B' (2, 3)$ ;  $C' (7, 3)$ ;  $D' (2, 3)$
15.  $N' (-3, -5)$ ;  $E' (-4, -4)$ ;  $A' (-3, -2)$ ;  $L' (-1, -3)$
16.  $L' (-1, 1)$ ;  $M' (2, 2)$ ;  $N' (3, -1)$ ;  $O' (-1, -2)$
17.  $A' (0, 6)$ ;  $B' (4, 2)$ ;  $C' (2, -2)$ ;  $D' (-6, -6)$
18. A
19. B
20. D
21. B
22. A
23. B
24. C
25. A
26. C
27. A
28. A
29. B
30. B
31. C
32. C
33. D