

Name: _____

Unit 1 Retest 2 (2016)

1. Which of the following transformations results in no isometry at all?

- A. dilation
- B. rotation
- C. reflection
- D. translation

2. The coordinates of point P are $(7,1)$. What are the coordinates of the image of P after R_{90° about the origin?

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

3. Triangle ABC is drawn in Quadrant III. If $\triangle ABC$ is reflected in the y -axis, its image will lie in Quadrant

- A. I
- B. II
- C. III
- D. IV

4. What are the coordinates of A' , the image of point $A(-3, 4)$, after a rotation of 180° about the origin?

- A. $(4, -3)$
- B. $(-4, -3)$
- C. $(3, 4)$
- D. $(3, -4)$

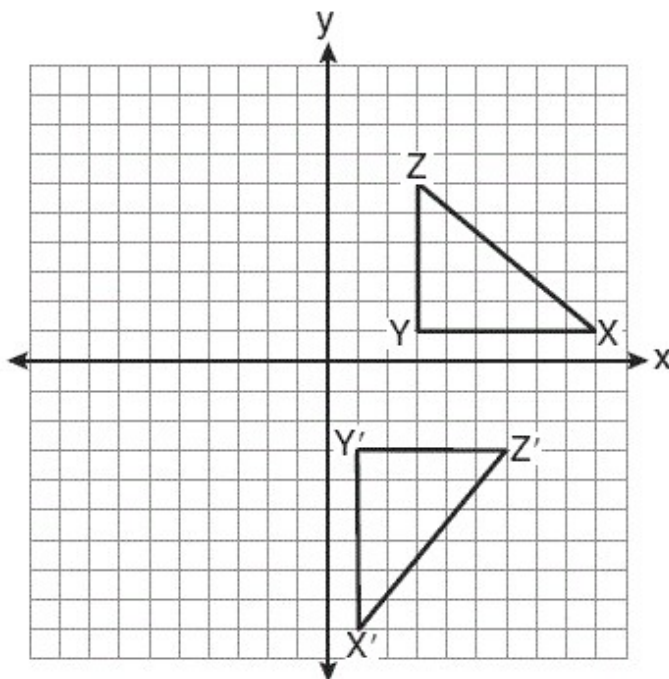
5. The point $(3,-2)$ is rotated 90° about the origin and then dilated by a scale factor of 4. What are the coordinates of the resulting image?

- A. $(-12,8)$
- B. $(12,-8)$
- C. $(8,12)$
- D. $(-8,-12)$

6. What is the rule for the translation of a point $(2, -2)$ to the image $(0, -1)$?

- A. 2 units right and 1 unit up
- B. 2 units right and 1 unit down
- C. 2 units left and 1 unit down
- D. 2 units left and 1 unit up

7. In the diagram below, under which transformation is $\triangle X'Y'Z'$ the image of $\triangle XYZ$?



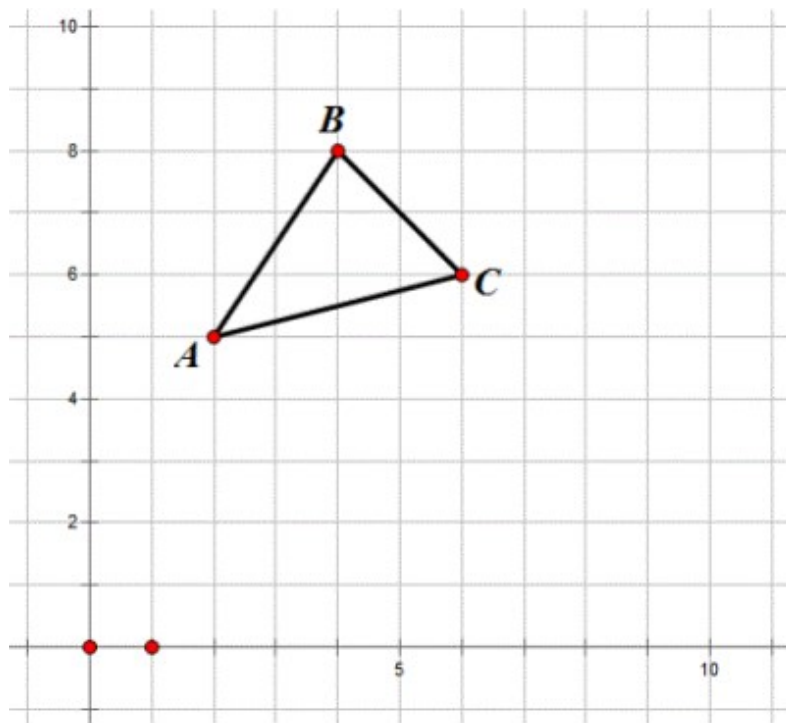
- A. dilation
- B. reflection
- C. rotation
- D. translation

8. The coordinates of $\triangle JRB$ are $J(1,-2)$, $R(-3,6)$, and $B(4,5)$. What are the coordinates of the vertices of its image after the transformation $T_{2,-1} \circ r_{y\text{-axis}}$?

- A. $(3,1)$, $(-1,-7)$, $(6,-6)$
- B. $(3,-3)$, $(-1,5)$, $(6,4)$
- C. $(1,-3)$, $(5,5)$, $(-2,4)$
- D. $(-1,-2)$, $(3,6)$, $(-4,5)$

9. What is the image of the point $(2, -3)$ after the transformation $r_{y\text{-axis}}$?
- A. $(2, 3)$
 - B. $(-2, -3)$
 - C. $(-2, 3)$
 - D. $(-3, 2)$
10. Quadrilateral *HYPE* has vertices $H(2, 3)$, $Y(1, 7)$, $P(-2, 7)$, and $E(-2, 4)$. State and label the coordinates of the vertices of P'' after the composition of transformations $r_{x\text{-axis}} \circ T_{5, -3}$.
- A. $(3, -4)$
 - B. $(-3, 4)$
 - C. $(3, 10)$
 - D. $(3, -10)$
11. Under a dilation with respect to the origin, the image of $P(-15, 6)$ is $P'(-5, 2)$. What is the constant of dilation?
- A. -4
 - B. $\frac{1}{3}$
 - C. 3
 - D. 10
12. When the transformation $T_{2, -1}$ is performed on point A , its image is point $A'(-3, 4)$. What are the coordinates of A ?
- A. $(5, -5)$
 - B. $(-5, 5)$
 - C. $(-1, 3)$
 - D. $(-6, -4)$
13. Which of the following rotations will map a regular octagon onto itself?
- A. 30° counterclockwise
 - B. 45° counterclockwise
 - C. 60° counterclockwise
 - D. 75° counterclockwise

14. $\triangle ABC$ is translated so that the coordinates of B' are $(5, 4)$.



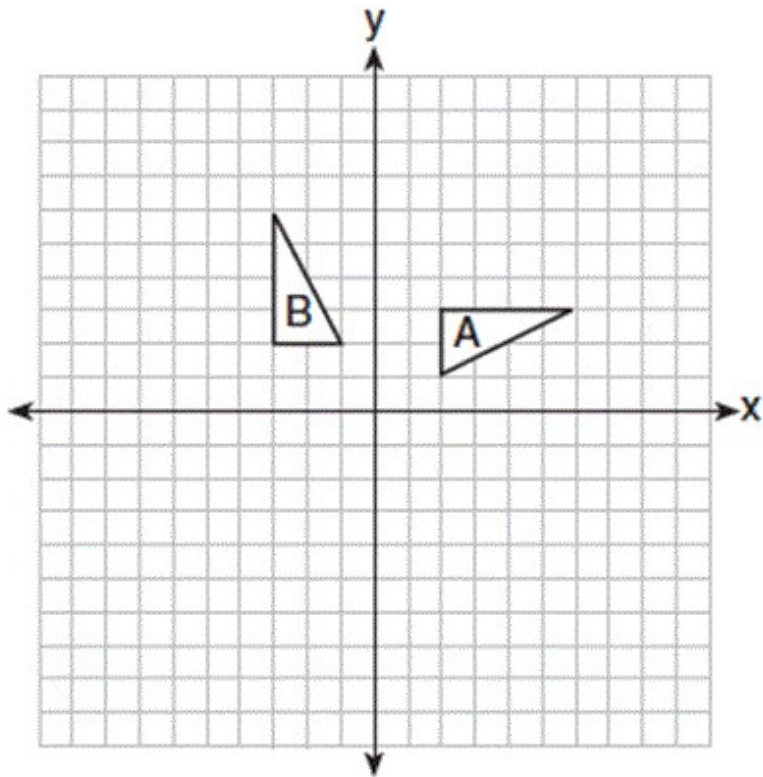
What are the coordinates of C' ?

- A. $(3, 1)$
- B. $(7, 3)$
- C. $(7, 2)$
- D. $(2, 5)$

15. What are the coordinates of P' , the image of point $P(x, y)$ after translation $T_{4, 4}$?

- A. $(x - 4, y - 4)$
- B. $(x + 4, y + 4)$
- C. $(4x, 4y)$
- D. $(4, 4)$

16. In the diagram below, which single transformation was used to map triangle A onto triangle B ?

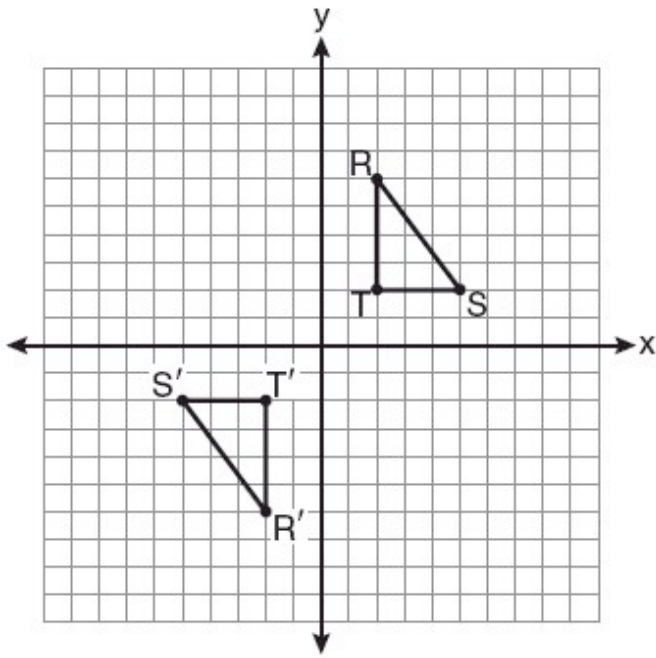


- A. line reflection
- B. rotation
- C. dilation
- D. translation

17. What is the image of the point $(0, 5)$ after the reflection over the line $x = 5$?

- A. $(5, 0)$
- B. $(10, 0)$
- C. $(5, 5)$
- D. $(10, 5)$

18. As shown on the graph below, $\Delta R'S'T'$ is the image of ΔRST under a single transformation.

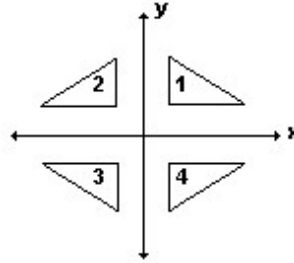


Which transformation does this graph represent?

- A. glide reflection
 B. line reflection
 C. rotation
 D. translation
19. Rectangle $ABCD$ with vertices $A(-2, 0)$, $B(3, 0)$, $C(3, -6)$, $D(-2, -6)$ is dilated using the rule: $(x', y') = (2x, 2y)$. What are the vertices of rectangle $A'B'C'D'$?
- A. $A'(-4, 0)$, $B'(6, 0)$, $C'(6, 12)$, $D'(-4, 12)$
 B. $A'(0, 2)$, $B'(5, 2)$, $C'(5, -4)$, $D'(-0, -4)$
 C. $A'(-4, 2)$, $B'(6, 2)$, $C'(6, -12)$, $D'(-4, -12)$
 D. $A'(-4, 0)$, $B'(6, 0)$, $C'(6, -12)$, $D'(-4, -12)$
20. Triangle ABC has vertices $A(-2, 2)$, $B(-1, -3)$, and $C(4, 0)$. Find the coordinates of the vertices of $\Delta A'B'C'$, the image of ΔABC after the transformation $r_{x\text{-axis}}$.
- A. $A'(2, -2)$, $B'(1, 3)$, and $C'(-4, 0)$
 B. $A'(2, -2)$, $B'(1, -3)$, and $C'(-4, 0)$
 C. $A'(2, 2)$, $B'(-1, 3)$, and $C'(-4, 0)$
 D. $A'(-2, -2)$, $B'(-1, 3)$, and $C'(4, 0)$

21. What is the image of the point $(-5, 2)$ under the translation $T_{3, -4}$?
- A. $(-9, 5)$
 B. $(-8, 6)$
 C. $(-2, -2)$
 D. $(-15, -8)$

22. In the diagram, which triangle is the image of $\Delta 2$ after a reflection in the x -axis?



- A. $\Delta 1$
 B. $\Delta 2$
 C. $\Delta 3$
 D. $\Delta 4$
23. If you translate the point $(-2, 1)$ one unit right and 4 units down, which quadrant will the image lie in?
- A. I
 B. II
 C. III
 D. IV

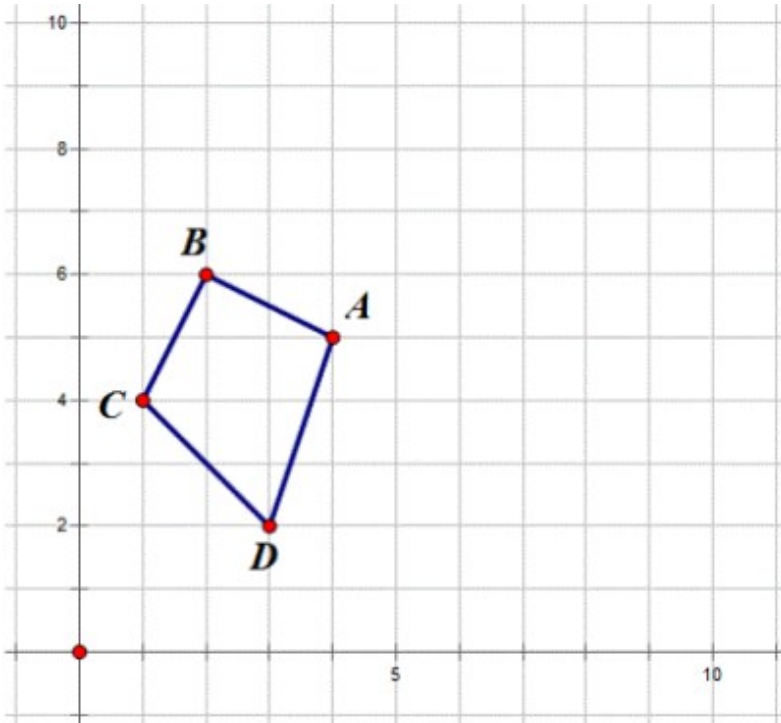
24. Triangle ABC and triangle DEF are graphed on the set of axes below.



Which sequence of transformations maps triangle ABC onto triangle DEF ?

- A. a reflection over the x -axis followed by a reflection over the y -axis
- B. a 180° rotation about the origin followed by a reflection over the line $y = x$
- C. a 90° clockwise rotation about the origin followed by a reflection over the y -axis
- D. a translation 8 units to the right and 1 unit up followed by a 90° counterclockwise rotation about the origin

25. Quadrilateral $ABCD$ is translated so that the coordinates of B' are $(5, 8)$.



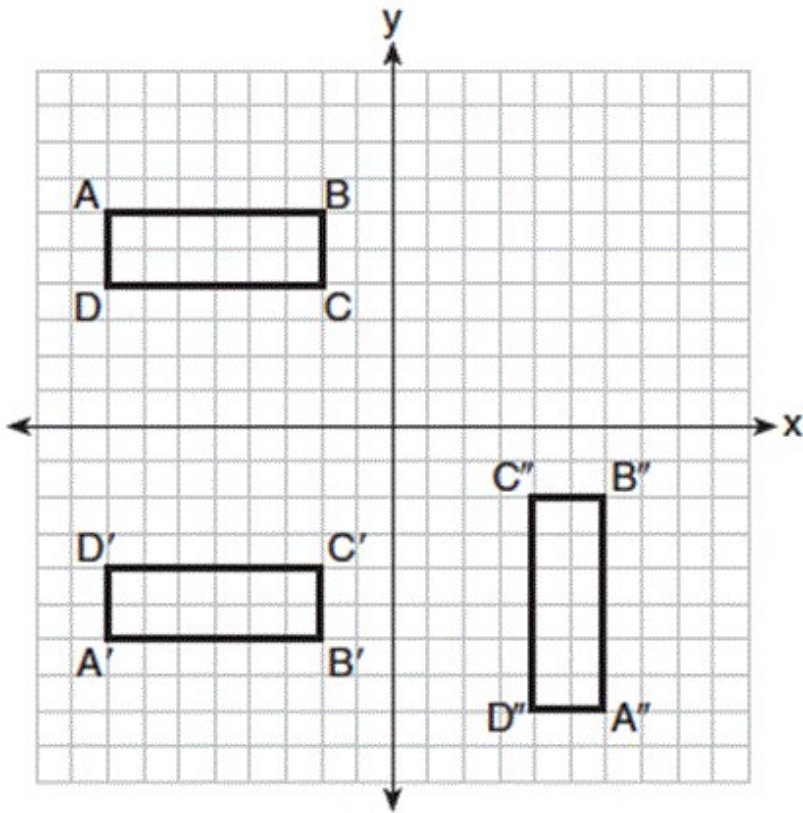
What are the coordinates of D' ?

- A. $(4, 6)$
- B. $(6, 4)$
- C. $(7, 7)$
- D. $(8, 5)$

26. What are the coordinates of the image of point $A(2, -7)$ under the translation $(x, y) \rightarrow (x - 3, y + 5)$?

- A. $(-1, -2)$
- B. $(-1, 2)$
- C. $(5, -12)$
- D. $(5, 12)$

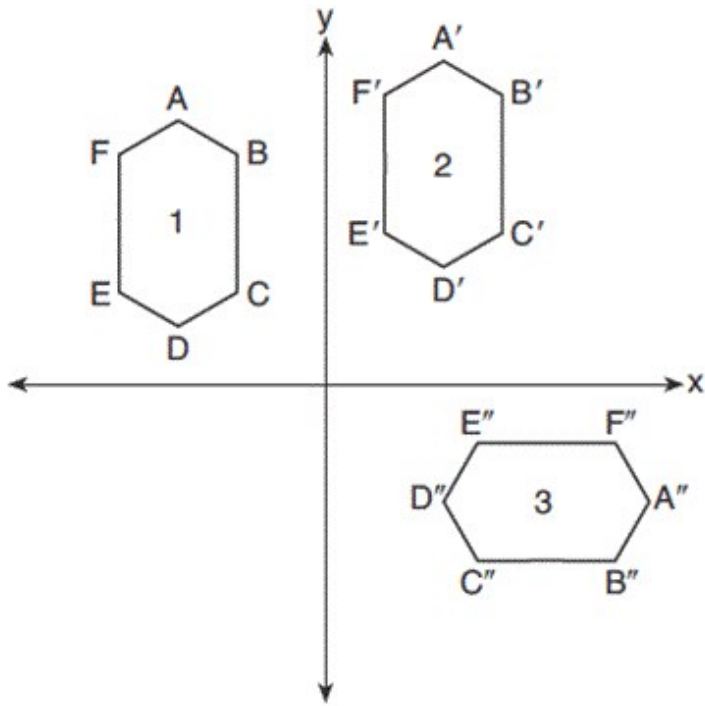
27. A sequence of transformations maps rectangle $ABCD$ onto rectangle $A''B''C''D''$, as shown in the diagram below.



Which sequence of transformations maps $ABCD$ onto $A'B'C'D'$ and then maps $A'B'C'D'$ onto $A''B''C''D''$?

- A. a reflection followed by a rotation
- B. a reflection followed by a translation
- C. a translation followed by a rotation
- D. a translation followed by a reflection

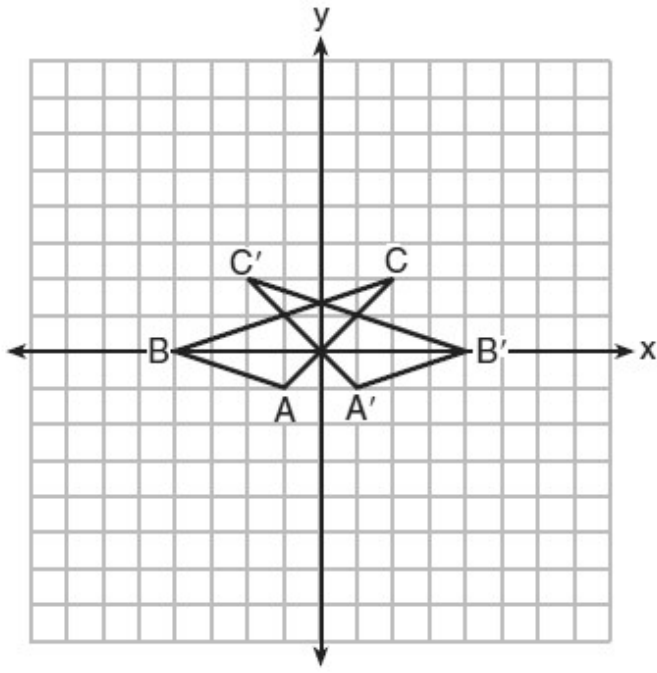
28. In the diagram below, congruent figures 1, 2, and 3 are drawn.



Which sequence of transformations maps figure 1 onto figure 2 and then figure 2 onto figure 3?

- A. a reflection followed by a translation
- B. a rotation followed by a translation
- C. a translation followed by a reflection
- D. a translation followed by a rotation

29. In the diagram below, under which transformation is $\triangle A'B'C'$ the image of $\triangle ABC$?

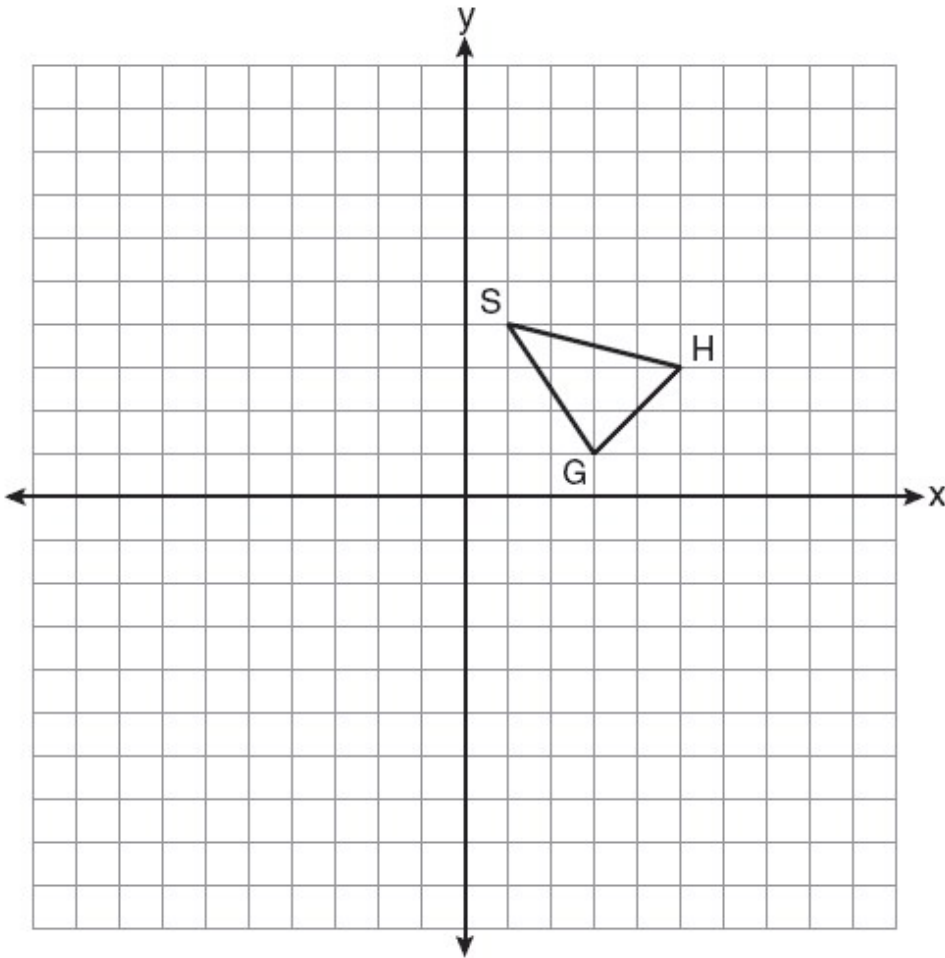


- A. D_2
- B. $r_{x\text{-axis}}$
- C. $r_{y\text{-axis}}$
- D. $(x, y) \rightarrow (x - 2, y)$

30. What is the image of the point $(-4, 0)$ after the reflection over the line $x = 3$?

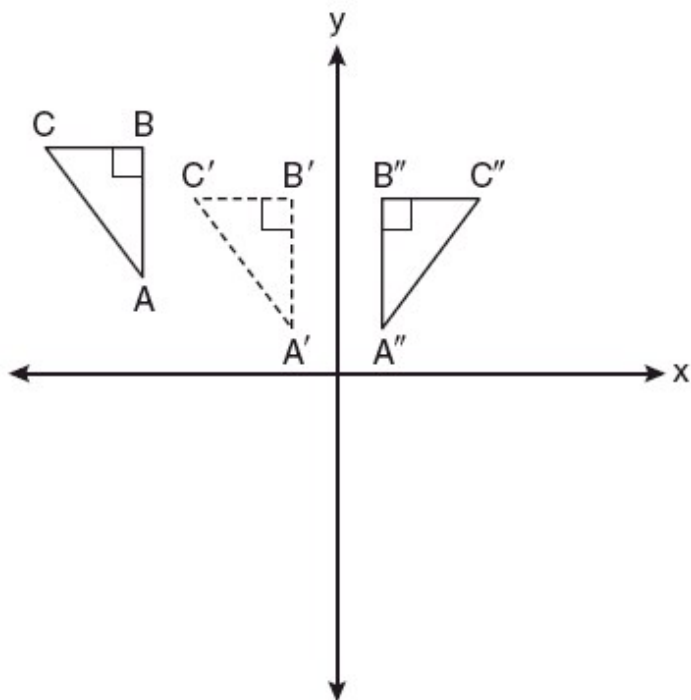
- A. $(-11, 0)$
- B. $(10, 0)$
- C. $(-4, 3)$
- D. $(-4, -3)$

31. As shown on the set of axes below, $\triangle GHS$ has vertices $G(3,1)$, $H(5,3)$, and $S(1,4)$. Graph and state the coordinates of $\triangle G''H''S''$, the image of $\triangle GHS$ after the transformation $T_{-3,1} \circ D_2$.



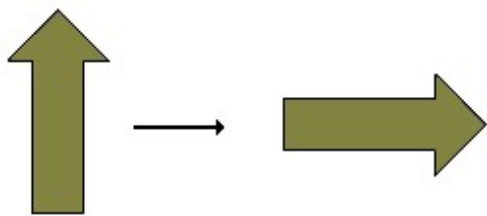
- A. $(0,4)$ $(4,8)$ $(-4,10)$
- B. $(-3,3)$ $(-7,7)$ $(1,-9)$
- C. $(3,3)$ $(7,7)$ $(-1,9)$
- D. $(4,0)$ $(8,4)$ $(1,-9)$

32. In the diagram below, $\triangle A'B'C'$ is a transformation of $\triangle ABC$, and $\triangle A''B''C''$ is a transformation of $\triangle A'B'C'$.



The composite transformation of $\triangle ABC$ to $\triangle A''B''C''$ is an example of a

- A. reflection followed by a rotation
 - B. reflection followed by a translation
 - C. translation followed by a rotation
 - D. translation followed by a reflection
33. Describe the transformation that happened to the figure.

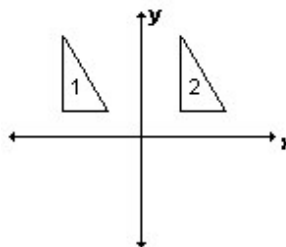


- A. translation
- B. rotation
- C. reflection
- D. none of the above

34. Which transformation is *not* an isometry?

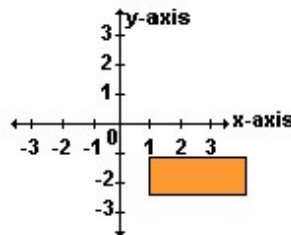
- A. rotation
- B. line reflection
- C. dilation
- D. translation

35. In the diagram, which transformation makes triangle 2 the image of triangle 1?



- A. reflection in the y -axis
- B. dilation
- C. translation
- D. rotation centered at the origin

36. If you rotate this rectangle 180° counterclockwise about the origin, in which quadrant will the image lie?

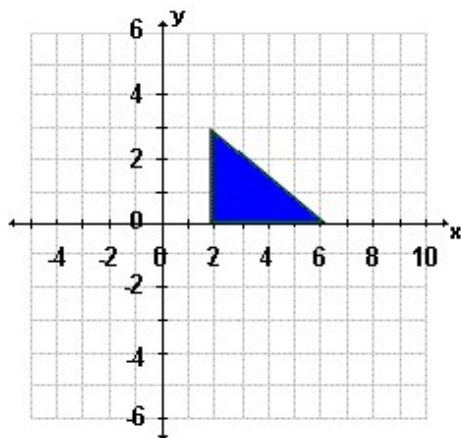


- A. I
- B. II
- C. III
- D. IV

37. Which would describe a translation 2 units left and one unit up?

- A. $(x, y) \rightarrow (x - 2, y + 1)$
- B. $(x, y) \rightarrow (x + 2, y - 1)$
- C. $(x, y) \rightarrow (x - 1, y + 2)$
- D. $(x, y) \rightarrow (x + 1, y - 2)$

38. If you translate the image two units up and three units right, what are the coordinates of the new image?



- A. (2, 0), (2, 3) and (6, 0)
 B. (4, 3), (4, 6) and (8, 3)
 C. (5, 2), (5, 5) and (9, 2)
 D. (2, 2), (2, 5) and (6, 2)

39. If an image with the coordinates (3, 4), (1, 2) and (-1, 0) is dilated using a scale factor of 4, what are the coordinates of the new image?

- A. (3, 4), (1, 2) and (-1, 0)
 B. (12, 16), (4, 8) and (-4, 0)
 C. (4, 3), (2, 1) and (0, -1)
 D. (9, 12), (3, 6) and (-3, 0)

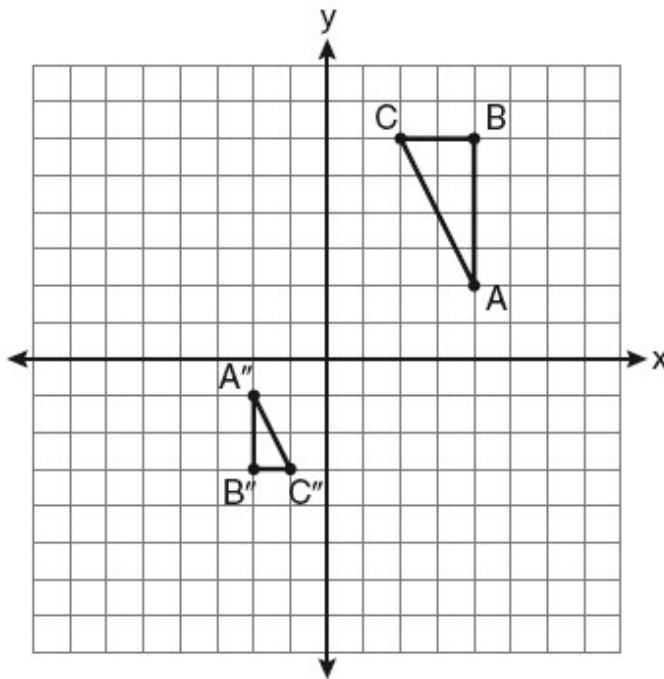
40. The coordinates of the vertices of $\triangle ABC$ are $A(1,3)$, $B(-2,2)$, and $C(0,-2)$. Find the coordinates of $\triangle A''B''C''$, the result of the composite transformation $D_2 \circ T_{3,-2}$. State the coordinates of A'' , B'' , and C'' .

- A. $A''(8,2)$, $B''(2,0)$, and $C''(6,-8)$, $\triangle A''B''C''$
 B. $A''(5,4)$, $B''(-1,2)$, and $C''(3,-6)$, $\triangle A''B''C''$
 C. $A''(-8,2)$, $B''(-2,0)$, and $C''(-6,-8)$, $\triangle A''B''C''$
 D. $A''(5,-4)$, $B''(-1,-2)$, and $C''(3,6)$, $\triangle A''B''C''$

41. What is the image of point $A(4,2)$ after the composition of transformations defined by $R_{90^\circ} \circ r_{y=x}$?

- A. (-4,2)
 B. (4,-2)
 C. (-4,-2)
 D. (2,-4)

42. After a composition of transformations, the coordinates $A(4,2)$, $B(4,6)$, and $C(2,6)$ become $A''(-2,-1)$, $B''(-2,-3)$, and $C''(-1,-3)$, as shown on the set of axes below.



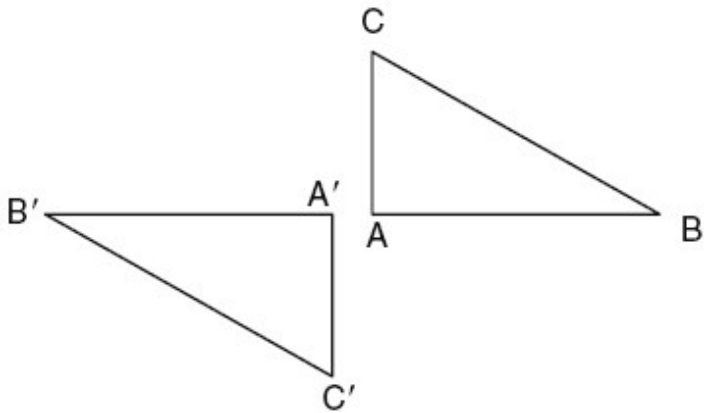
Which composition of transformations was used?

- A. $R_{180^\circ} \circ D_2$
 B. $R_{90^\circ} \circ D_2$
 C. $D_{\frac{1}{2}} \circ R_{180^\circ}$
 D. $D_{\frac{1}{2}} \circ R_{90^\circ}$

43. Point A is located at $(4,-7)$. The point is reflected in the x -axis. Its image is located at

- A. (-4,7)
 B. (-4,-7)
 C. (4,7)
 D. (7,-4)

44. In the diagram below, under which transformation will $\triangle A'B'C'$ be the image of $\triangle ABC$?



- A. rotation
- B. dilation
- C. translation
- D. glide reflection

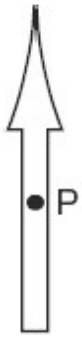
45. A polygon is transformed according to the rule: $(x, y) \rightarrow (x + 2, y)$. Every point of the polygon moves two units in which direction?

- A. up
- B. down
- C. left
- D. right

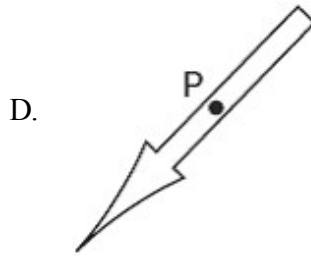
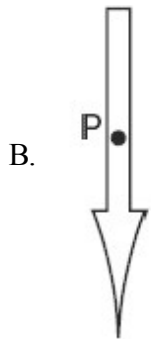
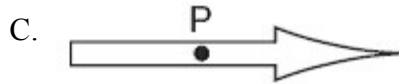
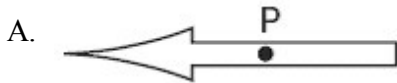
46. Triangle ABC has vertices $A(1, 3)$, $B(0, 1)$, and $C(4, 0)$. Under a translation, A' , the image point of A , is located at $(4, 4)$. Under this same translation, point C' is located at

- A. $(7, 1)$
- B. $(5, 3)$
- C. $(3, 2)$
- D. $(1, -1)$

47. The accompanying diagram shows the starting position of the spinner on a board game.



How does this spinner appear after a 270° counterclockwise rotation about point P ?



48. What are the coordinates of point $(2,-3)$ after it is reflected over the x -axis?

- A. $(2,3)$
- B. $(-2,3)$
- C. $(-2,-3)$
- D. $(-3,2)$

49. The image of point A after a dilation of 3 is $(6, 15)$. What was the original location of point A ?

- A. $(2, 5)$
- B. $(3, 12)$
- C. $(9, 18)$
- D. $(18, 45)$

50. What is the image of point $(-3,4)$ under the translation that shifts (x, y) to $(x - 3, y + 2)$?

- A. $(0,6)$
- B. $(6,6)$
- C. $(-6,8)$
- D. $(-6,6)$