TEST NAME:**G.3 NEW**
TEST ID:**1023073**
GRADE:**08 - Eighth Grade**
SUBJECT:**Mathematics**
TEST CATEGORY:**School Assessment**

1. The vertices of a triangle are located at (0, 4), (¯2, 0), and (1, 0). The triangle will be dilated by a scale factor of 0.5. What will be the coordinates of the vertices of the image triangle?

    A. (0.5, 2), (¯1, 0), (0, 0)

    B. (0, 2), (¯1, 0), (0.5, 0)

    C. (0, 2), (1, 0), (5, 0)

    D. (0, 8), (¯4, 0), (2, 0)

2. The vertices of a square are W(3, 3), X(3, ¯3), Y(¯3, ¯3), and Z(¯3, 3). The square will be dilated using a scale factor of 2. What will be the coordinates of the image?

    A. W′(1.5, 1.5), X′(1.5, ¯1.5), Y′(¯1.5, ¯1.5), Z′(¯1.5, 1.5)

    B. W′(5, 5), X′(5, ¯5), Y′(¯5, ¯5), Z′(¯5, 5)

    C. W′(6, 6), X′(6, ¯6), Y′(¯6, ¯6), Z′(¯6, 6)

    D. W′(9, 9), X′(9, ¯9), Y′(¯9, ¯9), Z′(¯9, 9)

3. **If Triangle *ABC* has been translated 4 units to the right into Triangle *DEF*, what are the coordinates of Point *E*?**


    A. (−3, −2)

    B. (6, −2)

    C. (1, −2)
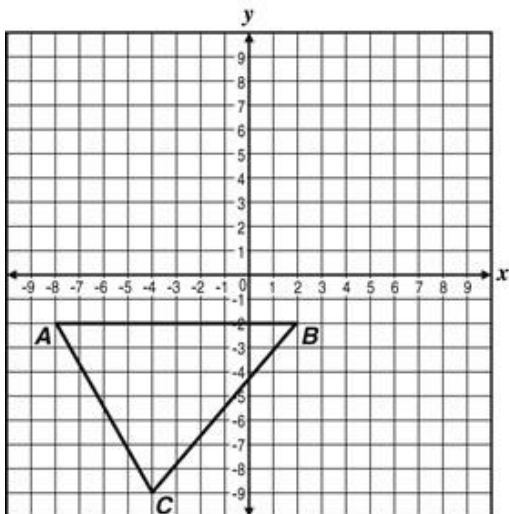
    D. (2, 3)

4. A triangle has the coordinates (⁻3, ⁻1), (1, ⁻2), and (1, ⁻4). The triangle will be dilated by a scale factor of 5. What will be the coordinates of the image triangle?

   A. (⁻15, ⁻5), (⁻5, ⁻10), (⁻5, ⁻20)

   B. (⁻15, ⁻5), (5, ⁻10), (5, ⁻20)

   C. (15, ⁻5), (5, ⁻10), (⁻5, 20)

   D. (15, 5), (5, 10), (5, 20)

5. **If Quadrilateral *ABCD* is translated four units to the right and four units down into Quadrilateral *EFGH*, which point will be at the coordinate** $(2, -2)$**?**
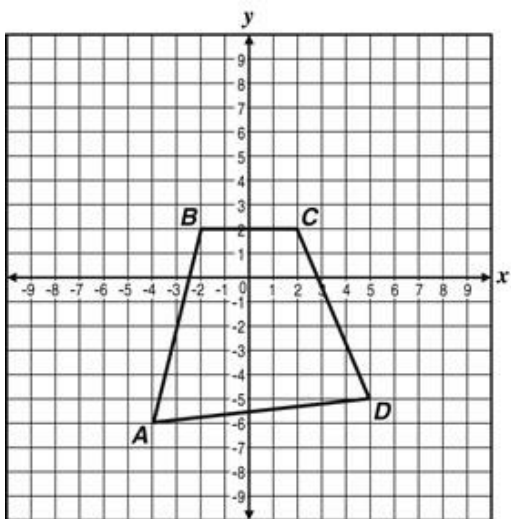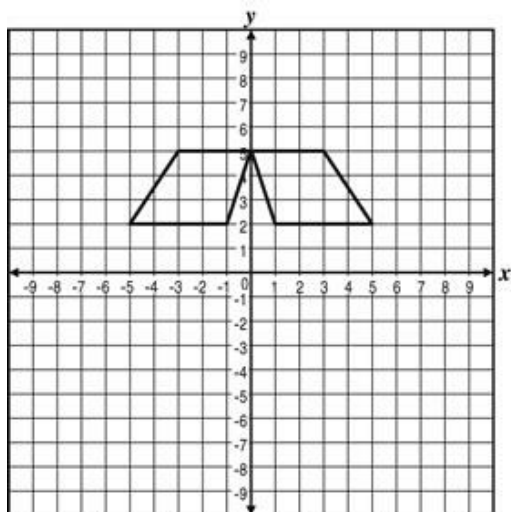

   A. Point *E*
   B. Point *F*
   C. Point *G*
   D. Point *H*

6. Triangle *FGH* was rotated 90° counterclockwise about the origin. The image has vertices located at *F'*(⁻1, ⁻3), *G'*(2, ⁻2), *H'*(2, ⁻4). What are the coordinates of *F* ?

   A. (⁻3, 1)

   B. (⁻1, 3)

   C. (1, ⁻3)

   D. (3, ⁻1)

7. **Which graph shows an image of a rectangle that was reflected over the *x*-axis and then the *y*-axis?**
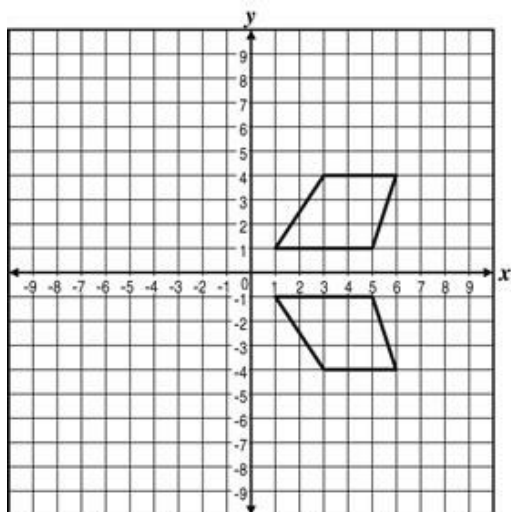
A.

B.

C.

D.
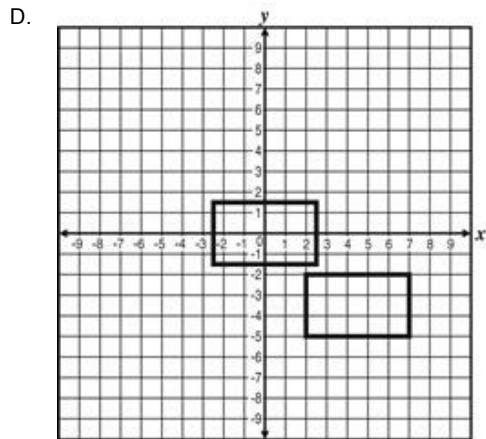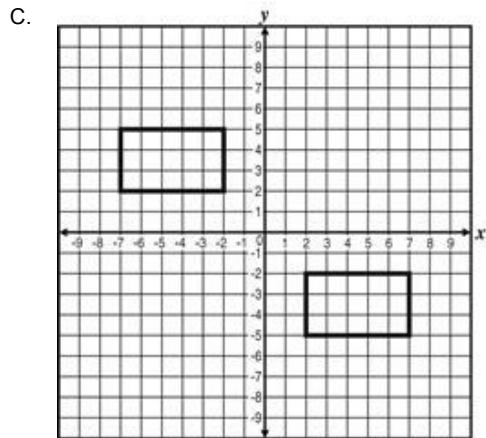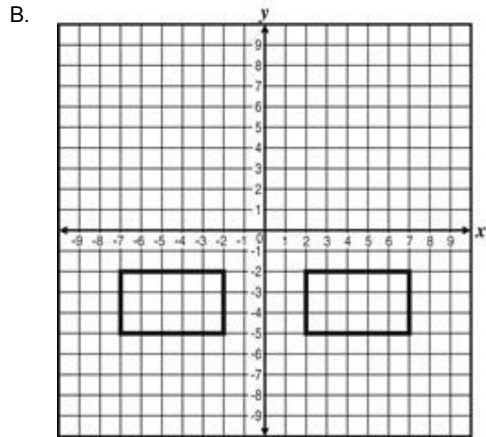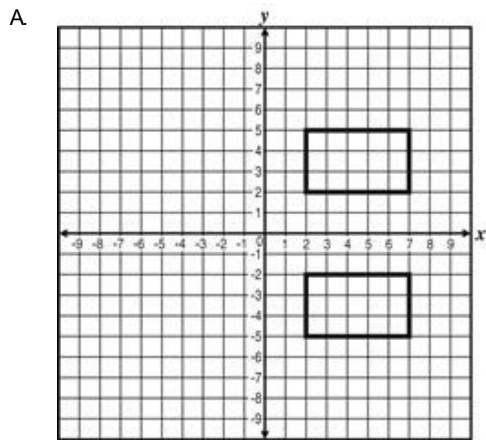
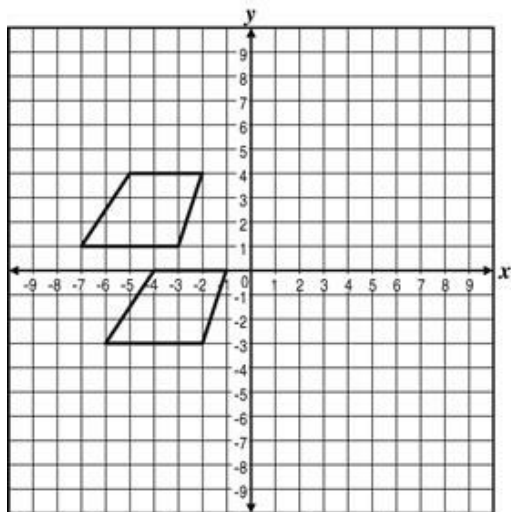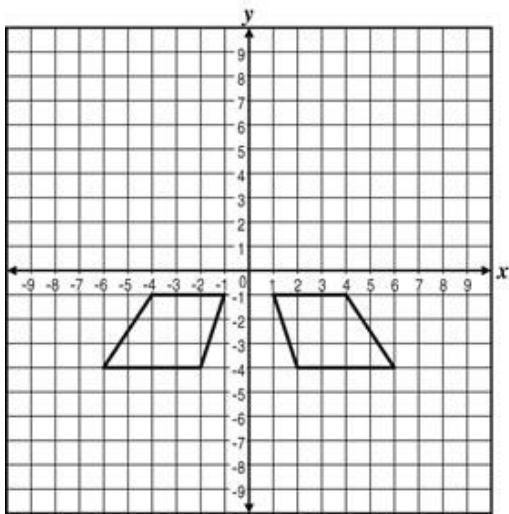8. **Which graph shows a figure and its image after a translation?**
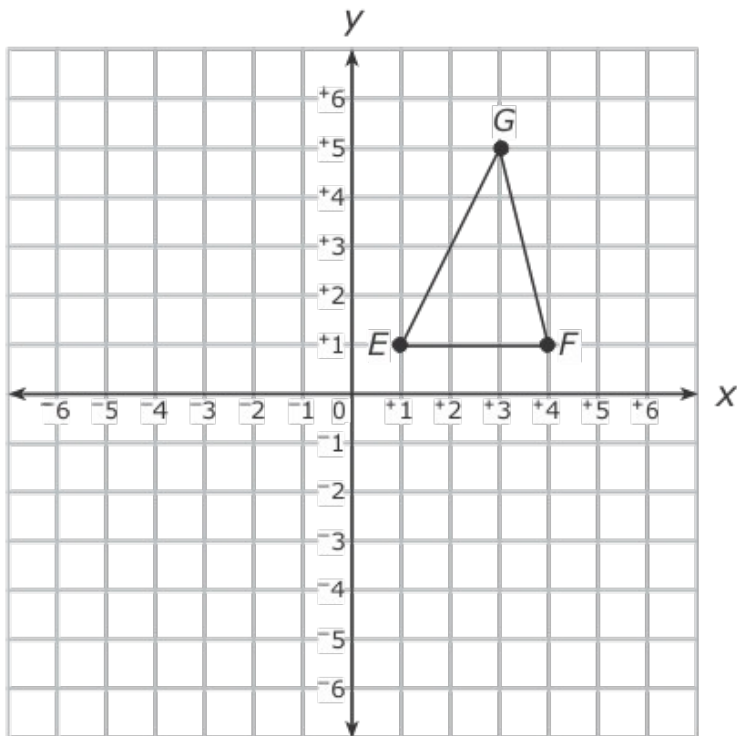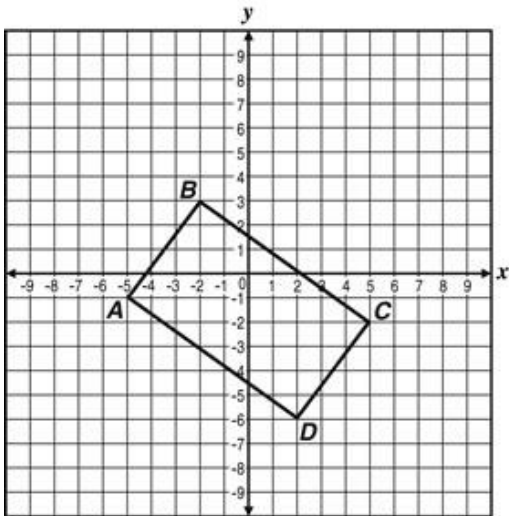
A.

B.

C.

D.

9. Triangle *EFG* will be translated 5 units down and 2 units to the left.

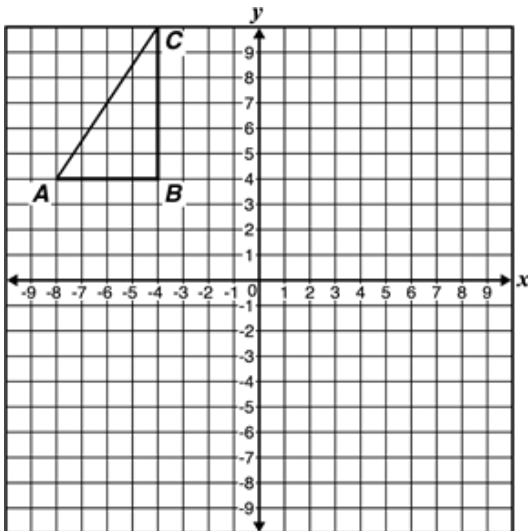

What will be the coordinates of *E'*?

A. $(^-4, 0)$

B. $(^-1, ^-4)$

C. $(2, 6)$

D. $(3, 6)$

10. **If the _y_ values of rectangle _ABCD_ are increased by 2, into rectangle _EFGH_, what will be the coordinates of point _G_?**

A. $(3, -2)$

B. $(5, -4)$

C. $(5, 0)$

D. $(7, -2)$

11. **A triangle having vertices at $A(-8, 4)$, $B(-4, 4)$, and $C(-4, 10)$ is dilated by a scale factor of $\frac{1}{2}$ to form triangle _A'B'C'_.**

Which statement is true?

A. The length of _A'C'_ is one-half the length of _AC_.

B. The length of _A'C'_ is the same as the length of _AC_.

C. The length of _A'C'_ is twice the length of _AC_.

D. The length of _A'C'_ is four times the length of _AC_.

12. **The point (4, 1) is reflected over the line _y = –x_ to create Point _B_. What are the coordinates of _B_?**

  A. $(-1, -4)$
  B. $(-1, 4)$
  C. $(1, -4)$
  D. $(1, 4)$

13. Triangle _JKL_ has vertices at the coordinates $J(^-4, ^-5)$, $K(^-3, ^-1)$, and $L(^-1, ^-5)$. Triangle _JKL_ is reflected over the _x_-axis. What are the coordinates of _J'_?

  A. $(^-5, ^-4)$

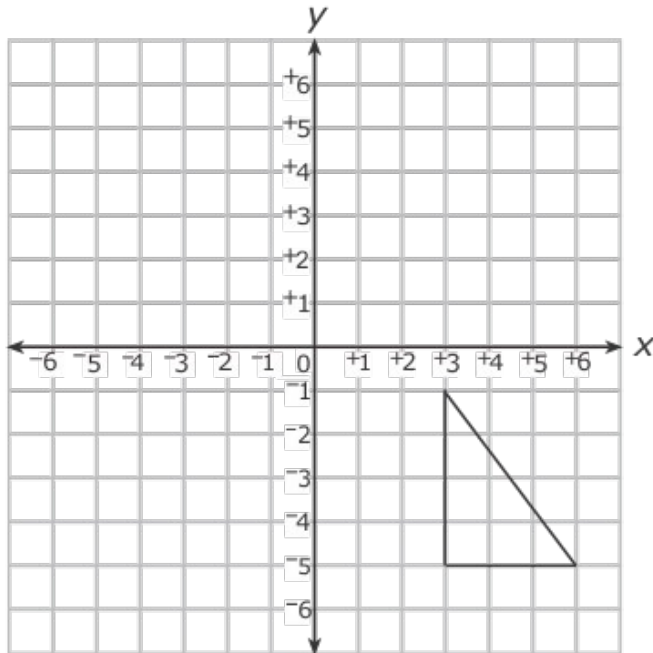 B. $(^-4, 5)$

  C. $(4, ^-5)$

  D. $(4, 5)$

14. A circle with center _C_, shown below, is reflected across the _y_-axis and then reflected across the _x_-axis.
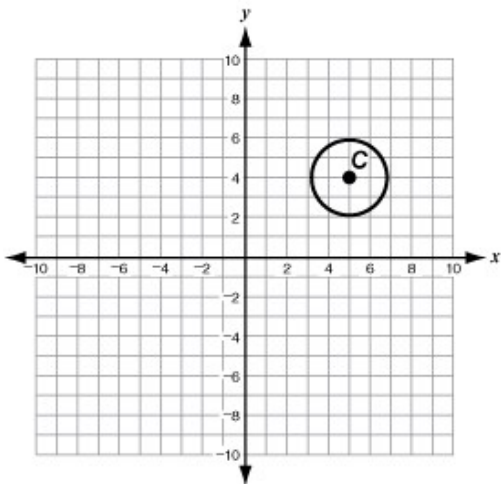
What are the new coordinates of the center _C_?
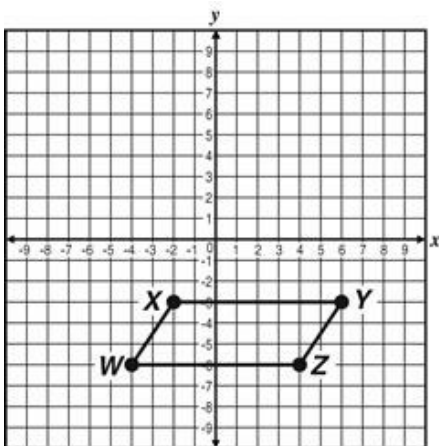
  A. $(5, -4)$

  B. $(4, -5)$

  C. $(-4, -5)$

  D. $(-5, -4)$

15. A triangle was translated 2 units to the right resulting in the image triangle graphed below.

What were the coordinates of the pre-image triangle?

A. (3, 1), (3, ¯3), (6, ¯3)

B. (3, ¯3), (3, ¯7), (6, ¯7)

C. (1, ¯1), (1, ¯5), (4, ¯5)

D. (5, ¯1), (5, ¯5), (8, ¯5)

16. **If *WXYZ* is translated 4 units to the left and 6 units up, which point will be located at the origin?**

A. *W*

B. *X*

C. *Y*

D. *Z*

17. The coordinates of the vertices of triangle *KLM* are *K*(1, 3), *L*(1, 1), *M*(4, 1). The triangle will be translated 3 units to the right and 4 units up. What will be the coordinates of the image point *K'*?

   A. (1, 7)

   B. (4, 3)

   C. (4, 7)

   D. (5, 6)

18. Triangle *PQR* is drawn in quadrant III and then reflected over the *y*-axis. What can be inferred about the coordinates for *P'Q'R'*?

   A. The *x*- and *y*-coordinates will be positive.

   B. The *x*- and *y*-coordinates will be negative.

   C. The *x*-coordinates will be negative, and the *y*-coordinates will be positive.

   D. The *x*-coordinates will be positive, and the *y*-coordinates will be negative.

19. **Reflect Quadrilateral *ABCD* over the *y*-axis and then translate it six units down.**
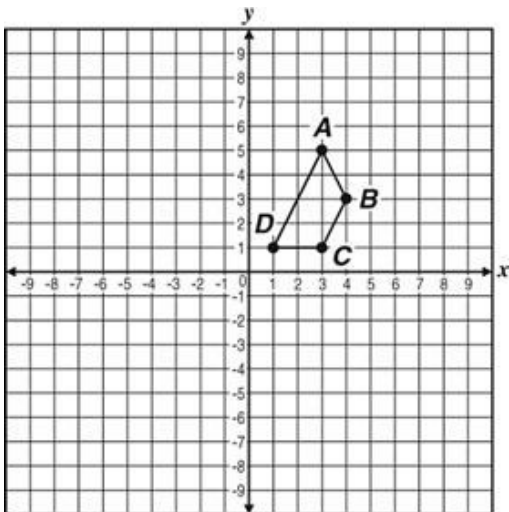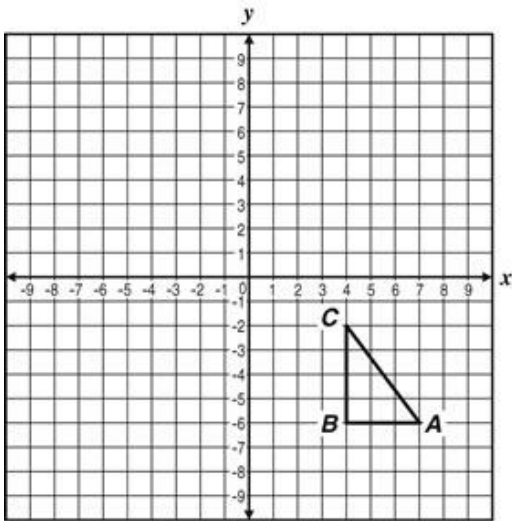

What are the coordinates of the final image of Point *B*?

   A. (−10, 3)
   B. (−4, −3)
   C. (−3, −1)
   D. (4, −9)

20. **Grayson is drawing a two-dimensional shape and its dilation in the coordinate plane. Which attribute of this shape will remain unchanged?**

    A. area
    B. perimeter
    C. measures of corresponding sides
    D. measures of corresponding angles

21. **Triangle *ABC* in the graph is a right triangle.**

    If △ *ABC* is rotated 90 degrees clockwise about Point *C*, which coordinate point will be in the interior of the rotated triangle?
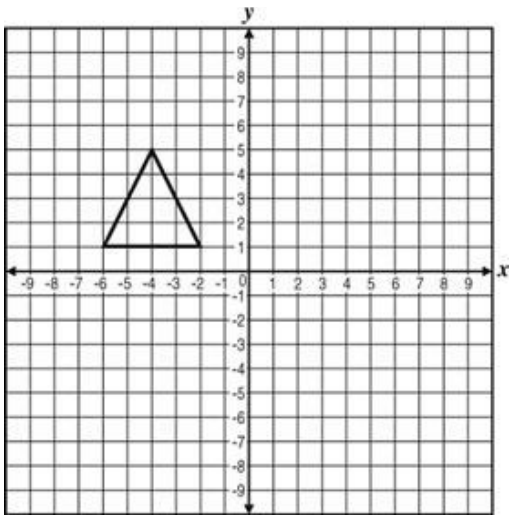
    A. (1, −3)
    B. (5, −5)
    C. (5, −1)
    D. (6, −1)

22. **The sign below is reflected about the *y*-axis, then reflected about the *x*-axis, and then translated 10 units left.**
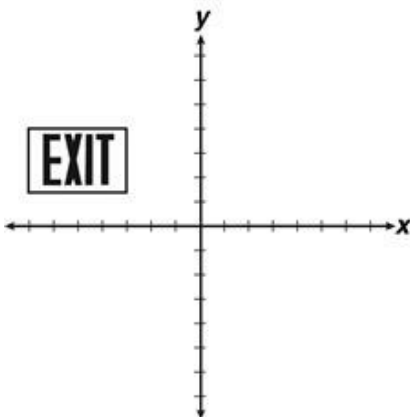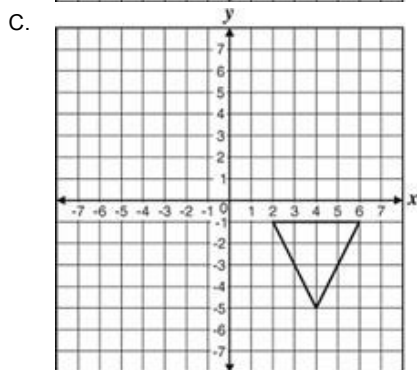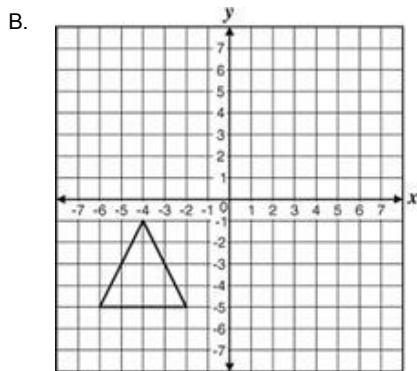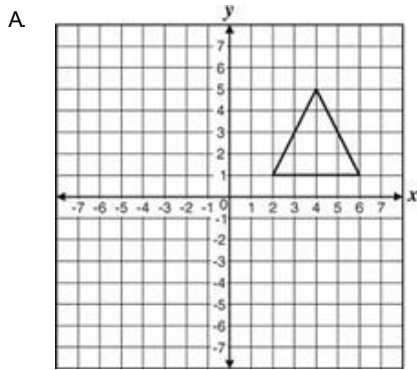

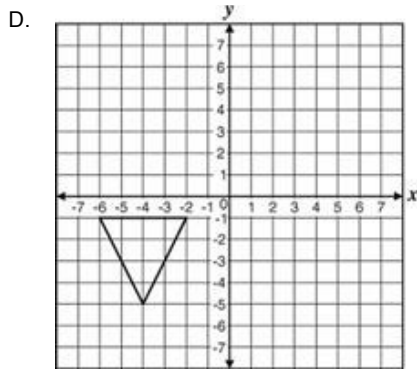   **Which illustration is the result of this sequence of transformations?**

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A.

B.

C.

D.
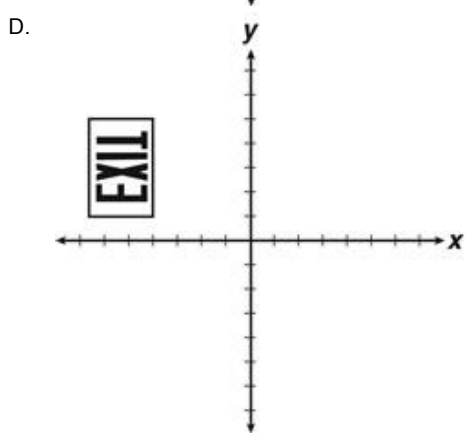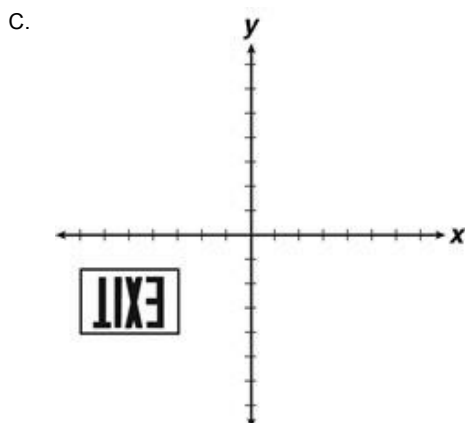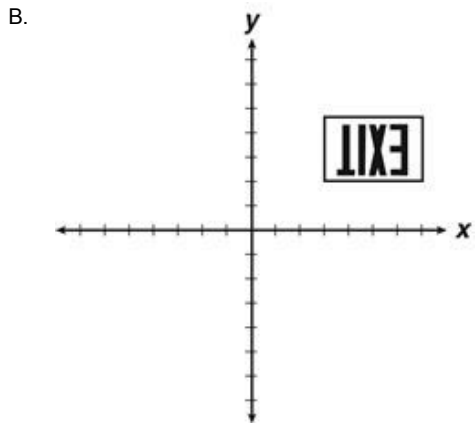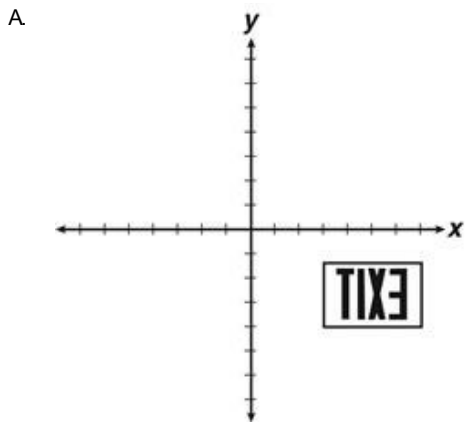
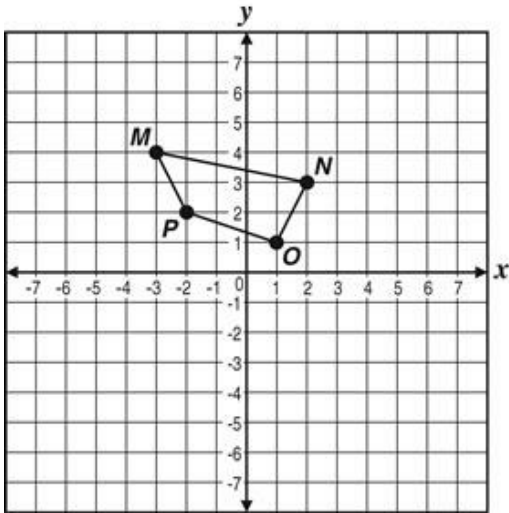23. **A triangle is shown below.**

Which graph shows a reflection of the triangle over the *x*-axis?
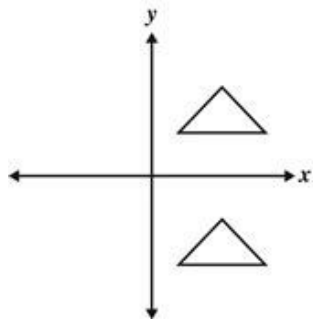
A.

B.

C.

D.

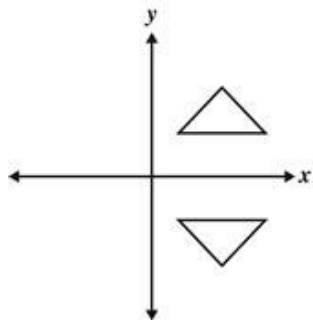24. **Which set of coordinates represents Figure *MNOP* reflected across the *x*-axis?**

A. *M*(3, 4), *N*(−2, 3), *O*(−1, 1), *P*(2, 2)

B. *M*(−3, −4), *N*(2, −3), *O*(1, 1), *P*(−2, −2)

C. *M*(−3, −4), *N*(2, −3), *O*(1, −1), *P*(−2, −2)

D. *M*(−3, −4), *N*(2, −3), *O*(1, −1), *P*(2, −2)
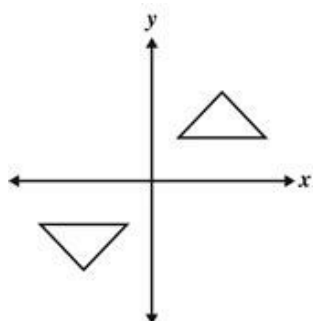
25. **Which picture shows a reflection over the *y*-axis?**
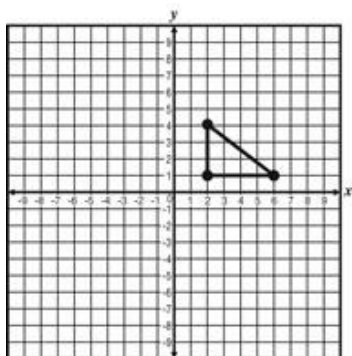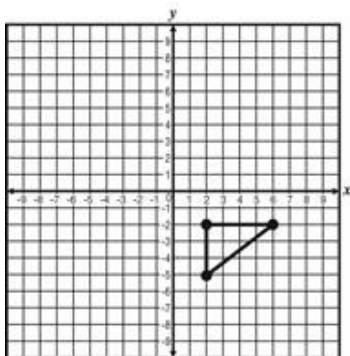
A.

B.

C.

D.
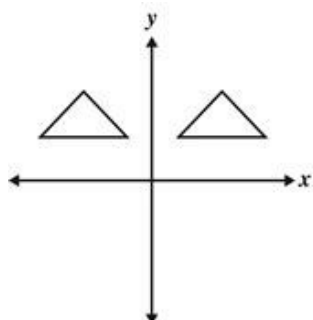
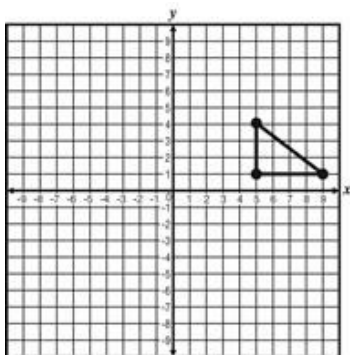26. **Jorge drew a triangle on a grid.**

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Jorge translated the triangle 3 units to the right. Which graph shows Jorge's triangle translated 3 units to the right?
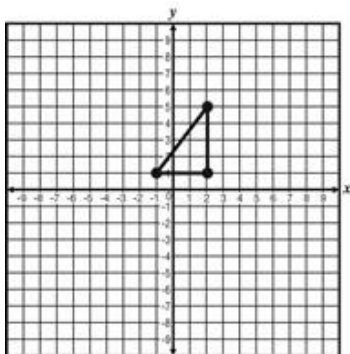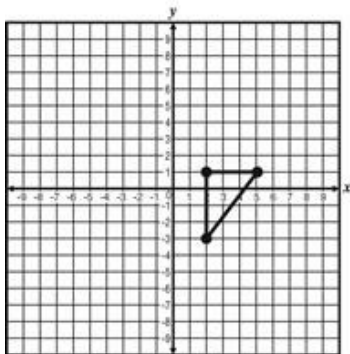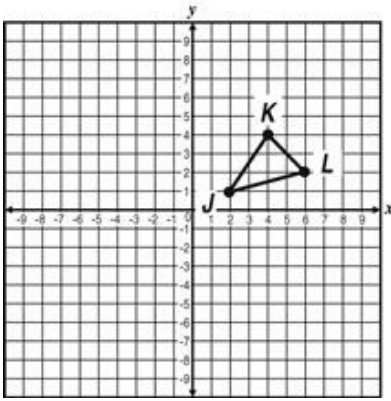
A.

B.

C.

D.

27. **The vertices of triangle *JKL*, shown below, are *J*(2, 1), *K*(4, 4), and *L*(6, 2).**

If triangle *JKL* is translated 2 units to the left and 4 units down, what are the new coordinates of Point *L*?

A. (2, 0)
B. (4, –2)
C. (8, –2)
D. (10, 0)

28. Rectangle *PQRS* will be rotated 90 degrees counterclockwise about the origin. The coordinates of vertex *P* are (1, 1). What will be the coordinates of the image point *P'*?

A. (1, 1)

B. (1, ⁻1)

C. (⁻1, 1)

D. (⁻1, ⁻1)

29. **The vertices of $_\triangle JKL$ have the following coordinates: *J*(1, 0), *K*(3, 4), *L*(1, 4). If $_\triangle JKL$ is reflected over the *x*-axis, what are the new coordinates for Vertex *L*?**
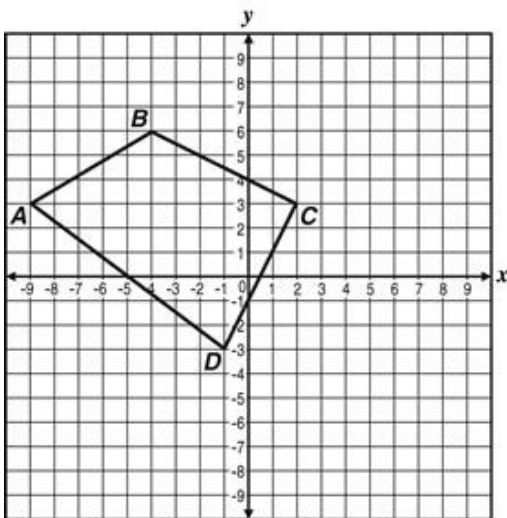
A. (1, –4)
B. (–1, 4)
C. (–1, –4)
D. (1, 4)

30. **The vertices of Rectangle *WXYZ* are** $W(-4, 4)$, $X(-1, 4)$, $Y(-4, 2)$, **and** $Z(-1, 2)$, **as shown below.**
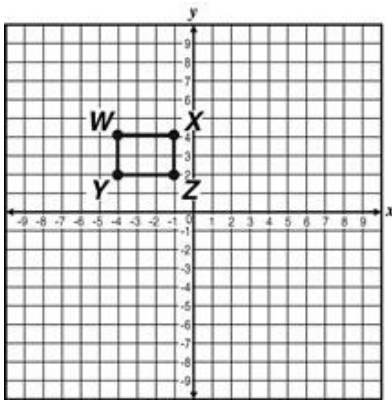
If Rectangle *WXYZ* is reflected over the *x*-axis, what are the new coordinates of Point *W*?

A. (4, 4)

B. (4, –4)

C. (–4, 4)

D. (–4, –4)

31. **Quadrilateral *ABCD* is shown.**

If Quadrilateral *ABCD* is translated into Quadrilateral *EFGH* and Coordinate *G* is at $(3, 0)$, **which statement is true?**

A. The translation is only vertical.

B. The translation is only horizontal.

C. *ABCD* is three units down and one unit to the right with respect to *EFGH*.

D. *EFGH* is three units down and one unit to the right with respect to *ABCD*.

32. **Nikki drew** $\overline{KM}$ **on a coordinate plane, with Point *K* located at (4, 5) and Point *M* located at (2, –3). Then she drew** $\overline{K'M'}$, **the result of the transformation of** $\overline{KM}$ **described by** $(x, y) \rightarrow (4x, 4y)$. **What are the coordinates of Point *K'*?**
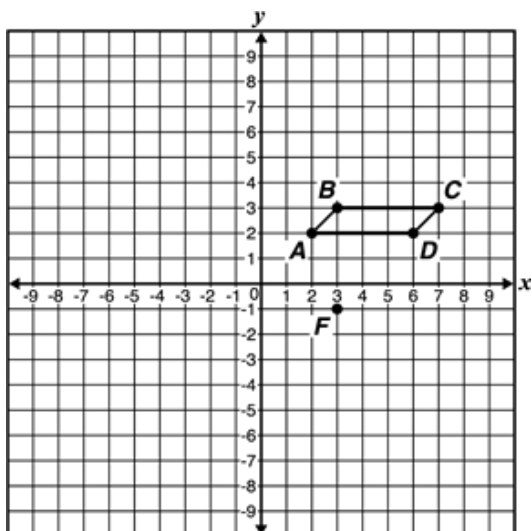
A. (8, 9)

B. (8, 20)

C. (16, 9)

D. (16, 20)

33. Rectangle *PQRS* will be rotated counterclockwise 270° about the origin.
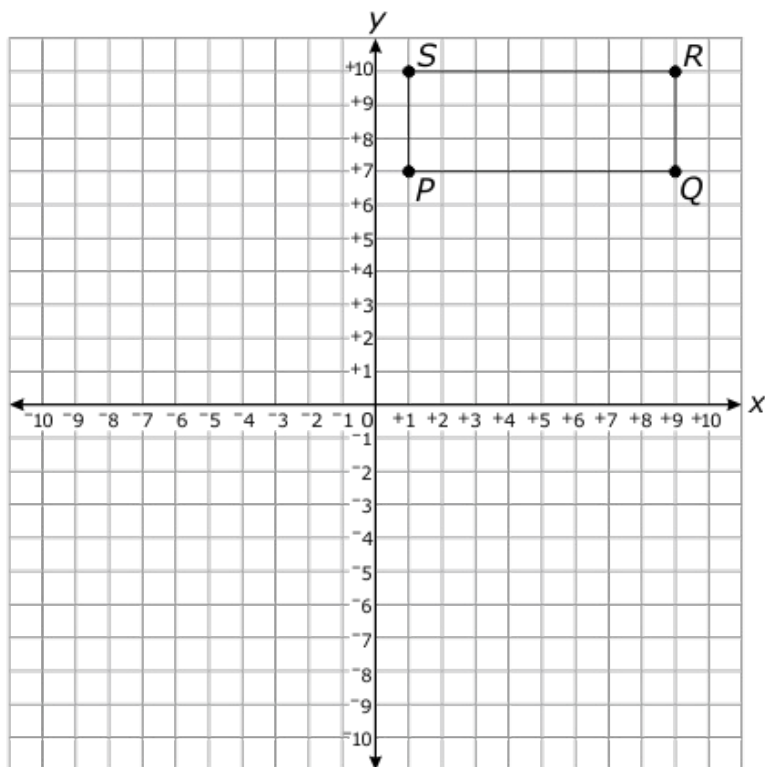
What will be the coordinates of the image point *Q'*?

A. (⁻9, ⁻7)
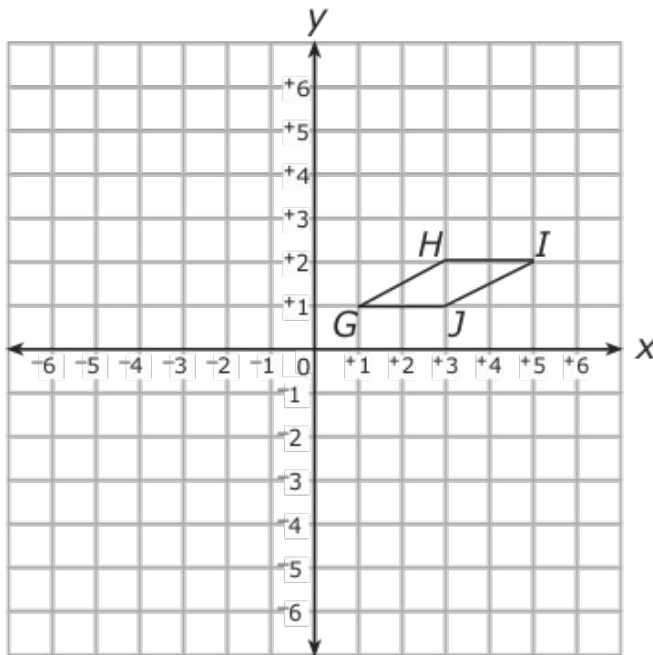
B. (⁻7, 9)

C. (7, ⁻9)

D. (9, ⁻7)

34. **Parallelogram *ABCD* and Point *F* are shown. Using Point *F* as the center of dilation, Parallelogram *ABCD* is dilated by a scale factor of 2.**

Which statement is true?

A. $BC = B'C'$

B. $\overline{AB} \parallel \overline{A'B'}$

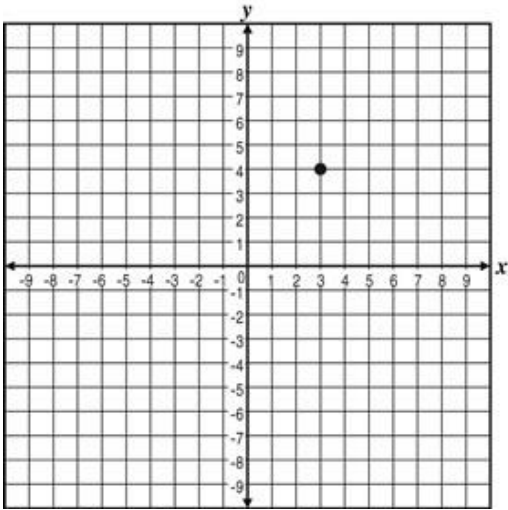C. $m\angle A' = 2m\angle A$

D. $ABCD \cong A'B'C'D'$

35. Parallelogram *GHIJ* is graphed below. The parallelogram will be translated three units to the left.

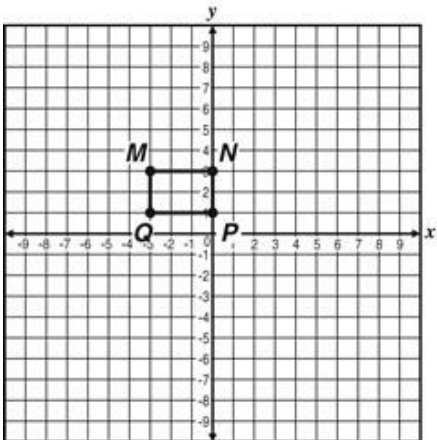What will be the coordinates of the image parallelogram?

A. *G*′(⁻2, 1), *H*′(0, 2), *I*′(2, 2), *J*′(0, 1)

B. *G*′(1, ⁻2), *H*′(2, ⁻1), *I*′(4, ⁻1), *J*′(3, ⁻2)

C. *G*′(1, 1), *H*′(2, 2), *I*′(3, 1), *J*′(4, 2)

D. *G*′(1, 4), *H*′(2, 5), *I*′(4, 5), *J*′(3, 4)

36. **If Point (3, 4) is reflected over the *x*-axis, what are the new coordinates?**
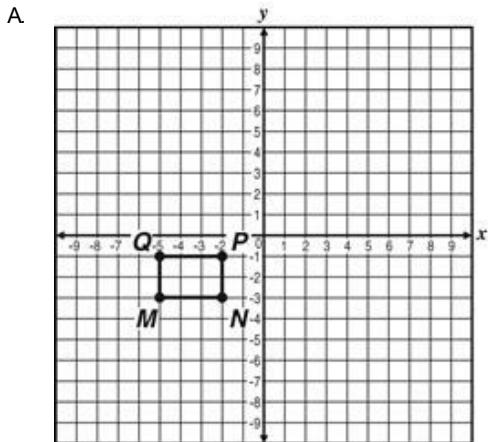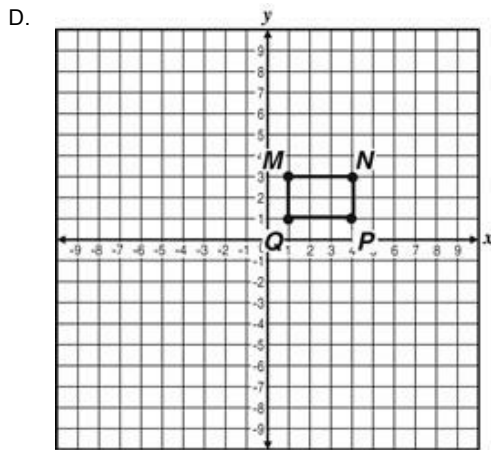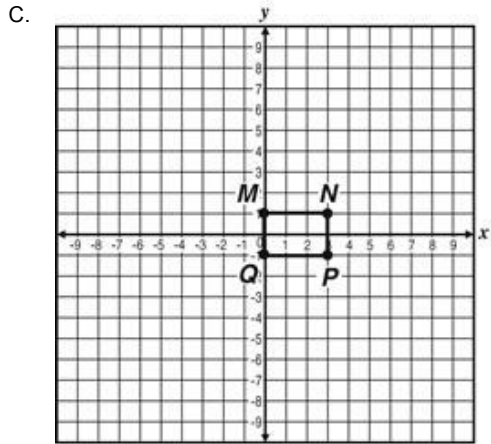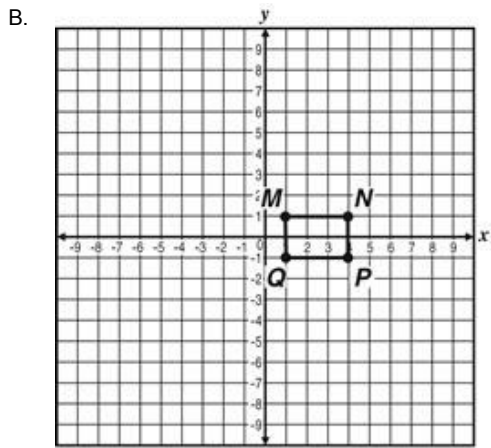

A. (−4, −3)

B. (3, −4)

C. (−3, −4)

D. (−4, 3)

37. **Rectangle *MNPQ* is shown below.**

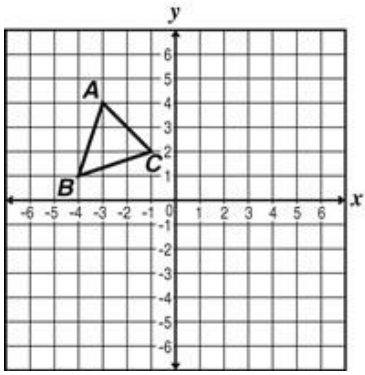**Which graph shows the new position of Rectangle *MNPQ* after a translation that is 4 units to the right and 2 units down?**

A.

B.

C.

D.

38. **The image of Rectangle *PQRS* reflected across the *y*-axis is Rectangle *P'Q'R'S'*. If the coordinates of the rectangle are *P*(−10, 3), *Q*(−6, 1), *R*(−2, 6), *S*(−6, 8), what will be the coordinates of *P'*?**
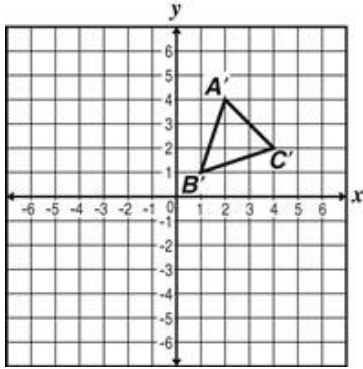
A. $(-10, -3)$

B. $(-3, -10)$

C. $(3, 10)$

D. $(10, 3)$

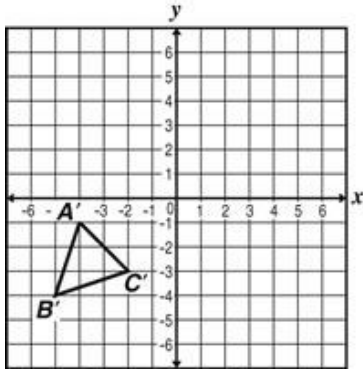39. **Triangle *ABC* is shown on a coordinate plane below.**
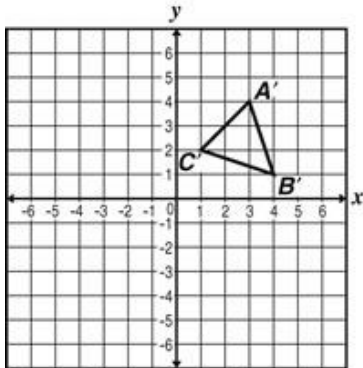
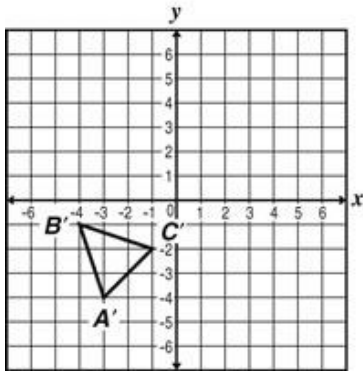**Which shows the reflection of triangle *ABC* over the *x*-axis?**

A.

B.

C.

D.

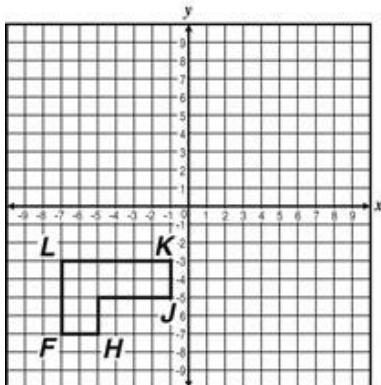40. **The graph shows Figure *FHJKL*.**
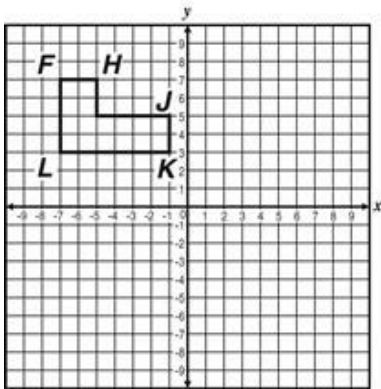
Which figure represents a translation of *FHJKL*?
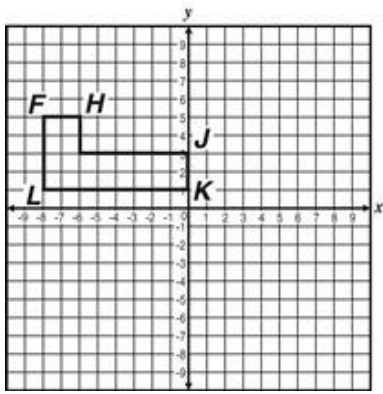
A.
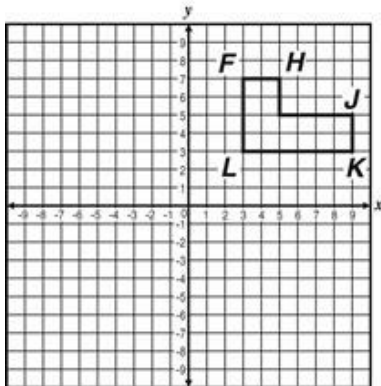
B.

C.

D.
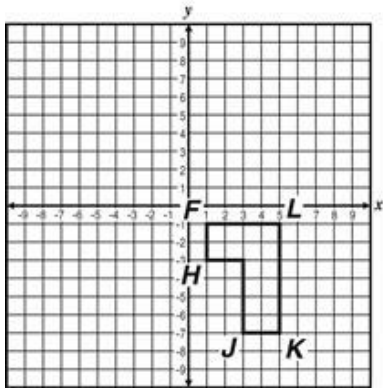
41. Triangle *RST* will be reflected across the *x*-axis.
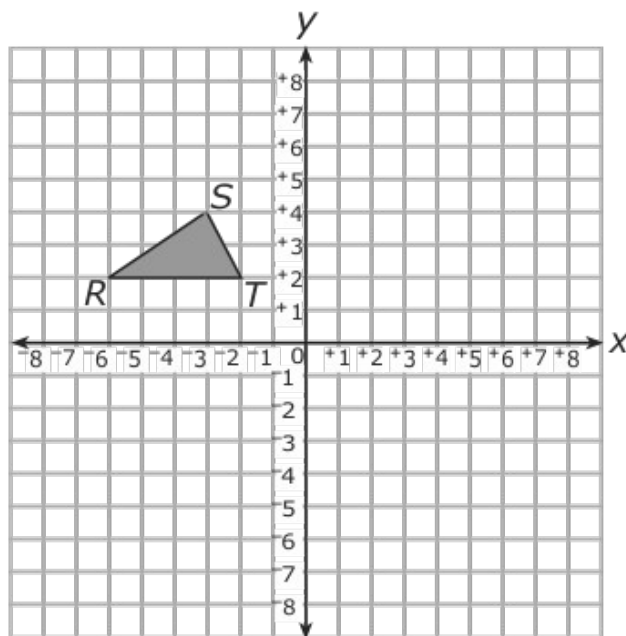
What will be the coordinates of the resulting triangle *R'S'T'*?

A. *R'*(6, 2), *S'*(3, 4), *T'*(2, 2)

B. *R'*(2, 6), *S'*(4, 3), *T'*(2, 2)

C. *R'*(¯2, 6), *S'*(¯4, 3), *T'*(¯2, 2)

D. *R'*(¯6, ¯2), *S'*(¯3, ¯4), *T'*(¯2, ¯2)

42. **Triangle *ABC* is shown below.**
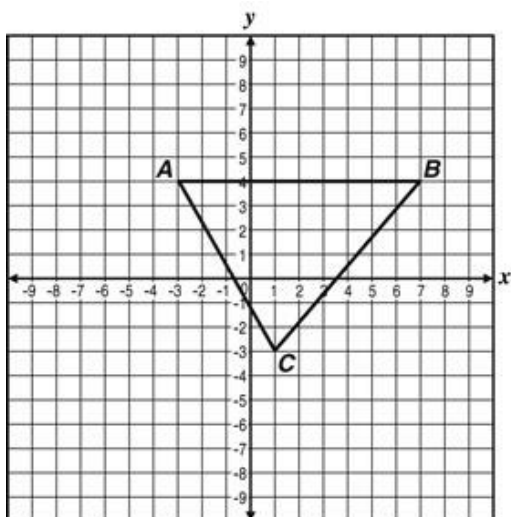
If Triangle *ABC* is dilated about the origin with a scale factor of 2 into Triangle $A'B'C'$, what will be the coordinates of Point C''?

A. $(-6, 8)$

B. $(1, 2)$

C. $(14, 8)$

D. $(2, -6)$

43. **What are the coordinates of the point that corresponds to Point *J* after Triangle *JKL* is reflected about the dashed line shown below?**

A. $(1, -2)$

B. $(1, -4)$

C. $(1, 1)$

D. $(1, 3)$

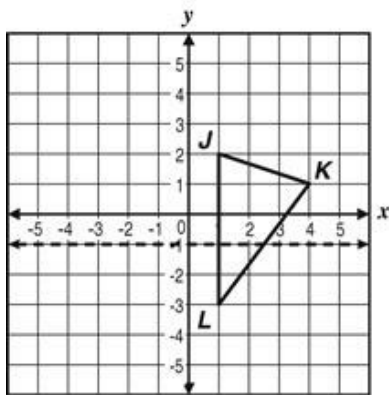44. The vertices of triangle *MNP* are *M*(2, 5), *N*(2, ⁻3), and *P*(5, ⁻3). The triangle will be reflected over the *y*-axis. What will be the coordinates of the image point *N'*?

A. (2, ⁻3)

B. (⁻2, 3)

C. (⁻2, ⁻3)

D. (2, 3)

45. If the trapezoid below is translated 4 units up and 6 units to the left, what will be the new coordinates of the vertices?
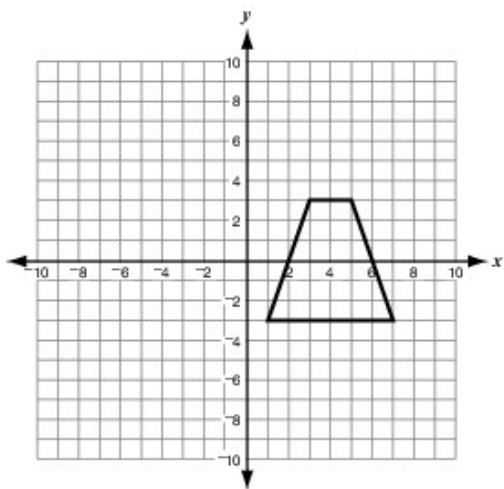
A. $(-5, 0), (-3, 7), (-1, 7), (1, 0)$

B. $(7, 1), (9, 7), (11, 7), (13, 1)$

C. $(-1, -5), (1, 1), (3, 1), (5, -5)$

D. $(-5, 1), (-3, 7), (-1, 7), (1, 1)$

46. Triangle *PQR*, shown below, is reflected across the *y*-axis and then translated 5 units down and 4 units left.
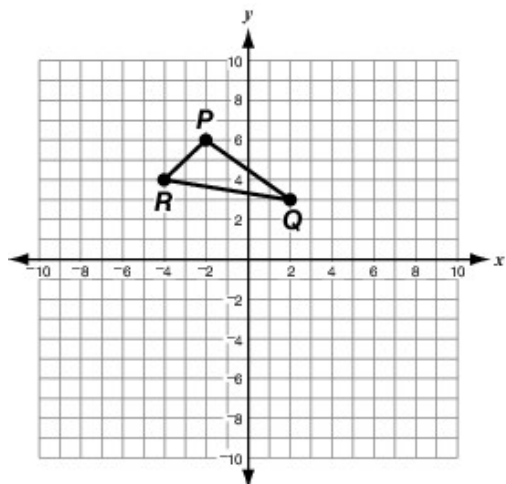
What will be the new coordinates of point *Q*, after triangle *PQR* has been transformed?

A. $(-6, -2)$

B. $(-2, -2)$

C. $(-2, 3)$

D. $(2, -8)$

47. **A circle with a center located at (4, 6) is dilated by a scale factor of 2. If the center of the circle is used as the center of dilation, which statement is true?**

A. The radius must be 8 units long.
B. The area of the circle will double.
C. The center shifts up and to the right.
D. The original circle will be inside the dilated circle.

48. Rectangle *MNOP* was dilated producing rectangle *M'N'O'P'*.
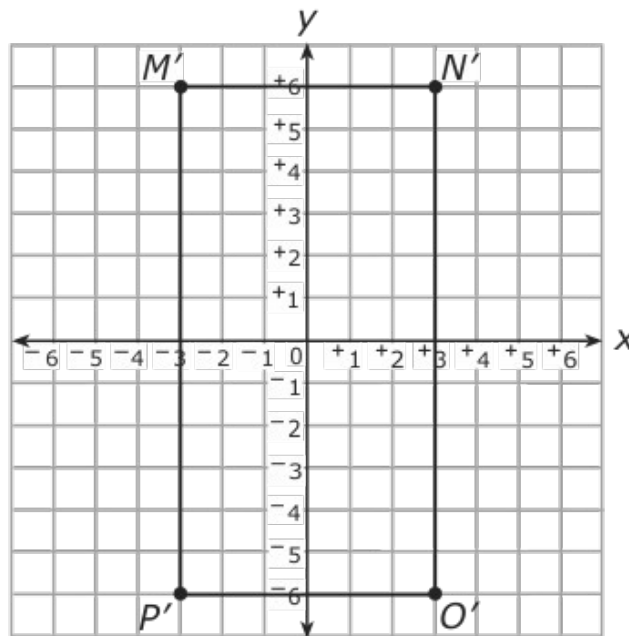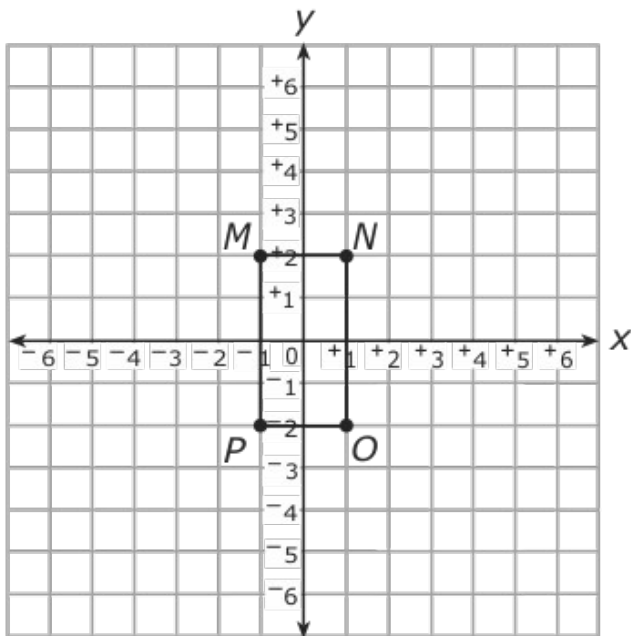
What scale factor was applied to rectangle *MNOP* to produce rectangle *M'N'O'P'*?

A. $\dfrac{1}{3}$

B. $\dfrac{1}{2}$

C. 2

D. 3

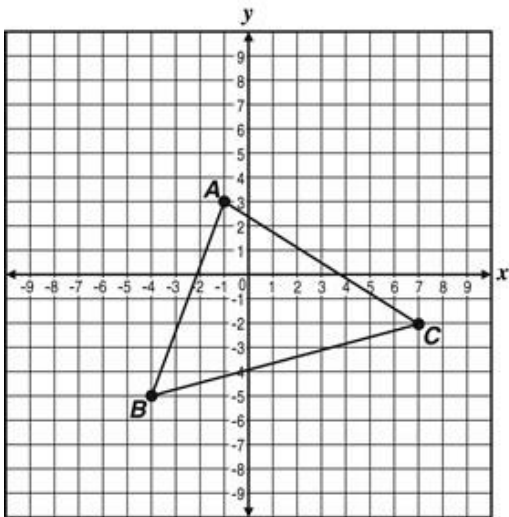49. Triangle *XYZ* has vertices at $X(3, 2)$, $Y(^-3, 2)$, and $Z(^-1, 5)$. Triangle *XYZ* will be reflected over the *x*-axis. What will be the coordinates of *Z'*?

A. $(1, 5)$

B. $(^-1, ^-5)$

C. $(^-5, ^-1)$

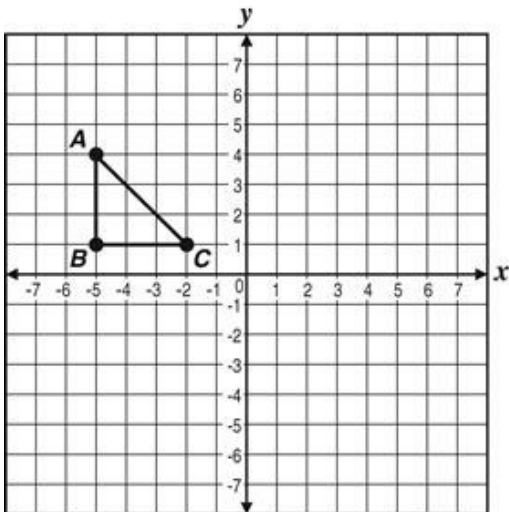50. **Triangle *ABC* is dilated about the origin with a scale factor of 3.**

In triangle $A'B'C'$, what will be the coordinates of point B'?

A. $(-12, -15)$

B. $(-8, -10)$

C. $(-3, 9)$

D. $\left(-2, -\dfrac{5}{2}\right)$

51. **The Point $(5, -2)$ is translated to the left 3 units. What are the new coordinates?**

A. $(8, -2)$

B. $(5, 1)$

C. $(5, -5$

D. $(2, -2)$

52. **Triangle *ABC* is shown.**

If △ *ABC* is translated 6 units to the right and 5 units down, what coordinates best represent the vertex locations of the translated image of △ *ABC?*

A. $A(0, -2), B(0, -5), C(3, -5)$

B. $A(1, -2), B(1, -5), C(4, -5)$

C. $A(2, -1), B(2, -4), C(5, -4)$

D. $A(1, -1), B(1, -4), C(4, -4)$

53. **Which figure has a rotational symmetry about its center when rotated 120°?**

A.

B.

C.

D.

54. Triangle *EFG* has vertices at *E*(0, 0), *F*(0, 3), and *G*(⁻2, 0). The triangle will be rotated 270° counterclockwise about the origin. What will be the coordinates of the triangle *E'F'G'*?

   A. *E'*(0, 0), *F'*(⁻3, 0), *G'*(0, ⁻2)

   B. *E'*(0, 0), *F'*(3, 0), *G'*(0, 2)

   C. *E'*(0, 0), *F'*(0, 3), *G'*(2, 0)

   D. *E'*(0, 0), *F'*(3, 0), *G'*(0, ⁻2)
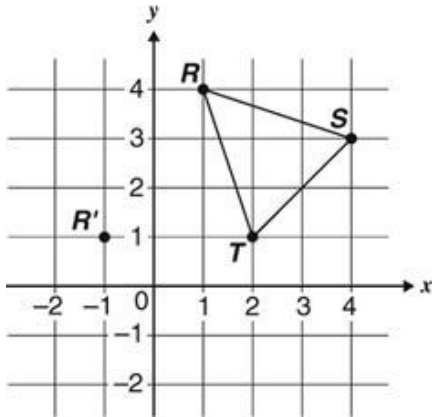
55. **Inas graphed Triangle *PQR* on the grid below.**
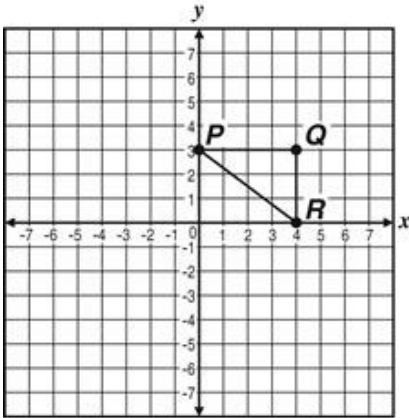
   What is the location of Point *Q* after triangle *PQR* is translated 4 units down and 2 units to the left?
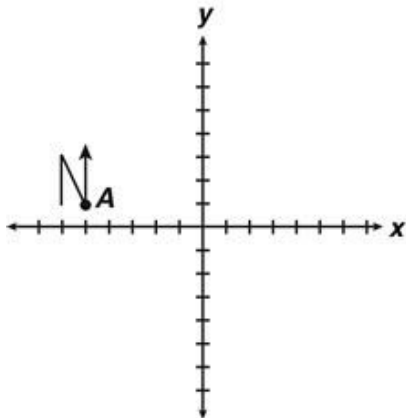
   A. $(4, -1)$
   B. $(0, -2)$
   C. $(6, -1)$
   D. $(2, -1)$

56. **Triangle *RST* is slid, resulting in Point *R′* as the image of Point *R*. What are the coordinates of the image of *T*?**
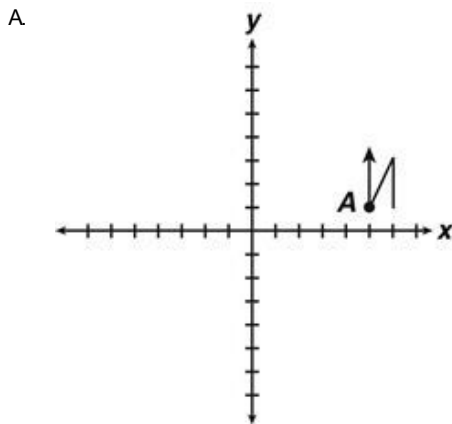

A. (–2, 0)
B. (–1, –1)
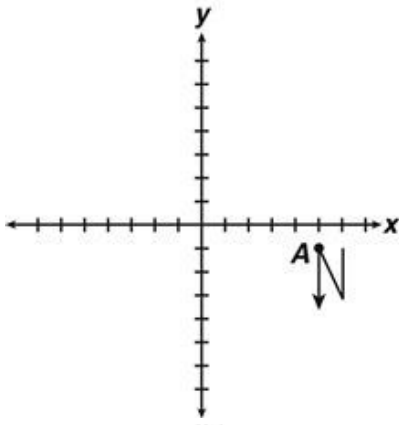C. (0, –2)
D. (2, 0)

57. **The figure shown below will be reflected over the *y*-axis, then translated 5 units down and 10 units to the left.**

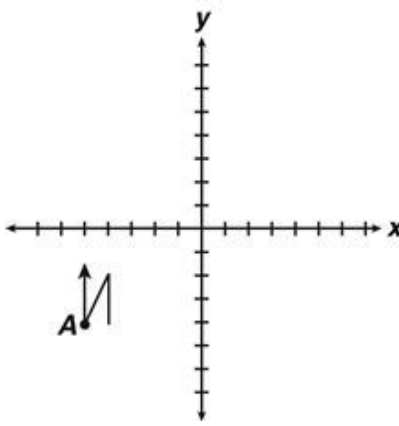**Which graph represents this figure after the sequence of transformations?**

A.
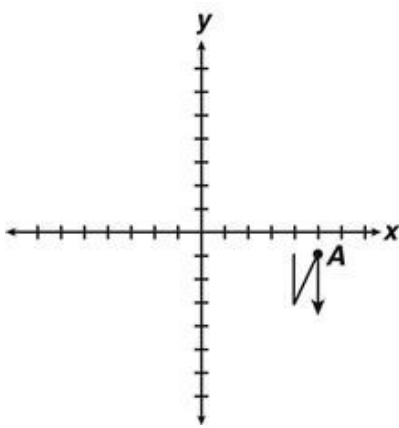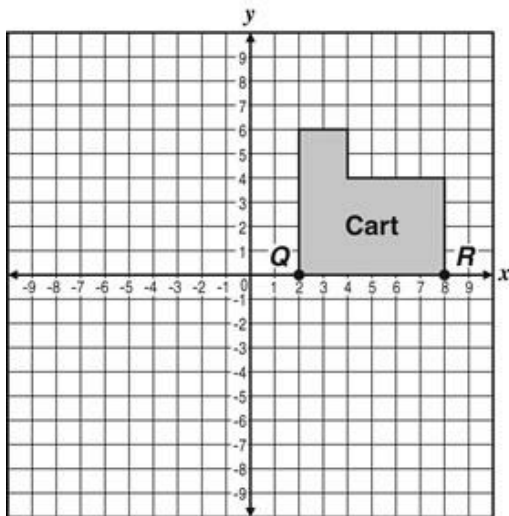
B.

C.

D.

58. **Chef Carson had a moveable cart in his kitchen. A top view of the cart's location within the kitchen is shown on the grid below.**

Chef Carson rotated the cart to move it next to his vegetable baskets. On the grid, this would be represented by a 90° counterclockwise rotation of the figure around Point *R*. Which coordinates best describe the location of Point *Q* after this rotation?

A. $(8, 6)$

B. $(8, -6)$

C. $(2, 0)$

D. $(0, 2)$

59. To move from Figure 1 to Figure 2, a student translated Figure 1 10 units right and reflected it over the *x*-axis, as shown in the coordinate grid below.
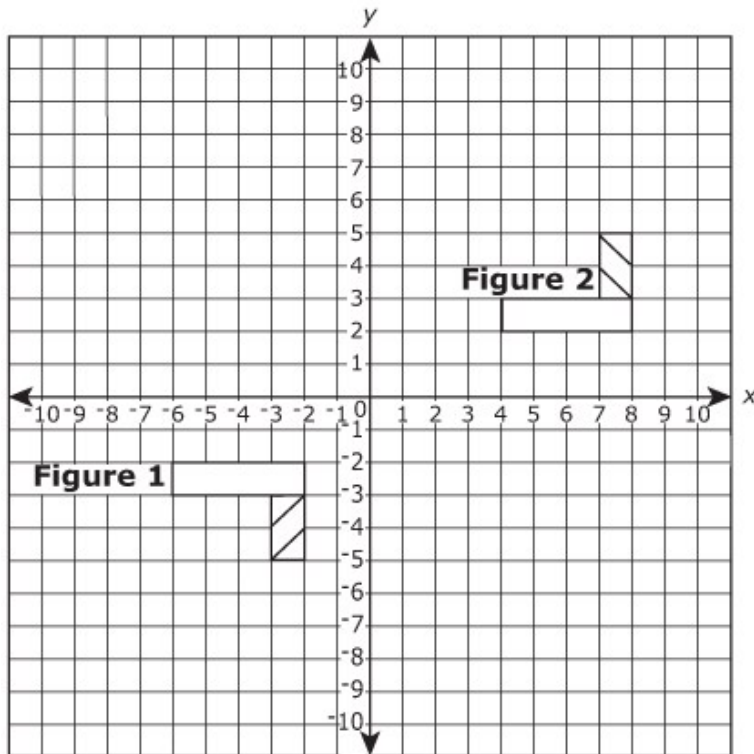

The student wanted to change the transformation shown in the coordinate grid so that Figure 1 and Figure 2 were farther apart. Which series of transformations would allow for this change?

A.   After translating Figure 1 10 units right, translate 3 units up.

B.   After translating Figure 1 10 units right, reflect over the *y*-axis.

C.   After translating Figure 1 10 units right, reflect over a horizontal line 1 unit above the *x*-axis.

D.   After translating Figure 1 10 units right, reflect over a horizontal line 1 unit below the *x*-axis.
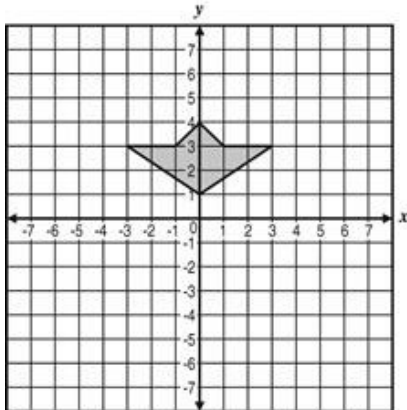
60. Point *S* on a coordinate plane is located at (⁻3, 4). The point will be translated 2 units left and 3 units down. What will be the coordinates of the image point *S'*?

    A. (2, ⁻6)

    B. (1, ⁻5)

    C. (⁻5, 1)

    D. (⁻6, 2)

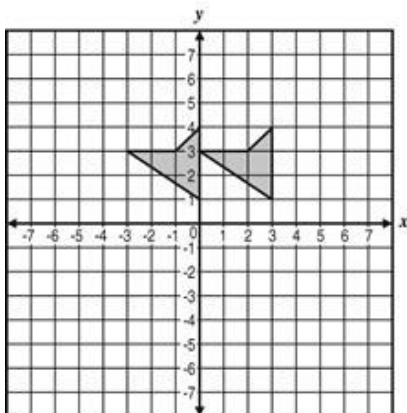61. **Jan drew a shaded figure on the coordinate plane below.**
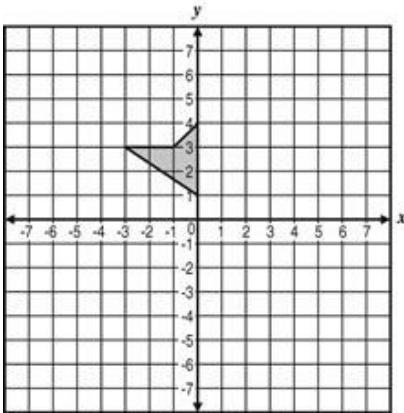
She completed a design by reflecting the figure across the *y*-axis. Which could be Jan's completed design?
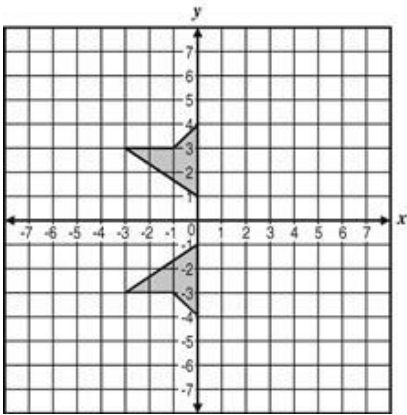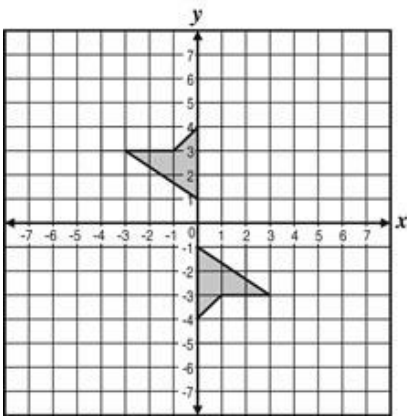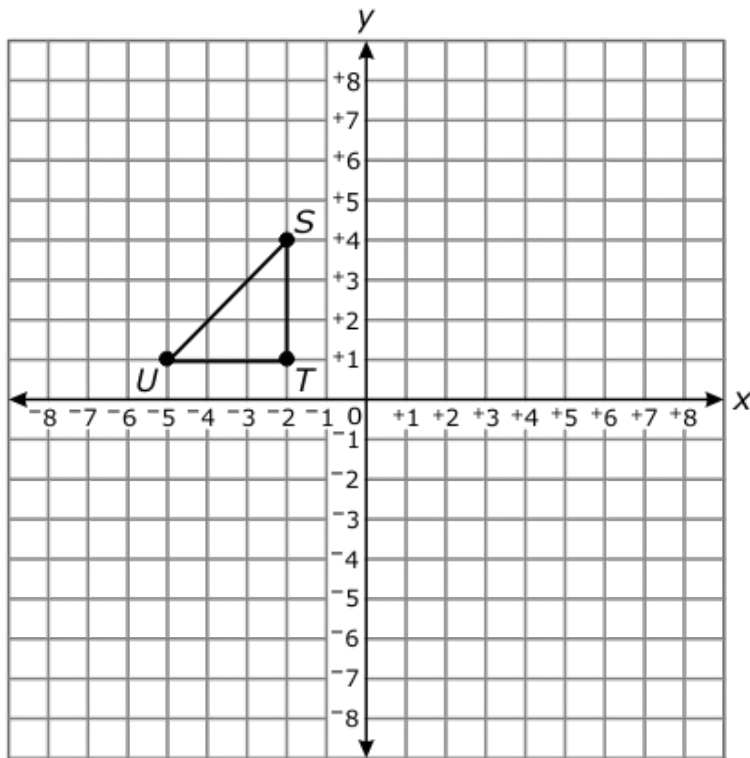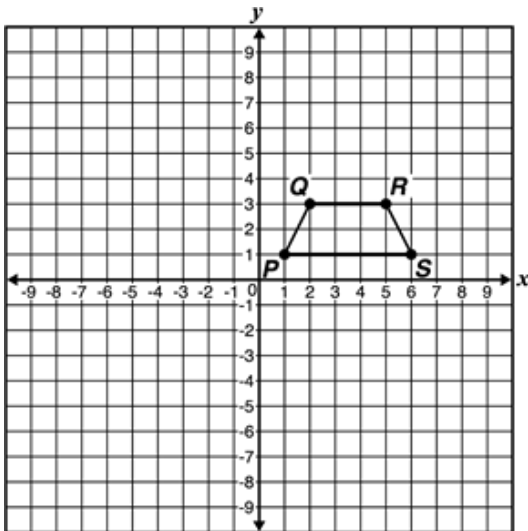
A.

B.

C.

D.

62. Triangle *STU* will be reflected over the *y*-axis.

What will be the coordinates of *U'*?

A. (5, 1)

B. (1, 5)

C. (⁻5, ⁻1)

63. **Trapezoid *PQRS* is dilated about point *P* by a scale factor of 3 to form trapezoid *P'Q'R'S'*.**

Which statement is not true?

A. *QR* and *Q'R'* are parallel.

B. The length of *P'Q'* is 3 times the length of *PQ*.

C. The measure of angle *P'* is 3 times the measure of angle *P*.

D. The perimeter of *PQRS* is one-third the perimeter of *P'Q'R'S'*.

64. Trapezoid *LMNP* has vertices at *L*(⁻9, ⁻3), *M*(⁻5, ⁻3), *N*(⁻4, ⁻7), and *P*(⁻11, ⁻7). The trapezoid will be rotated 180° clockwise about the origin. What will be the coordinates of *L'*?

A. (9, 3)

B. (3, 9)

C. (⁻9, 3)

65. **The shaded figure on the coordinate grid below represents the original location of an office space.**
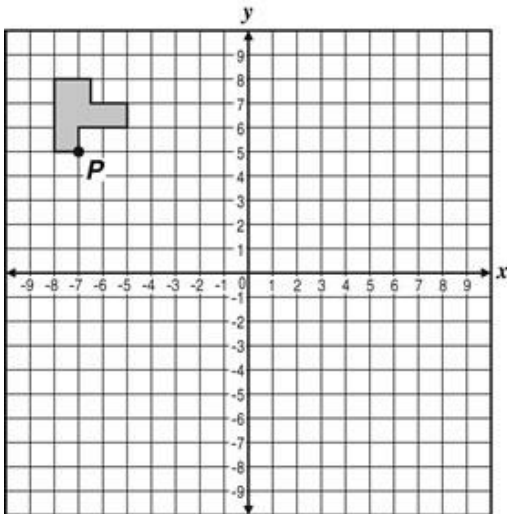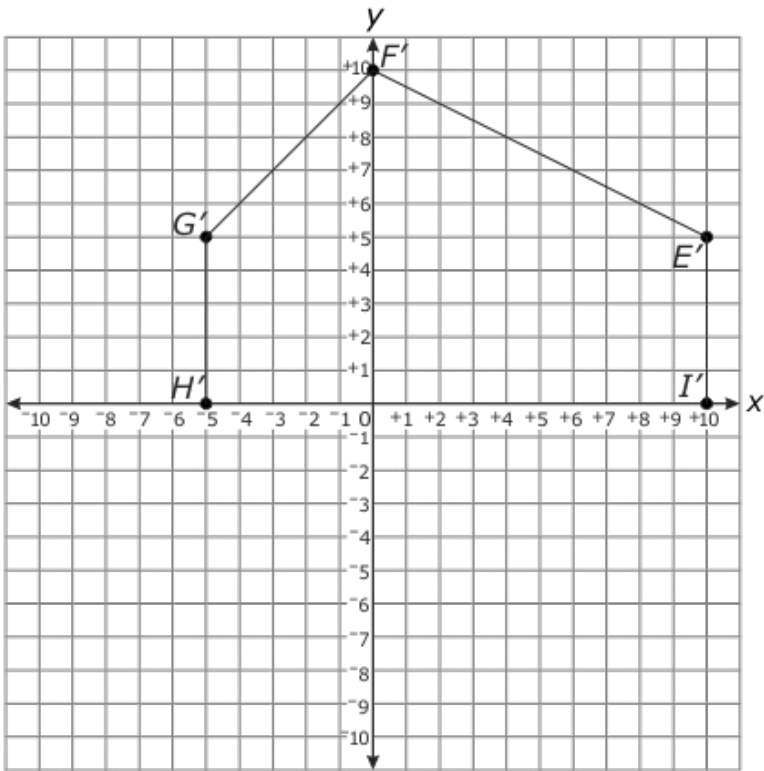

The new location of the office space can be shown by translating the shaded figure one unit down and then reflecting it over the *x*-axis. Which coordinates best represent the location of Point *P* in the new office space location?

A. $(-7, -5)$

B. $(-7, -4)$

C. $(-7, 5)$

D. $(7, 4)$

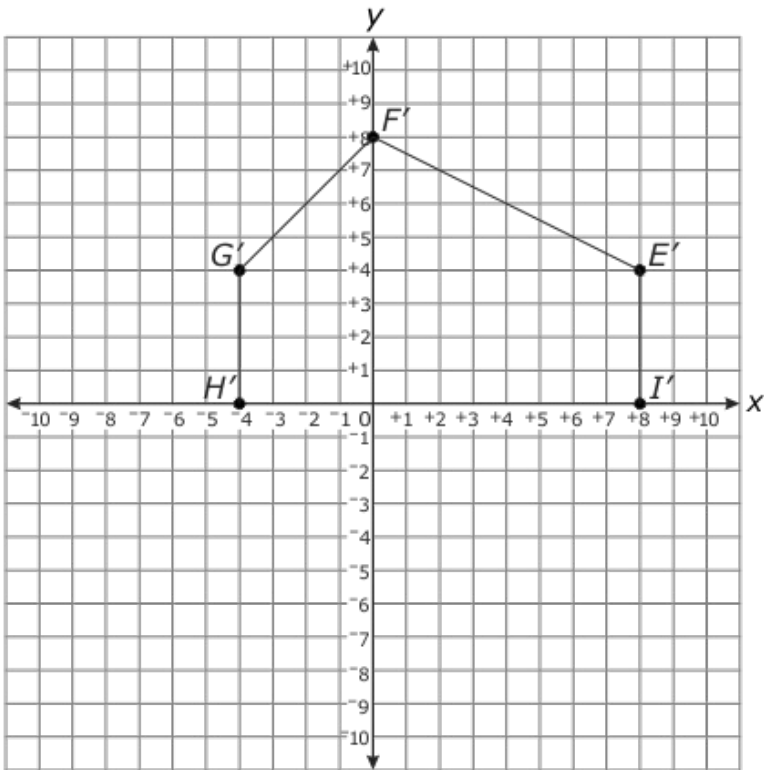66. Pentagon *EFGHI* will be dilated by a scale factor of 2.5.
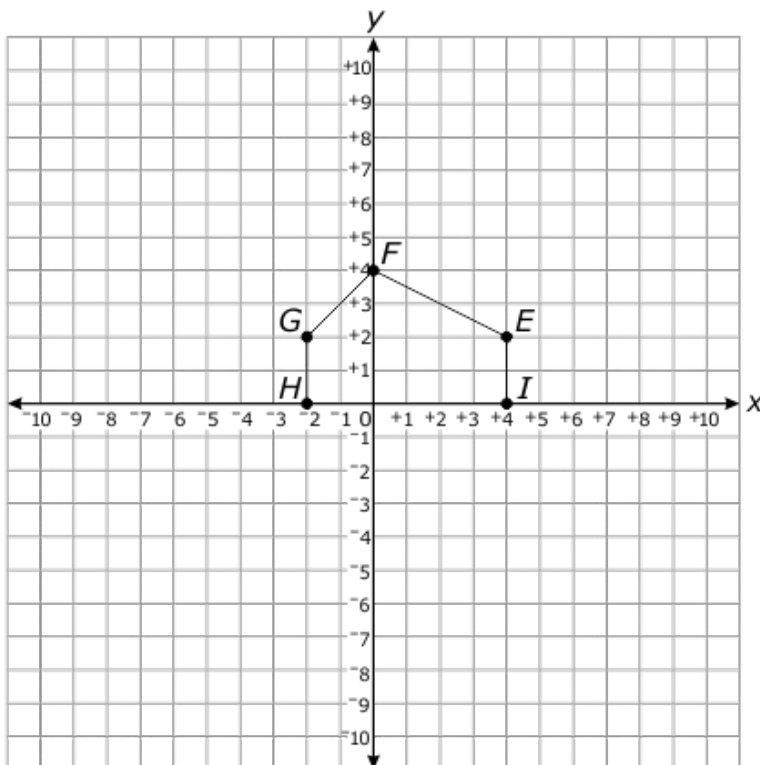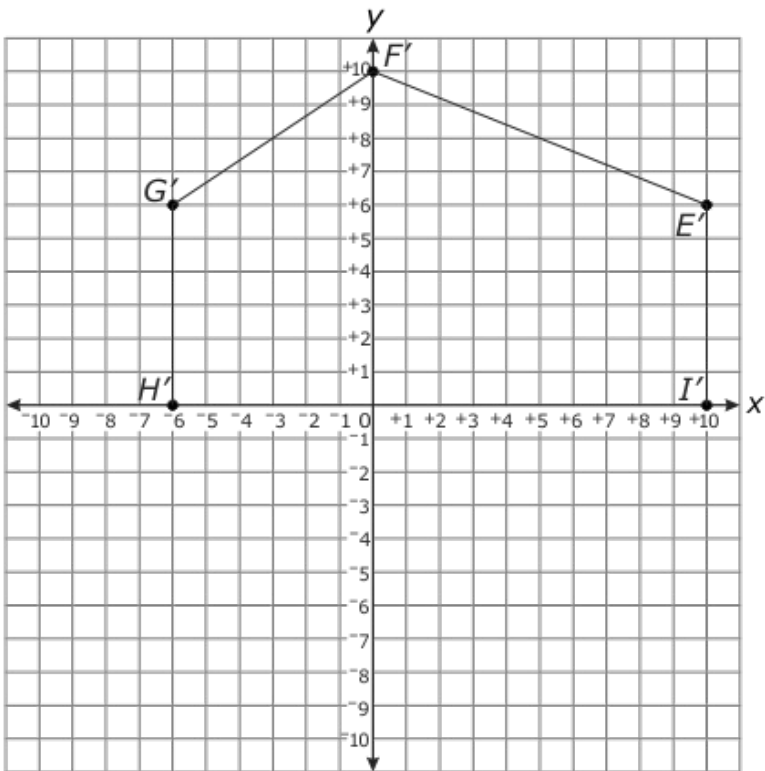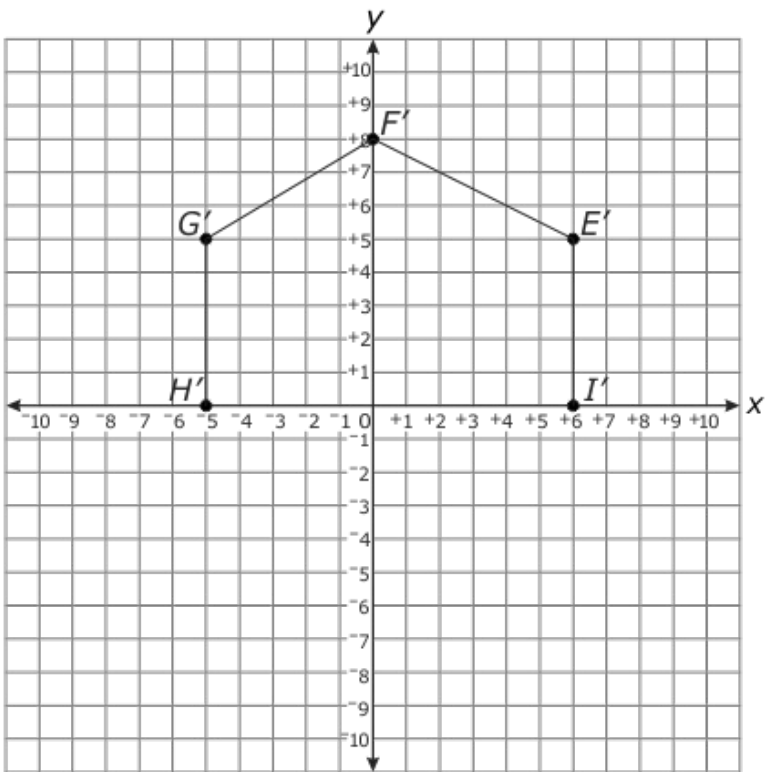
Which image represents pentagon *E'F'G'H'I'*?

A.

B.

C.

D.

67. **If quadrilateral *ABCD* is translated into quadrilateral *EFGH* by increasing the *y* values of each point by 2 and increasing the *x* values of each point by 3, which point will be at $(-1, -4)$?**
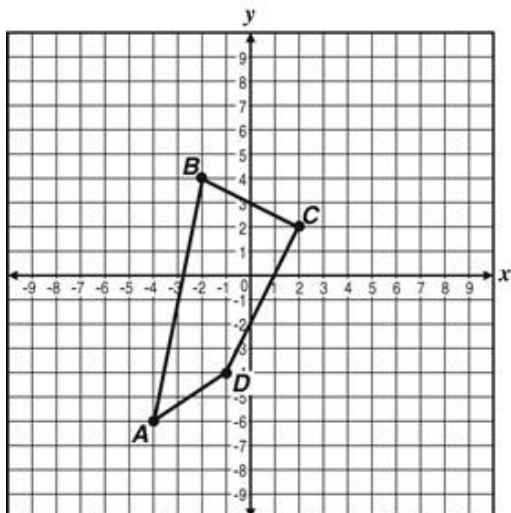
A. Point *E*
B. Point *F*
C. Point *G*
D. Point *H*

68. Point *W* is located at (7, 3) on a coordinate plane. Point *W* is translated 2 units to the left and 3 units up. What are the coordinates of the image point *W'*?

A. (10, 1)

B. (9, 0)

C. (5, 6)

D. (4, 1)

69. If △ ABC is translated 1 unit left and 3 units down, what will the new coordinates of the translated image be?
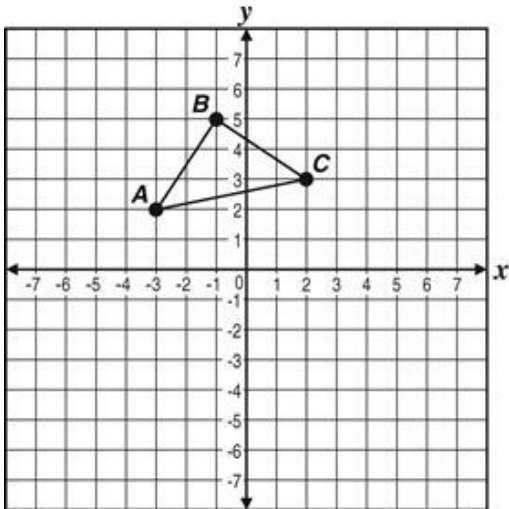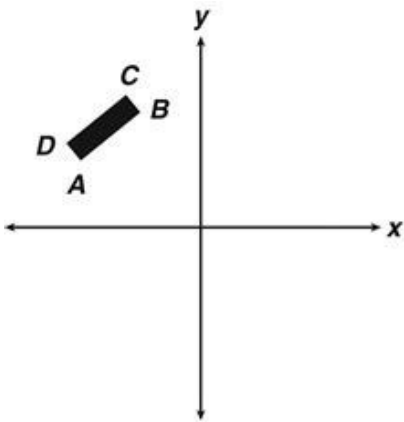

A. $A(-2, -1), B(0, 2), C(3, 0)$
B. $A(-2, 0), B(0, 3), C(3, 1)$
C. $A(-4, 0), B(-2, 3), C(1, 1)$
D. $A(-4, -1), B(-2, 2), C(1, 0)$

70. The rectangle in the graph will be reflected across the *y*-axis and then rotated 45° clockwise around its center.

Which graph best represents the new position of the rectangle after the sequence of transformations?

A.

B.

C.

D.
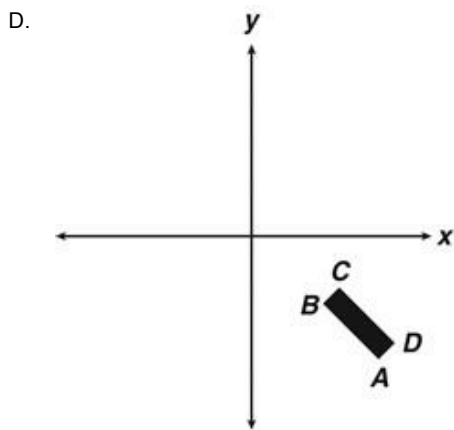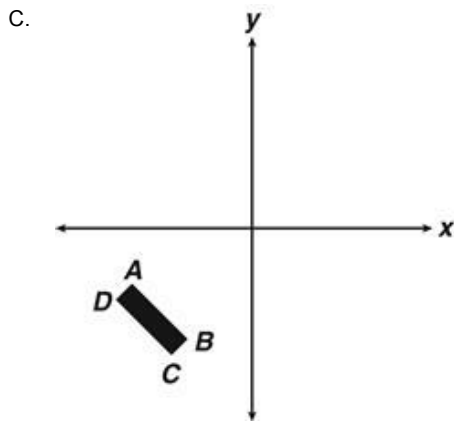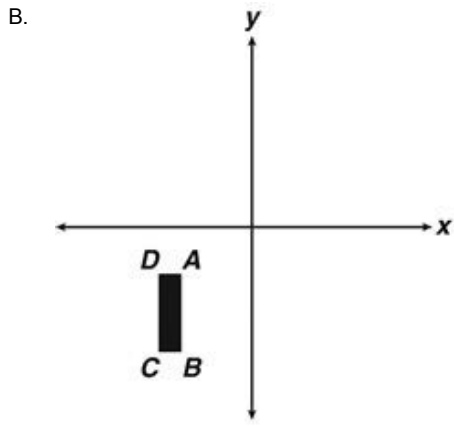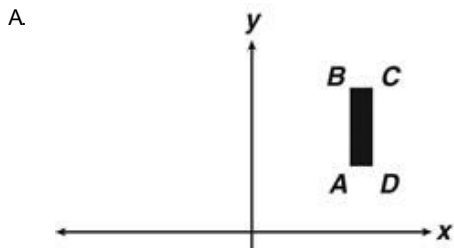
71. Triangle *MNO* has coordinates *M*(0, 0), *N*(5, 3), and *O*(5, ⁻4).
    Triangle *MNO* will be rotated 270° counterclockwise about the origin.
    What will be the coordinates of *O'*?

   A. (4, 5)

   B. (4, ⁻5)

   C. (⁻4, 5)

   D. (⁻4, ⁻5)

72. **The triangle below will be rotated 90 degrees counterclockwise about Point *A*.**
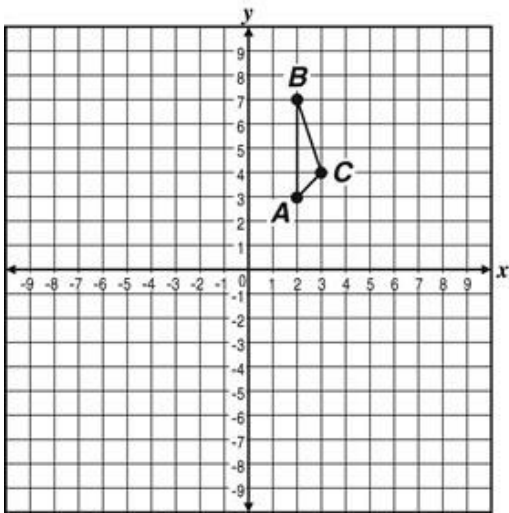
What will be the new coordinates of Point *C*?

   A. (1, 4)
   B. (2, 4)
   C. (3, 2)
   D. (6, 8)

73. **Points A (3, 3) and B (3, 6) are two vertices of rectangle ABCD. The rectangle is dilated by a scale factor of two, forming rectangle A'B'C'D'.**

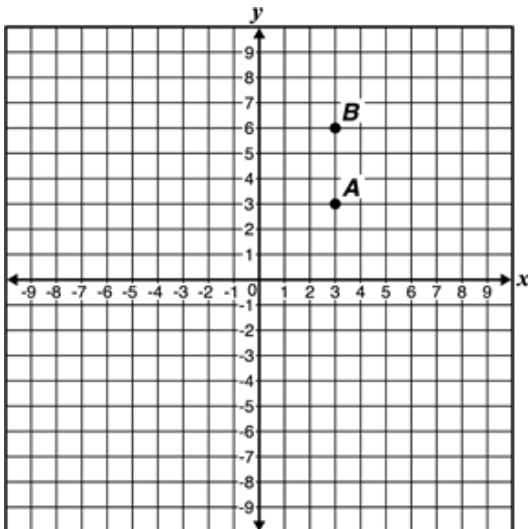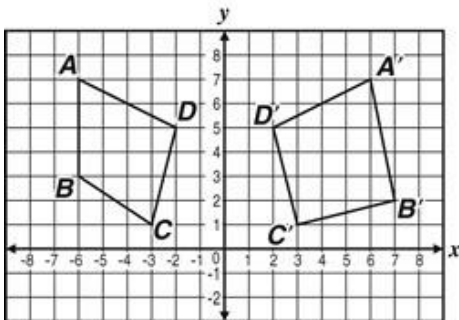**How does the perimeter of rectangle A'B'C'D' compare to the perimeter of rectangle ABCD?**

A. It is the same.

B. It is half as much.

C. It is twice as much.

D. It is four times as much.

74. **On the coordinate plane, ABCD has been reflected incorrectly to form** $A'B'C'D'$.

Which change would make $A'B'C'D'$ **a correct reflection of ABCD?**

A. Move Vertex B' one unit to the left.

B. Move Vertex A' one unit to the right.

C. Move Vertex B' one unit to the left and then one unit up.

D. Move Vertex A' one unit to the right and then one unit down.

75. Square *JKLM* will be reflected over the *y*-axis.
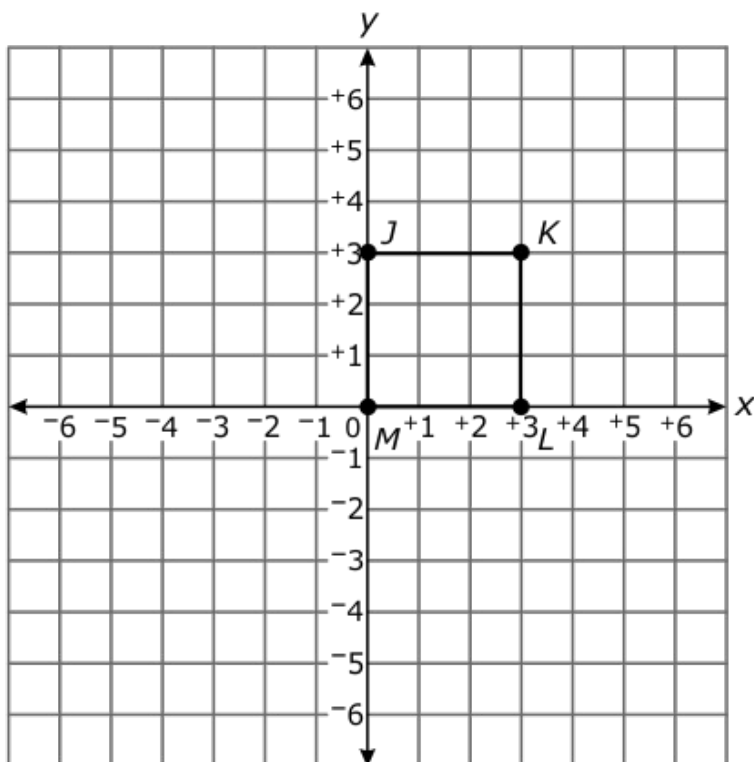
What will be the coordinates of *K'*?

A. (⁻3, 3)

B. (⁻3, ⁻3)

C. (3, ⁻3)

76. Triangle *TUV* is transformed to create triangle *T′U′V′*.

Point	Coordinates
T	(2, 1)
U	(1, 2)
V	(1, 5)

Point	Coordinates
T′	(4, 2)
U′	(2, 4)
V′	(2, 10)

Which statement describes this transformation?

A. a translation such that $(x, y) \rightarrow (x+1, y+2)$

B. a translation such that $(x, y) \rightarrow (x+2, y+1)$

C. a dilation of a scale factor of $\dfrac{1}{2}$ about the origin

D. a dilation of a scale factor of 2 about the origin

77. **If the given triangle is reflected over the line $y = x$, then the vertex of the obtuse angle would be in which quadrant?**
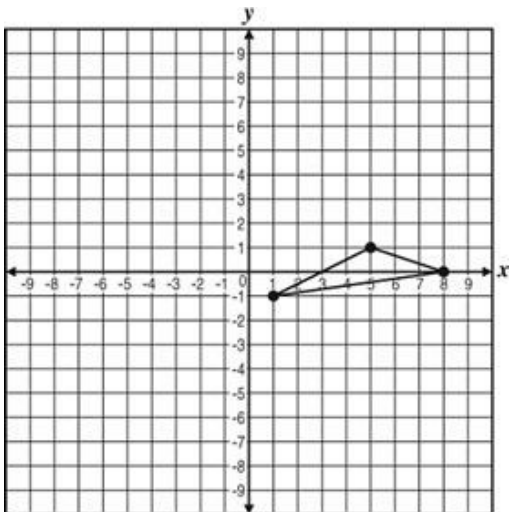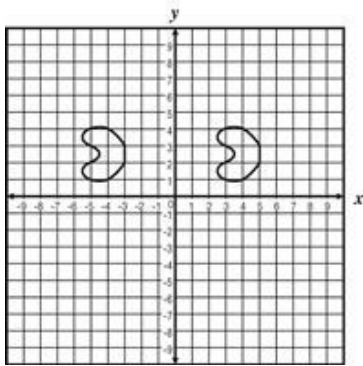

A. I
B. II
C. III
D. IV

78. **A landscape designer used a coordinate plane to plan a park. He drew the outline of a rose garden and reflected the outline over the *y*-axis to show the location of a second rose garden. Which graph shows the two rose gardens drawn by the landscape designer?**
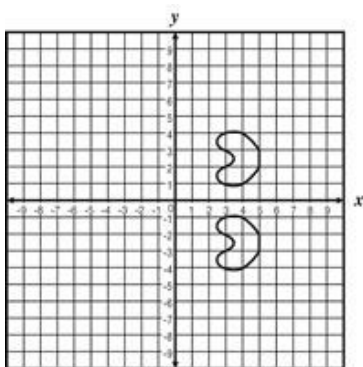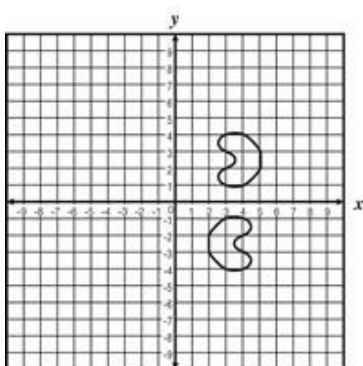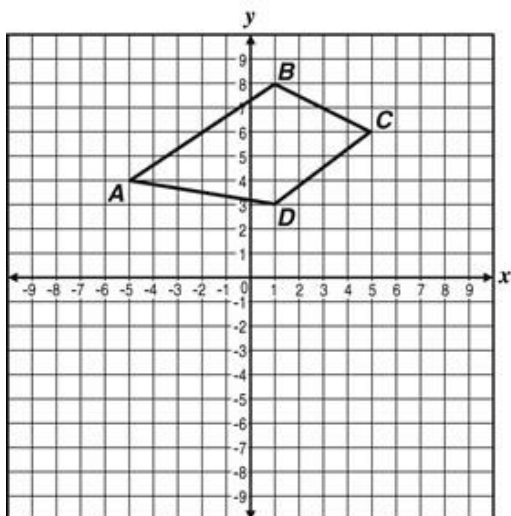
A.
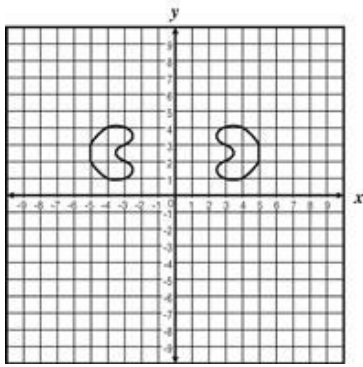
B.

C.

D.

79. **If the _x_ -values of quadrilateral _ABCD_ are decreased by 6, into image quadrilateral _EFGH_, what will be the coordinates of Point _H_?**

A. (7, 3)

B. (1, −3)

C. (−1, 4)

D. (−5, 3)

80. Triangle _KLM_ has vertices _K_(1, 3), _L_(1, 1), and _M_(4, 1). Triangle _KLM_ will be translated 3 units to the left and 4 units down. What will be the coordinates of the image point _K′_?

A. (4, 7)

B. (4, ⁻1)

C. (⁻2, 7)

D. (⁻2, ⁻1)

81. The quadrilateral graphed below will be reflected over the *x*-axis.
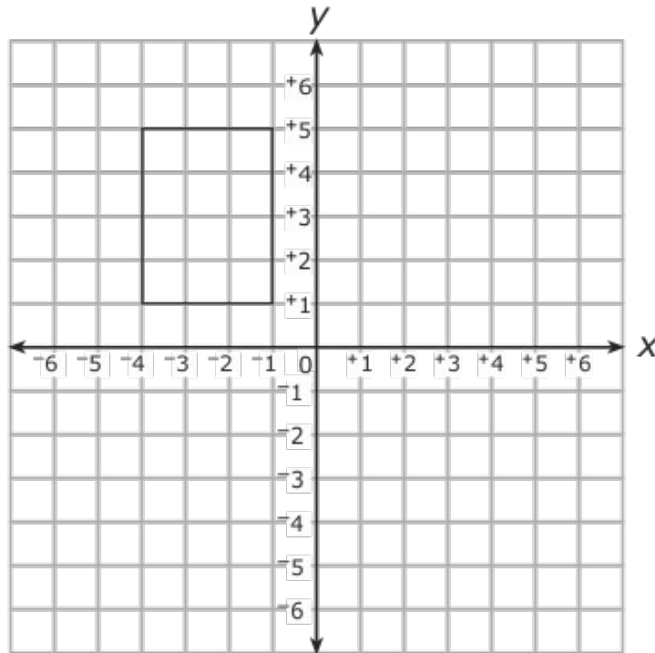
What will be the coordinates of the vertices of the image quadrilateral?

A. (4, ⁻1), (1, ⁻1), (1, 5), (4, ⁻5)

B. (1, 1), (1, 5), (4, 1), (4, 5)

C. (⁻1, 4), (⁻1, 1), (⁻5, 1), (⁻5, 4)

D. (⁻4, ⁻1), (⁻4, ⁻5), (⁻1, ⁻5), (⁻1, ⁻1)

82. Triangle *XYZ* has vertices at *X*(2, ⁻1), *Y*(⁻4, ⁻1), and *Z*(2, 2). The triangle will be dilated by a scale factor of 4. What will be the coordinates of triangle *X'Y'Z'*?

A. *X'*(6, 3), *Y'*(0, 3), *Z'*(6, 6)

B. *X'*(8, ⁻1), *Y'*(⁻16, ⁻1), *Z'*(8, 2)

C. *X'*(8, ⁻4), *Y'*(⁻16, ⁻4), *Z'*(8, 8)

83. **If the point** $(3, -4)$ **is reflected over the *x*-axis of the coordinate plane, what are the corresponding coordinates of the reflected point?**

A. $(3, 4)$

B. $(-3, -4)$

C. $(-3, 4)$

D. $(-4, 3)$

84. Teri drew a triangle with vertices at (0, 0), (5, 0), and (3, 4). She rotated the triangle 90 degrees counter-clockwise about the origin. What are the coordinates of the new triangle?

   A. (0, 0), (0, 5), and (‾4, 3)

   B. (0, 0), (0, 5), and (‾3, 4)

   C. (0, 0), (0, ‾5), and (3, ‾4)

   D. (0, 0), (0, ‾5), and (4, ‾3)

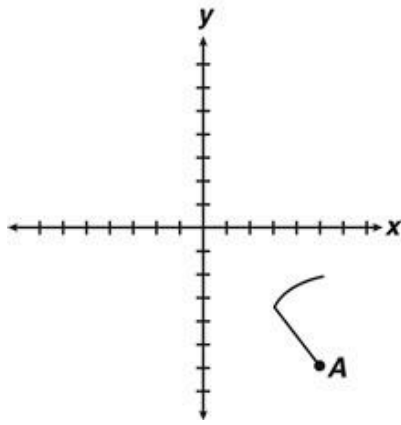85. Square *EFGH* will be dilated by a scale factor of $\frac{1}{2}$.
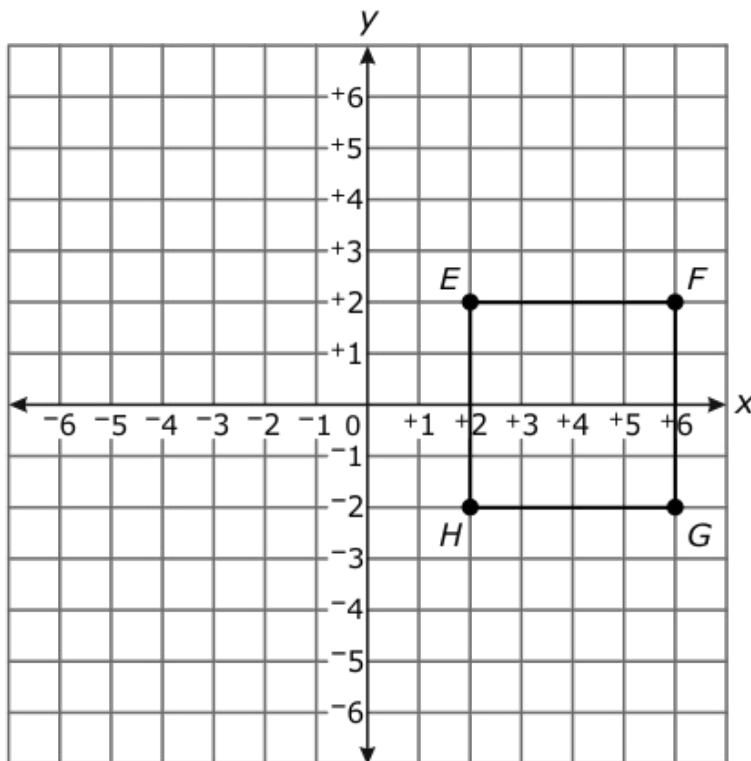
What will be the coordinates of *G'*?

   A. (3, ‾1)

   B. (3, ‾2)

   C. (12, ‾4)

86. **The figure below will be rotated 90° clockwise about the origin, translated 9 units down, and then reflected about the *y*-axis.**
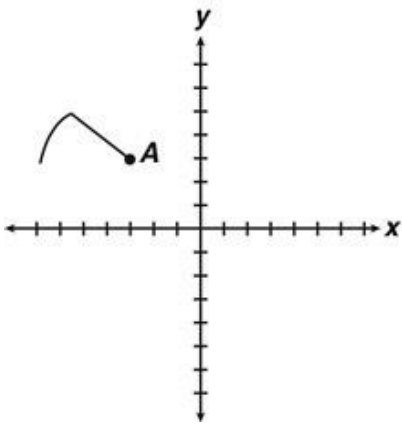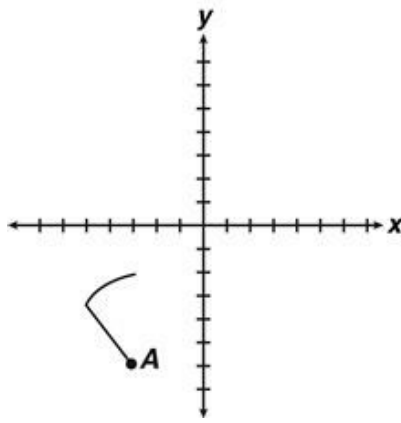
Which illustration represents the figure after this sequence of transformations?
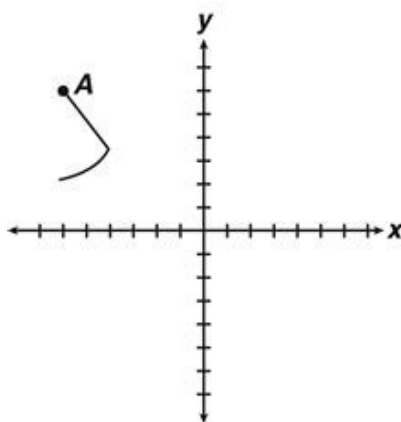
A.

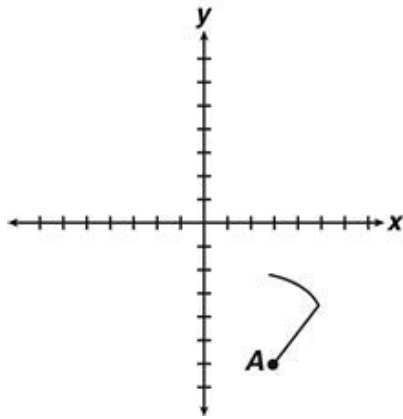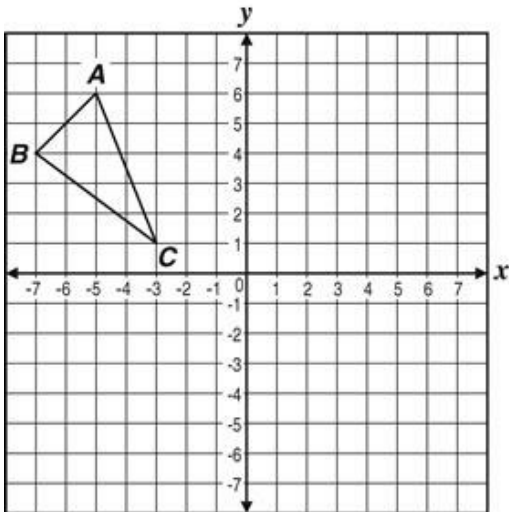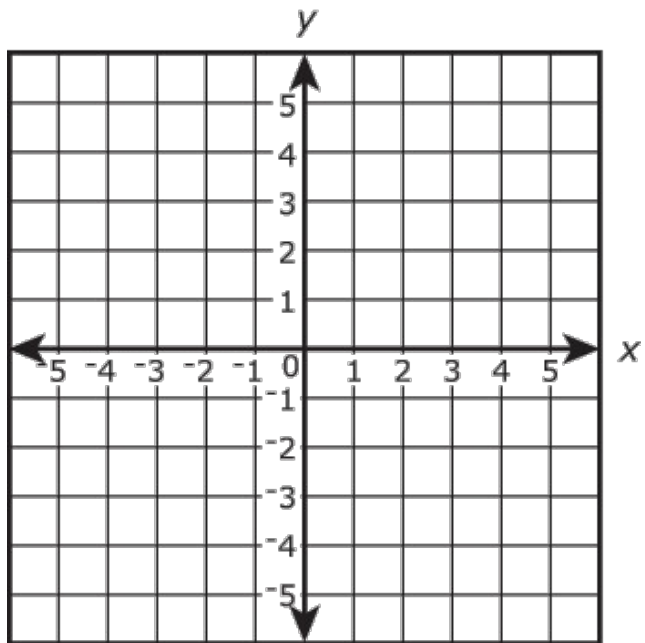B.

C.

D.

87. If $\triangle ABC$ is reflected across the *y*-axis, what would be the reflected coordinates of Point *A*?

A. $(-5, -6)$

B. $(-5, 6)$

C. $(5, -6)$

D. $(5, 6)$

88. The pre-image coordinates of a triangle are $X(2, 2)$, $Y(3, 2)$, $Z(5, 4)$. The image coordinates are $X'(-2, 2)$, $Y'(-3, 2)$, $Z'(-5, 4)$. What transformation occurred?

A. slide of 4 units up

B. slide of 4 units down

C. reflection over the *x*-axis

D. reflection over the *y*-axis

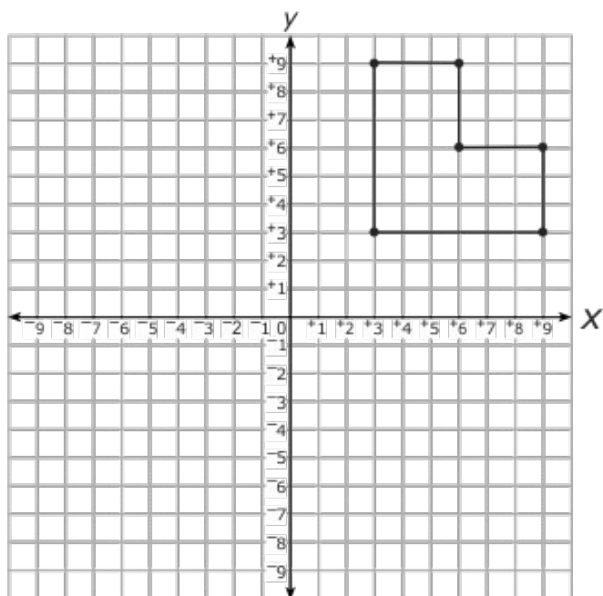89. Figure *X'* is the image of figure *X* after a dilation.
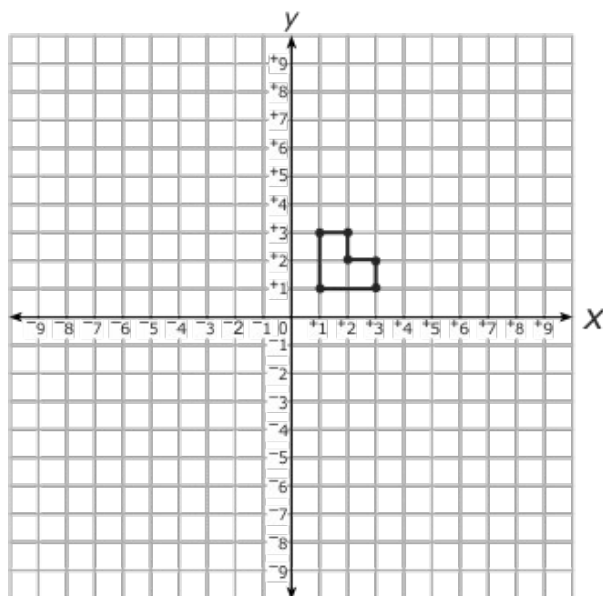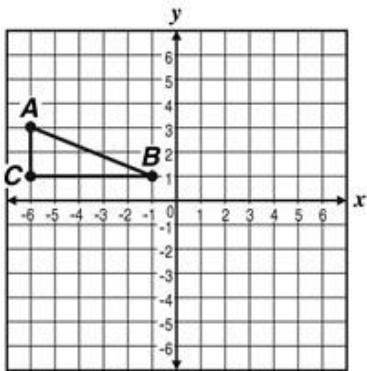
Figure X

Figure X'

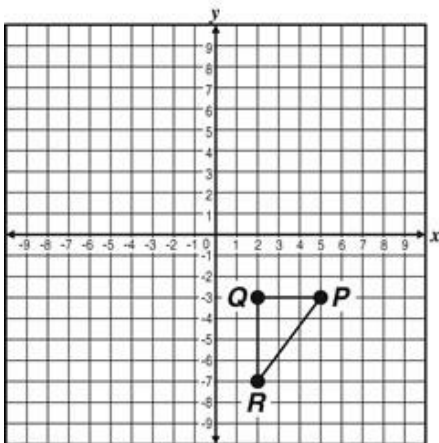What scale factor was used for the dilation?

A. 3

B. $\dfrac{1}{3}$

C. 2

D. $\dfrac{1}{2}$

90. **Triangle *ABC* is translated 4 units to the right and 3 units down.**
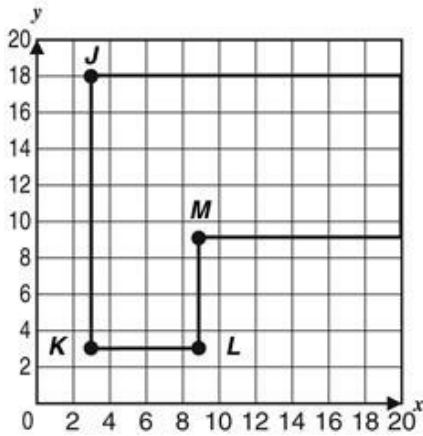

What are the coordinates of the new triangle?

A. $(-2, 3), (3, 1), (-2, 1)$

B. $(-2, 0), (3, -2), (-2, -2)$

C. $(0, -2), (-2, 3), (2, -2)$

D. $(-6, 0), (-6, -2), (-1, -2)$

91. If $\triangle PQR$ is rotated 270° counterclockwise about the point $(2, 1)$, what will be the new coordinates for Point *P*?

A. $(-3, -5)$

B. $(-2, -2)$

C. $(-1, 5)$

D. $(6, 4)$

92. **Brenda began a scale drawing of her house using the scale 1 square length = 2 feet, as shown below. However, the grid was not large enough for her to draw all of her house.**


She decided to change the scale to 1 square length = 3 feet, so that the house will fit entirely on the grid. What should be the new coordinates of Point *L*, given that Point *K* did not change?

A. (3, 7)

B. (3, 13)

C. (7, 3)

D. (7, 7)

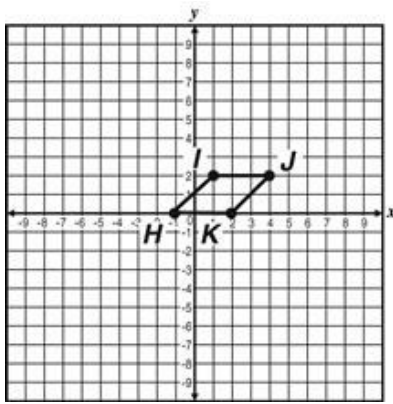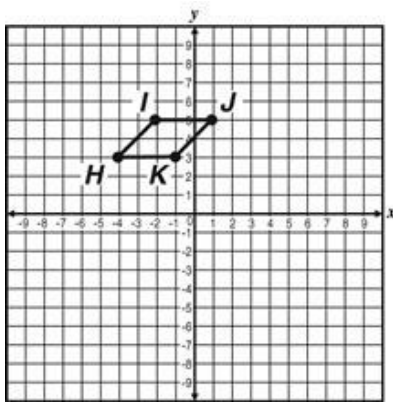93. **Parallelogram *HIJK* is shown below.**
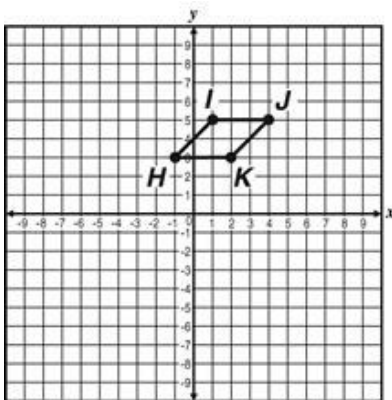
Which graph shows the new position of Parallelogram *HIJK* after a translation of 3 units to the left and 3 units down from its original position?
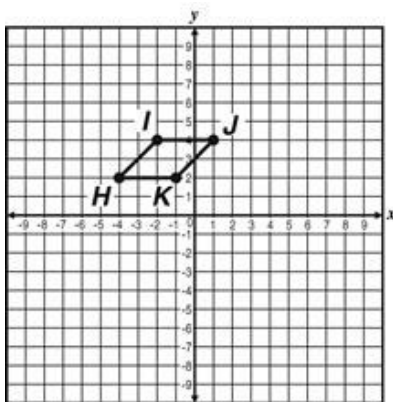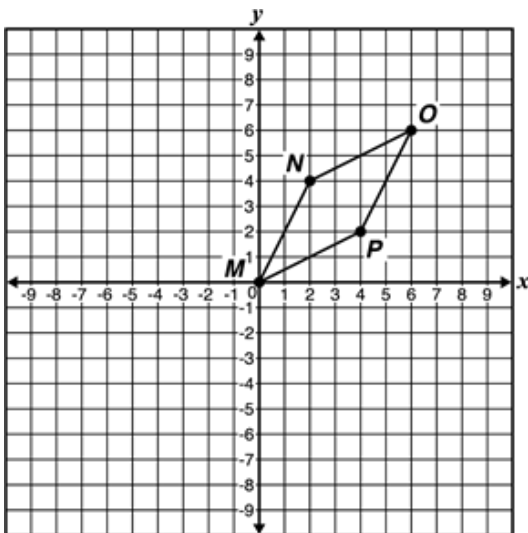
A.
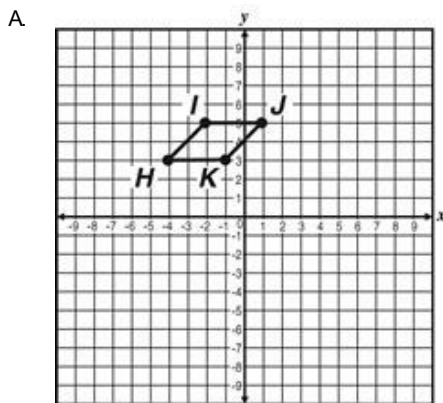
B.

C.

D.

94. Rhombus *MNOP* is dilated by a factor of $\frac{1}{2}$ about the origin to form *M'N'O'P'*.

Which statement is false?

A. *M'N'O'P'* has 4 vertices.

B. *M'N'O'P'* has 4 congruent sides.

C. *M'N'* is greater in length than *MN*.

D. The ratios *MN:M'N'* and *NO:N'O'* are equal.

95. This rectangle below will be rotated 90° clockwise about Point *S*.
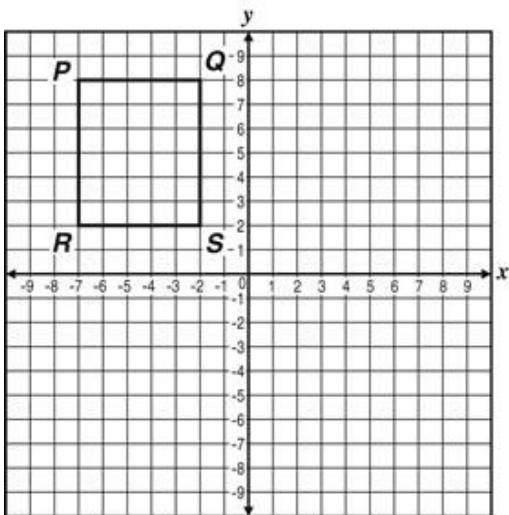
After the rotation, which coordinate pair best represents the new location of Point *Q*?

A. $(-7, -4)$

B. $(-2, -8)$

C. $(2, 8)$

D. $(4, 2)$

96. The graph below shows Triangle *RST*.
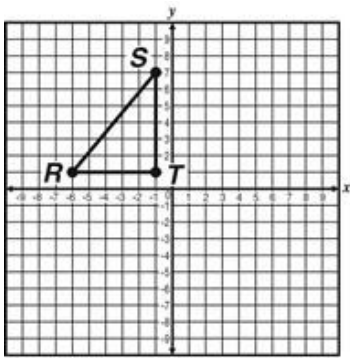
Which figure represents a reflection of Triangle *RST* over the *y*-axis?

A.

B.

C.

D.

97. The point (2, 3) is reflected over the line $y = x$ to create Point *A*. What are the coordinates of *A*?
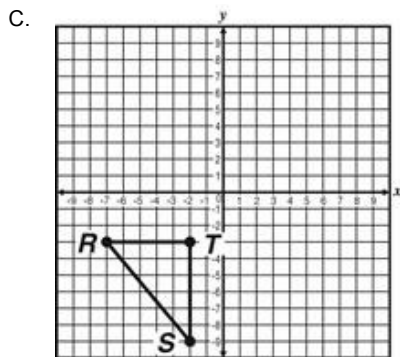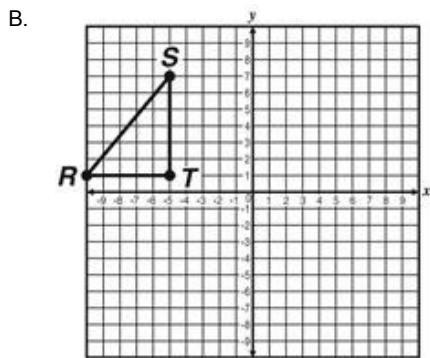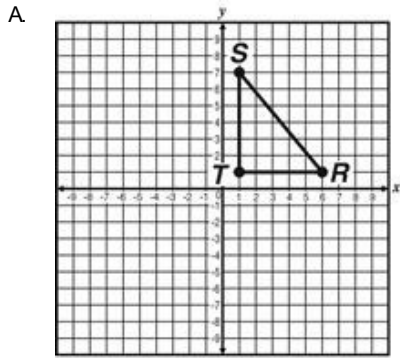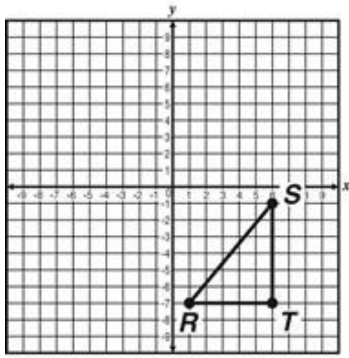
A. (2, 3)
B. (3, 2)
C. (5, 5)
D. (2, 1)

98. The point $(-2, 4)$ is translated 6 units to the right. What are the coordinates of the new point?

A. $(-2, -2)$
B. $(-8, 4)$
C. $(4, 4)$
D. $(-2, 10)$

99. The vertices of a triangle are located at ($^-$4, 6), ($^-$6, 6), and ($^-$5, 4). The triangle will be reflected over the *y*-axis. What will be the coordinates of the image triangle?

A. ($^-$4, $^-$6), ($^-$6, $^-$6), ($^-$5, $^-$4)

B. (4, $^-$6), (6, $^-$6), (5, $^-$4)

C. (4, 6), (6, 6), (5, 4)

D. (6, $^-$4), (6, $^-$6), (4, $^-$5)

100. The point $(0, 3)$ is reflected over the line $y = x$ to create Point *J*. What are the coordinates of *J*?

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

101. The diagram shows Triangle *STU* on the coordinate plane.
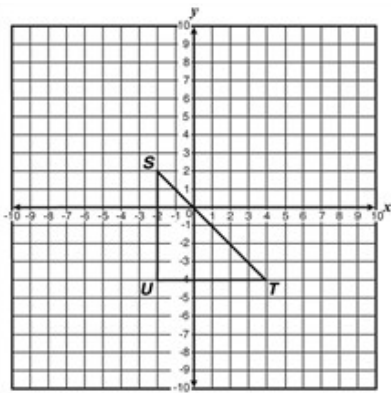
Which graph shows _S′T′U′_, the result of the dilation $(x, y) \rightarrow (1.5x, 1.5y)$**?**

A.
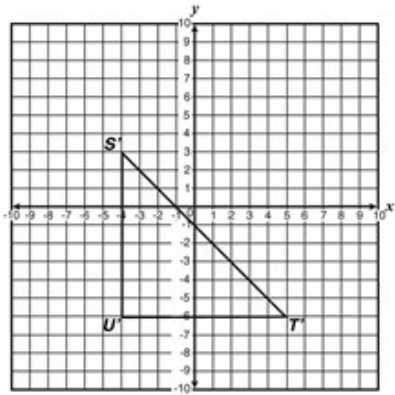
B.
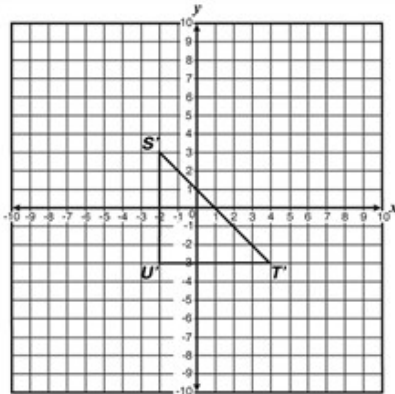
C.
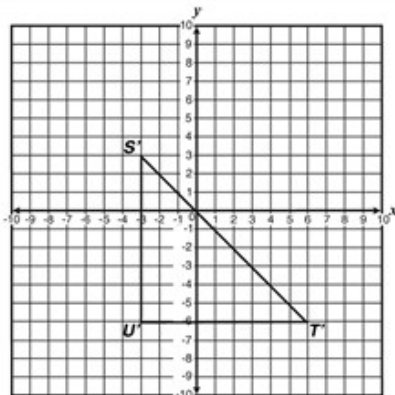
D.
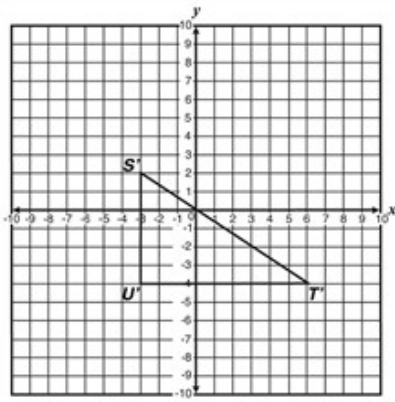
102. Segment $\overline{PQ}$ is rotated 90° counterclockwise around the origin to create the image $\overline{P'Q'}$. Which aspect of $\overline{PQ}$ and $\overline{P'Q'}$ is the same?
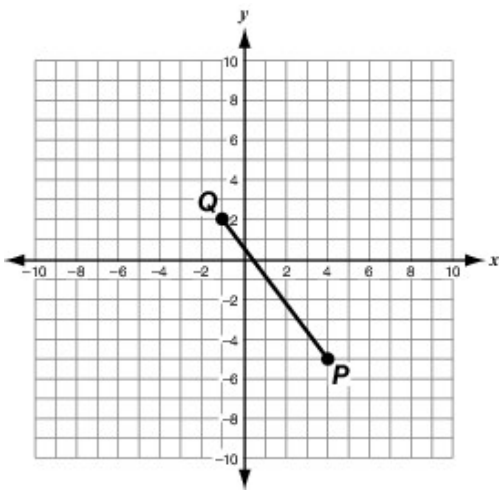
A. their slopes

B. their lengths

C. their midpoints

D. their endpoints

103. Triangle *EFG* will be rotated 180° clockwise about the origin.

What will be the coordinates of the image point *E'*?

A. (⁻2, 2)

B. (2, 2)

C. (6, ⁻2)

D. (6, 2)

104. Rectangle *EFGH* will be rotated 90° clockwise about the origin.

What will be the coordinates of the image point *G'*?

A. (⁻2, ⁻6)

B. (⁻2, 6)

C. (6, ⁻2)

D. (6, 2)
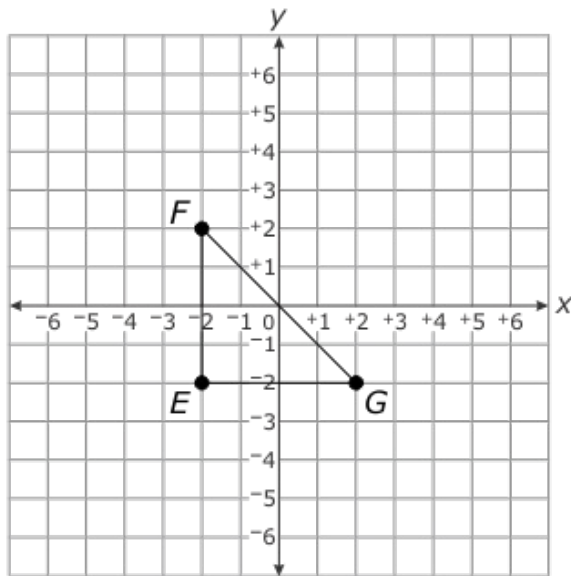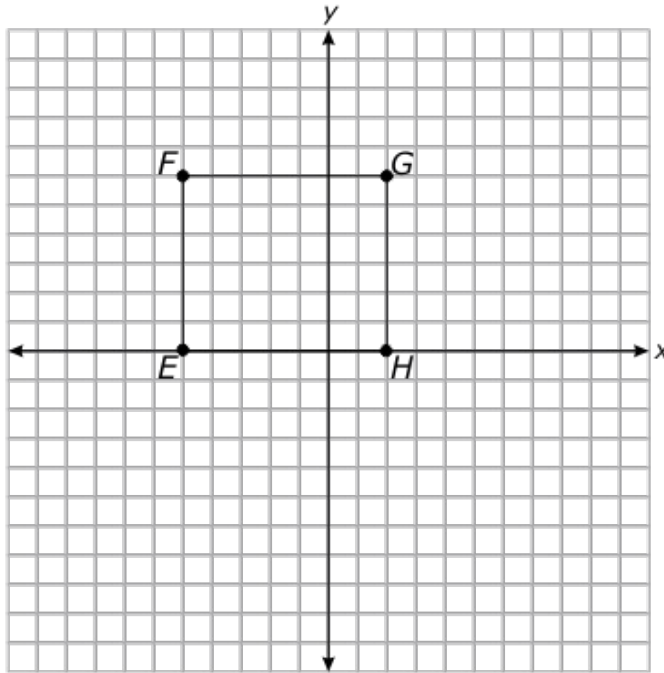
105. The coordinates of a triangle are (2, ⁻3), (2, ⁻5), and (5, ⁻5). The triangle will be dilated by a scale factor of 10. What will be the coordinates of the image triangle?

A. (20, ⁻30), (20, 50), and (⁻50, 50)

B. (20, ⁻30), (20, ⁻50), and (50, ⁻50)

C. (⁻20, 30), (20, ⁻50), and (⁻50, 50)

D. (⁻20, 30), (⁻20, 50), and (50, ⁻50)

106. **Triangle *ABC* has points *A*, *B*, and *C* located at (–3, 3), (2, 1), (1, –4), respectively. Triangle *DEF* is a dilation of Triangle *ABC* about the origin, using a scale factor of 2. Which graph shows the resulting image Triangle *DEF*?**

A.
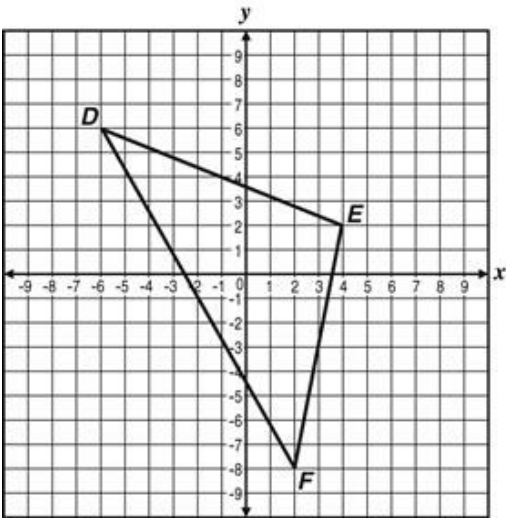
B.
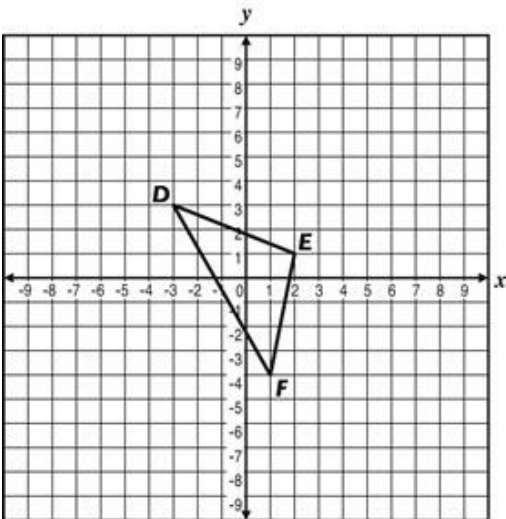
C.

D.

107. Triangle *JKL* has vertices at coordinates *J*(8, 4), *K*(¯3, 9), and *L*(1, ¯7). Triangle *JKL* will be translated 5 units up. What will be the coordinates of *K'*?

A. (2, 9)

B. (2, 14)

C. (¯3, 14)

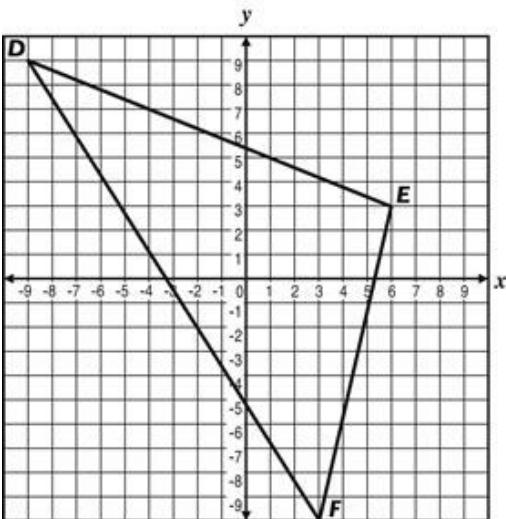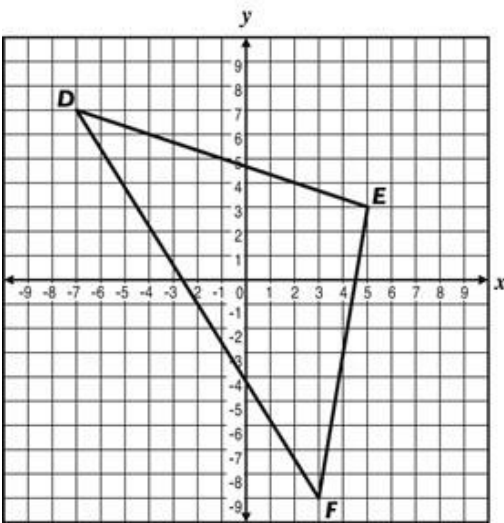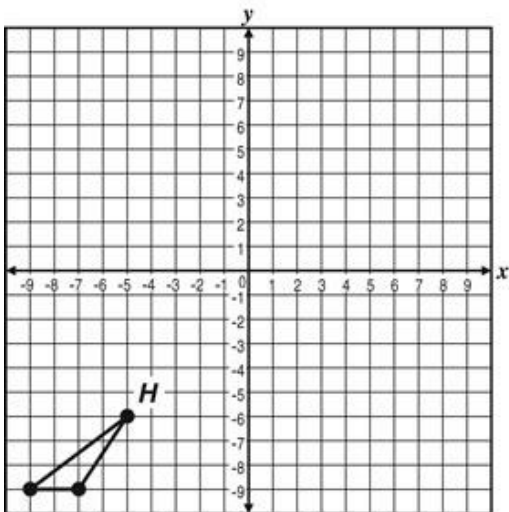108. **If the triangle in the graph is translated 3 units up, which coordinates describe the highest point of the triangle?**

A. (−7, −6)
B. (−6, −9)
C. (−5, −3)
D. (−4, −9)

109. The vertices of $\triangle KLM$ are K $K(1, 2)$, $L(3, 1)$, and $M(2, 4)$. After a transformation of $\triangle KLM$ to $\triangle K'L'M'$, the resulting points are $K'(3, 6)$, $L'(9, 3)$, and $M'(6, 12)$. Which transformation results in this image?

A. translation of 3 units right and 3 units up

B. translation of 2 units right and 4 units up

C. dilation with a scale factor of 3

D. dilation with a scale factor of $\frac{1}{3}$

110. **Emily drew her initial on the coordinate plane below.**
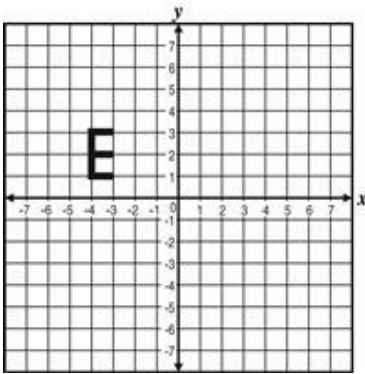
Which graph shows the reflection of Emily's initial over the *y*-axis?

A.

B.

C.

D.
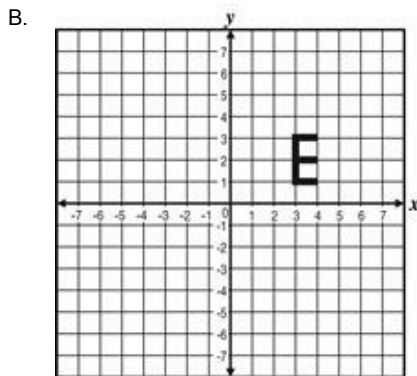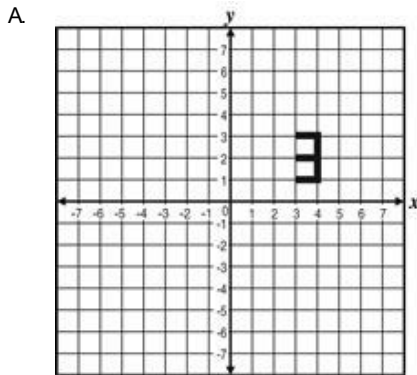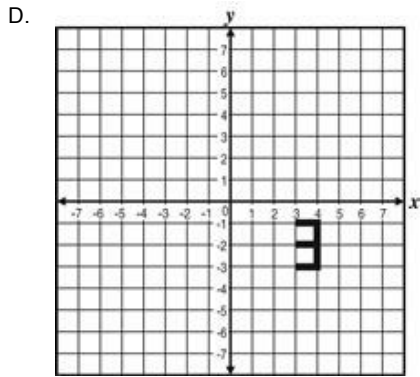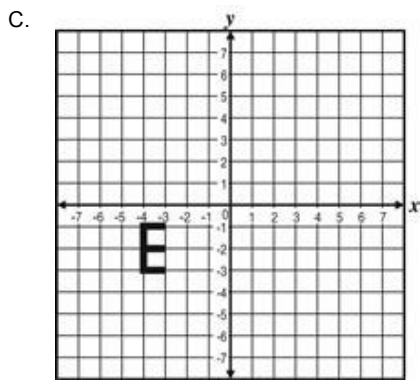
111. Triangle *PQR* has vertices *P*(1, 3), *Q*(4, 0), and *R*(¯2, 0). Triangle *PQR* will be rotated 90° counterclockwise about the origin. What will be the coordinates of the image point *P'*?

A. (¯1, ¯3)

B. (¯3, 1)

C. (3, ¯1)

D. (3, 1)

112. **Pentagon *ABCDE* is shown.**

If Pentagon *ABCDE* is dilated about the origin with a scale factor of 3 into Pentagon *A'B'C'D'E'*, what coordinate pair describes the location of Point *A'*?

A. $(-9, 18)$

B. $(-1, 2)$

C. $(1, 3)$

D. $(21, 18)$

113. Consider a translation of a quadrilateral of 6 units left and 3 units up. Which statement about the vertices is true?
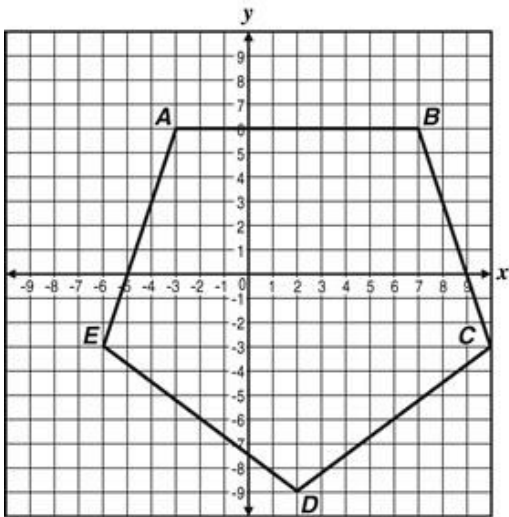
A. The *x*-coordinates increase by 3, and the *y*-coordinates decrease by 6.

B. The *x*-coordinates decrease by 3, and the *y*-coordinates increase by 6.

C. The *x*-coordinates increase by 6, and the *y*-coordinates decrease by 3.

D. The *x*-coordinates decrease by 6, and the *y*-coordinates increase by 3.

114. The endpoints of a line segment are located at *A*(0, 0) and *B*(0, 2). The line will be translated 2 units up. What will be the new coordinates of the endpoints of the line segment?

A. (2, 0) and (2, 2)

B. (2, 2) and (2, 4)

C. (1, 1) and (1, 3)

D. (0, 2) and (0, 4)

115. Rectangle *FGHJ* is graphed on the coordinate plane.
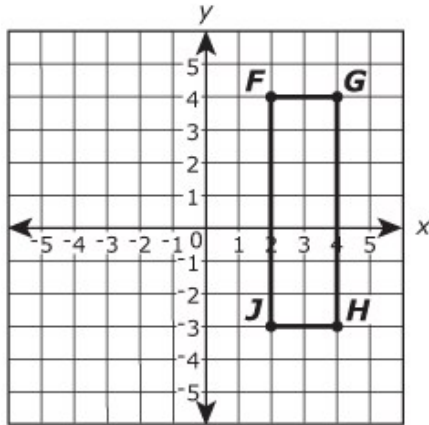
The rectangle is then rotated 90° clockwise about the origin to produce rectangle *F'G'H'J'*. Which ordered pair gives the coordinates of point *J'*?
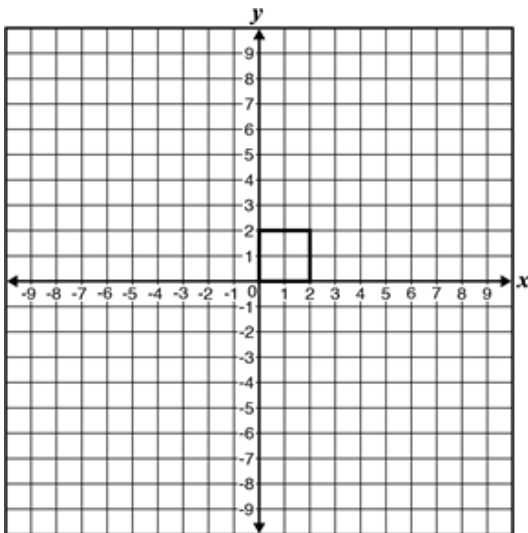
A. (−3, −2)

B. (4, −2)

C. (−2, −3)

D. (−2, 4)

116. **A square is dilated about the origin by a scale factor of 3.5.**

What is a true statement about the dilation as compared to the original square?

A. One of its vertices is located at (7, 0).

B. The perimeter is 7 times the perimeter of the original square.

C. The area is 3.5 times greater than the area of the original square.

D. The measure of each angle of the dilated figure is larger by a factor of 3.5.

117. The vertices of a trapezoid are E(2, 2), F(¯2, 2), G(¯1, 1), and H(1, 1). The trapezoid will be reflected over the x-axis. What will be the coordinates of the image point E'?

A. (¯2, ¯4)

B. (¯2, ¯2)

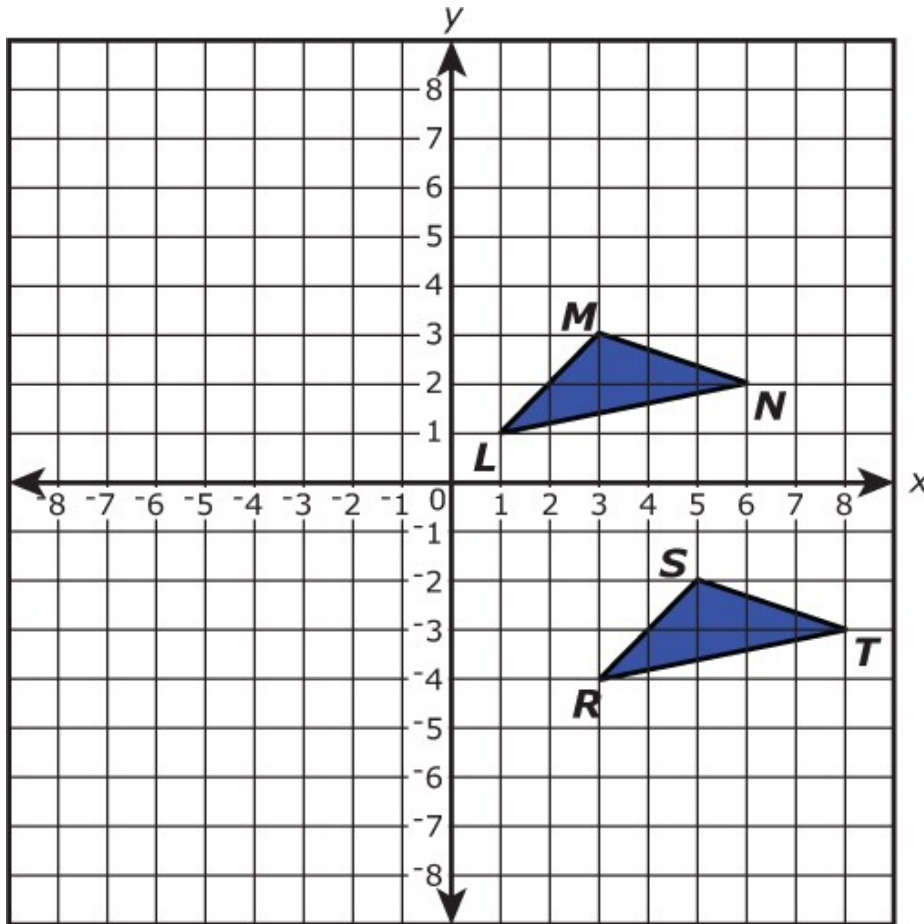C. (¯2, 2)

D. (2, ¯2)

118. **The rectangle shown below will be reflected across the y-axis.**
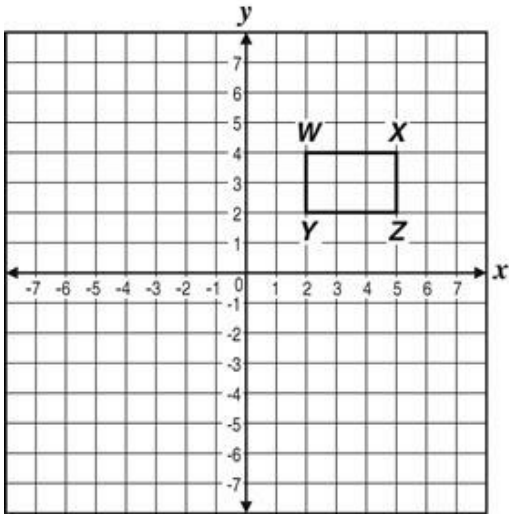
What will be the new coordinates of Point X?

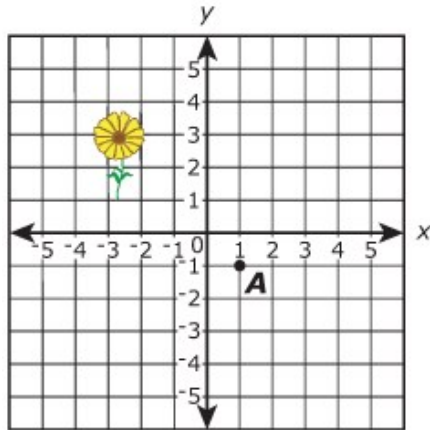A. $(-5, 4)$

B. $(4, -5)$

C. $(-1, 4)$

D. $(-2, 2)$

119. Triangle *RST* is a transformation of triangle *LMN*.

Which rule best describes this transformation?

A. $(x - 2, y + 5)$

B. $(x + 2, y + 5)$

C. $(x + 2, y - 5)$

D. $(x + 5, y - 2)$

120. The coordinate grid shows the location of a floral design and point *A*.

Which sequence of transformations would move the floral design into the same quadrant as point *A*?

A.   Translate left 5 units. Reflect over the *x*-axis.

B.   Translate left 5 units. Reflect over the *y*-axis.

C.   Translate right 5 units. Reflect over the *x*-axis.

D.   Translate right 5 units. Reflect over the *y*-axis.

121. **A geometric transformation is described by the algebraic representation below.**

$$(x, y) \rightarrow \left(\frac{x}{8}, \frac{y}{8} \right)$$

Which best describes this transformation?
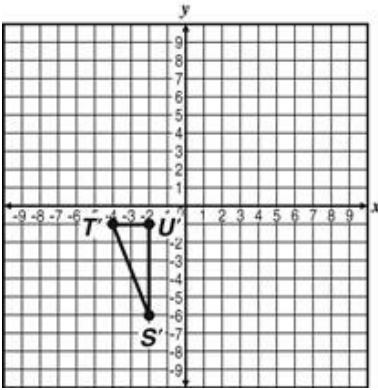
A. a rotation
B. a translation
C. a dilation that makes any given figure larger
D. a dilation that makes any given figure smaller

122. **Triangle *STU* shown below is reflected about the *x*-axis and then reflected about the *y*-axis to produce Triangle *S´T´U´*.**
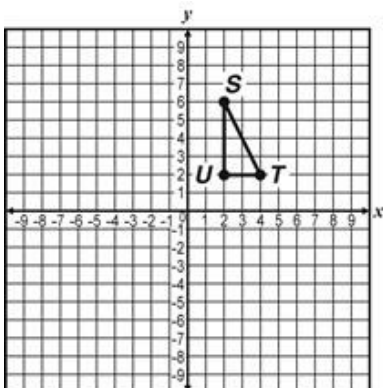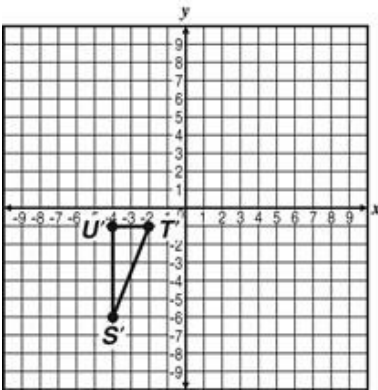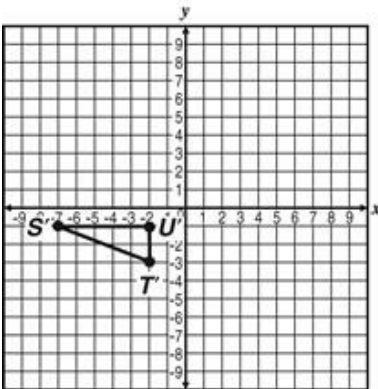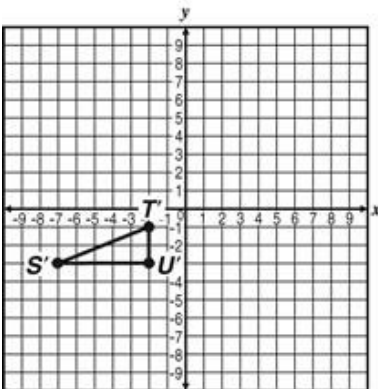
Which of the following is the result?
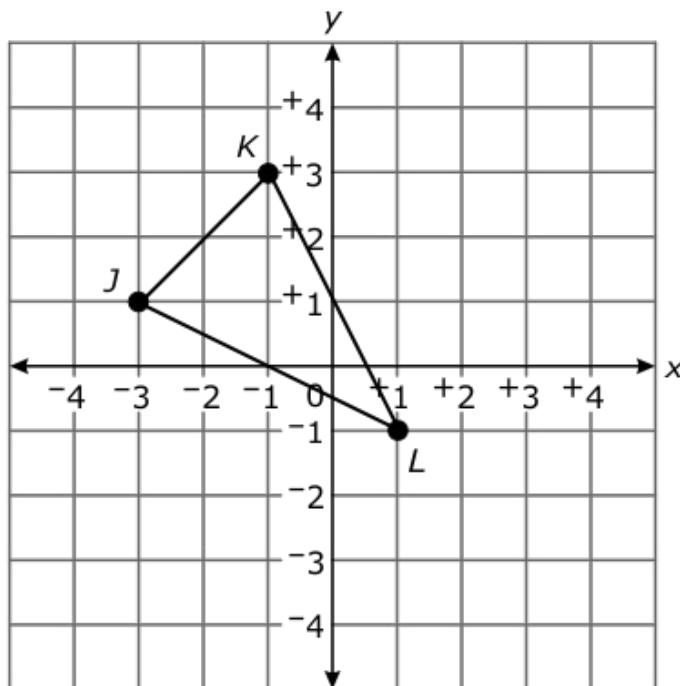
A.

B.

C.

D.

123. **Esteban drew Triangle *JKL* on a coordinate plane, with *J*(–3, 5), *K*(–1, –4), and *L*(2, 4). Then he drew Triangle *J'K'L'*, the result of the dilation $(x, y) \rightarrow \left(\frac{2}{3}x, \frac{2}{3}y\right)$. What are the coordinates of Point *J'*?**

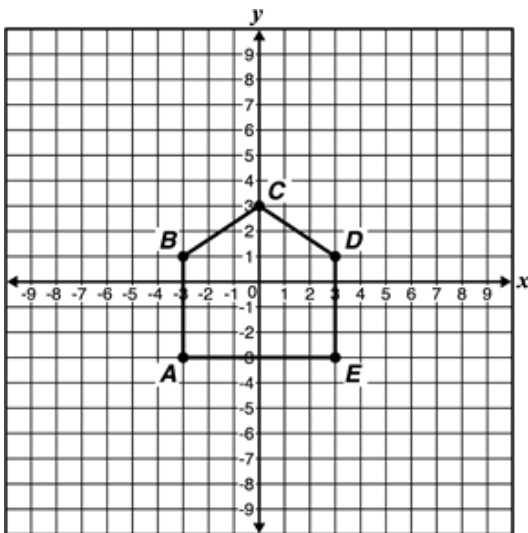A. $(-2, 5)$

B. $\left(-2, 3\frac{1}{3}\right)$

C. $\left(-2\frac{1}{3}, 5\frac{2}{3}\right)$

D. $\left(-3, 3\frac{1}{3}\right)$

124. Triangle *JKL* will be dilated by a scale factor of 2 with the origin as the center of dilation.

What are the vertices of triangle *J'K'L'*?

A. $J'(^-1, 3), K'(1, 5), L'(3, 1)$

B. $J'(^-6, 2), K'(^-2, 6), L'(2, ^-2)$

C. $J'(^-6, 1), K'(^-2, 3), L'(2, ^-1)$

125. **Pentagon *ABCDE* is dilated about the origin by a scale factor of 2.5.**

Which statement is false?

A. Pentagon *ABCDE* is similar to *A'B'C'D'E'*.
B. Both pentagons have the same lines of symmetry.
C. The lengths of corresponding sides of the pentagons are in a ratio of 2:5.
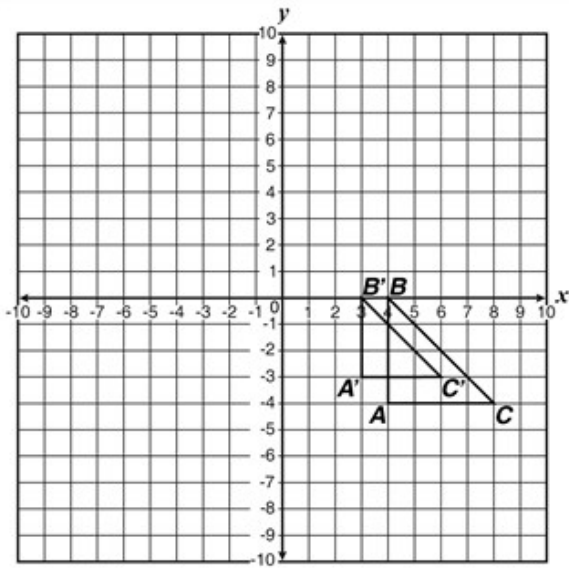D. The area of the dilated pentagon is 2.5 times the area of the original pentagon.

126. **Rectangle *ABCD* will be rotated$90°$clockwise about Point *A*.**
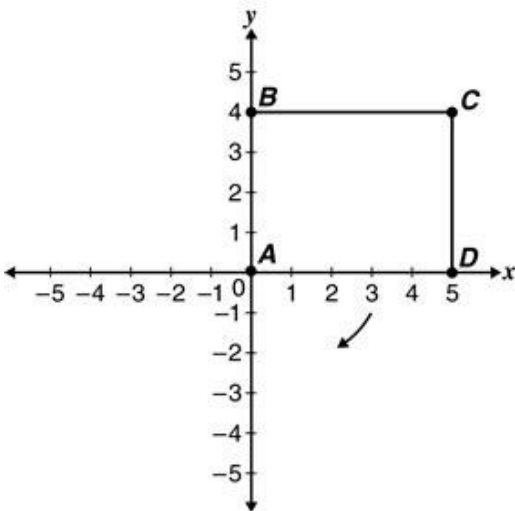
What will be the new coordinates of Point *D*?

A. $(0, -5)$
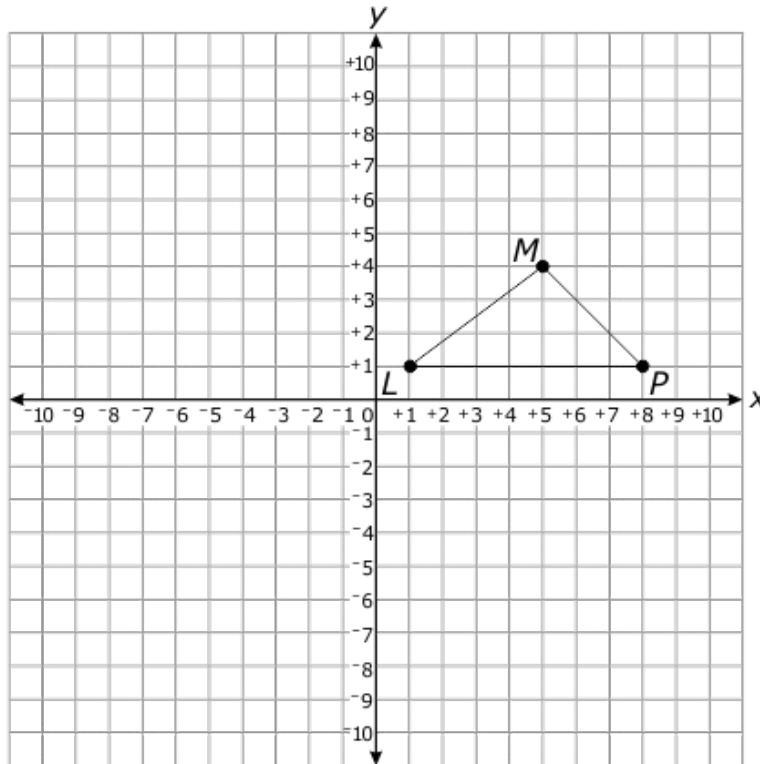B. $(0, -4)$
C. $(4, -5)$
D. $(5, -4)$

127. **In the diagram below, Triangle *A'B'C'* is the result of a transformation of Triangle *ABC*.**

Which algebraic representation best describes this transformation?

A. $(x, y) \rightarrow \left(\frac{2}{3}x, \frac{2}{3}y \right)$

B. $(x, y) \rightarrow \left(\frac{3}{4}x, \frac{3}{4}y \right)$

C. $(x, y) \rightarrow (x - 1, y + 1)$

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

128. Triangle *MLP* will be rotated 180° clockwise about the origin.

What will be the coordinates of *M'*?

A. ($^-$5, $^-$4)

B. ($^-$5, 4)

C. ($^-$4, $^-$5)

D. (4, $^-$5)

129. **A geometric transformation is described algebraically as shown below.**

$(x, y) \rightarrow (3x, 3y)$

Which best describes this transformation?

A. a translation 3 units up and 3 units to the right

B. a translation 3 units down and 3 units to the left

C. a 180° degree rotation centered at the point $(3, 3)$

D. a dilation with scale factor 3 centered at the origin

130. **If△ ABC is translated 3 units left and 2 units up, what would be the translated coordinates of Point C?**

A. $(-2,-1)$

B. $(-1,0)$

C. $(3,0)$

D. $(4,-1)$

schoolnet
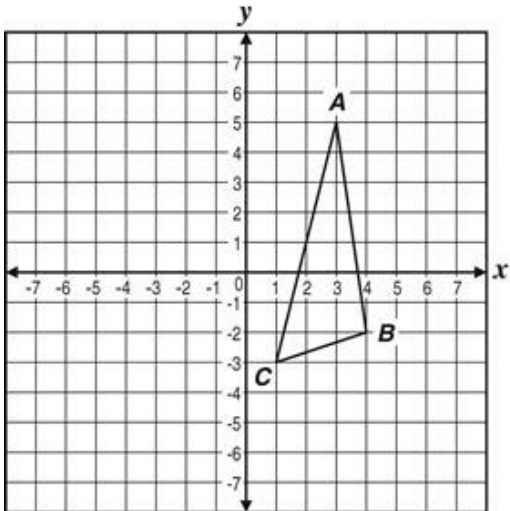
131. Melissa drew a figure on the coordinate grid below.
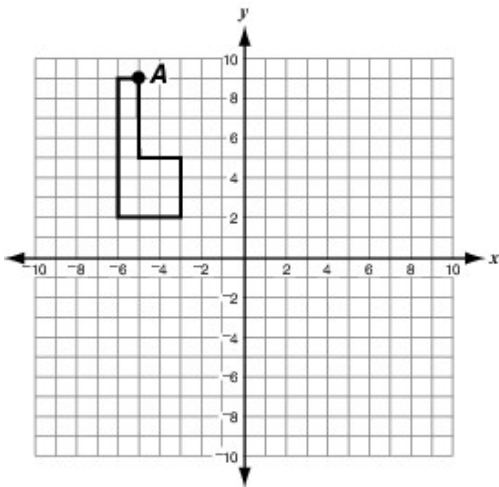
If the figure is reflected across the *y*-axis, what will be the new coordinates of point *A*?

A. $(-5, -9)$

B. $(-5, 9)$

C. $(5, -9)$

D. $(5, 9)$

132. Rectangle *EFGH* has vertices at $E(^-5, 2)$, $F(^-2, 2)$, $G(^-5, 0)$, and $H(^-2, 0)$. Rectangle *EFGH* will be translated 3 units down. What will be the coordinates of *G'*?

A. $(^-5, 3)$

B. $(^-5, ^-3)$

C. $(^-8, 0)$

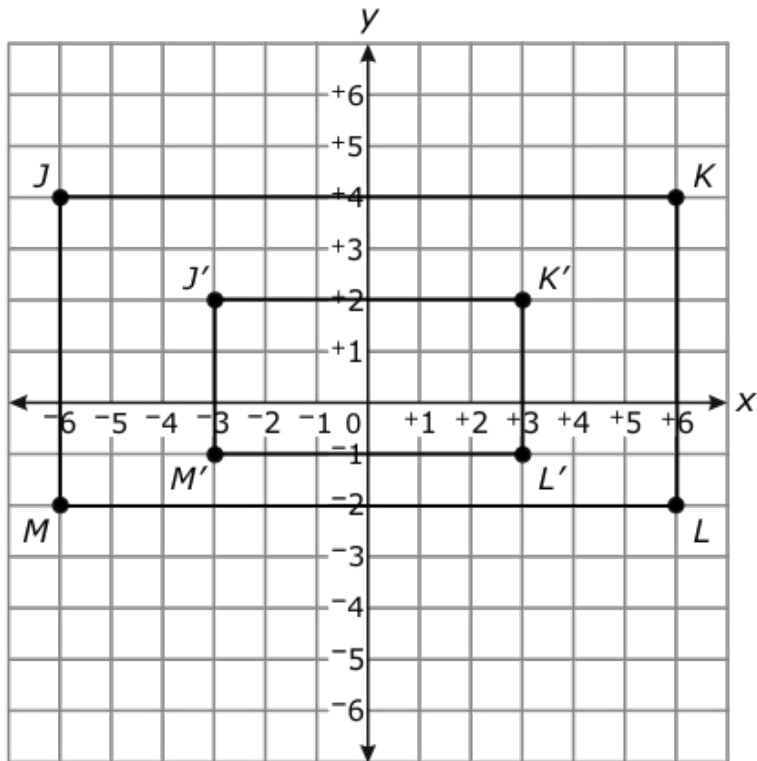133. Rectangle *ABCD* is shown on a coordinate plane below.
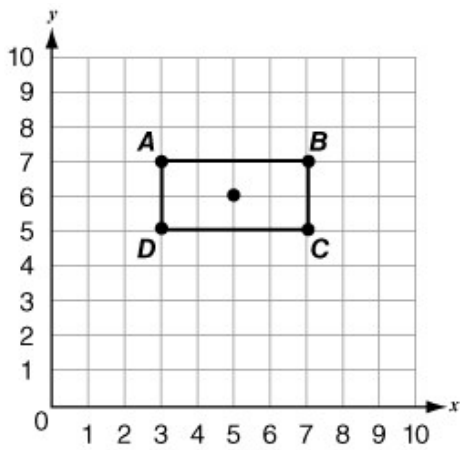
Which rectangle represents dilation by a scale factor of 2 from the rectangle's center?
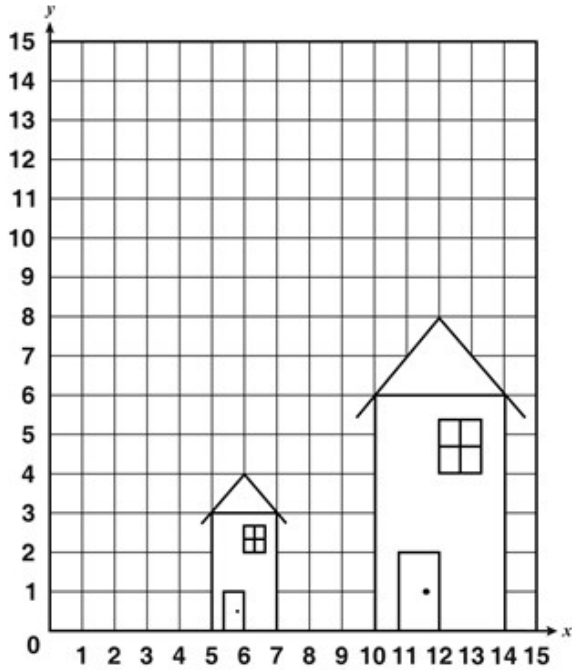
A.

B.

C.

D.
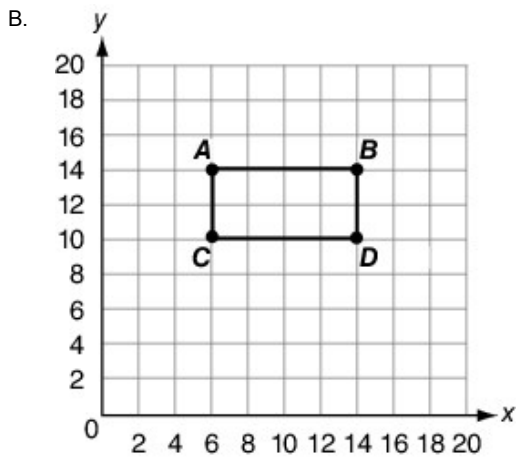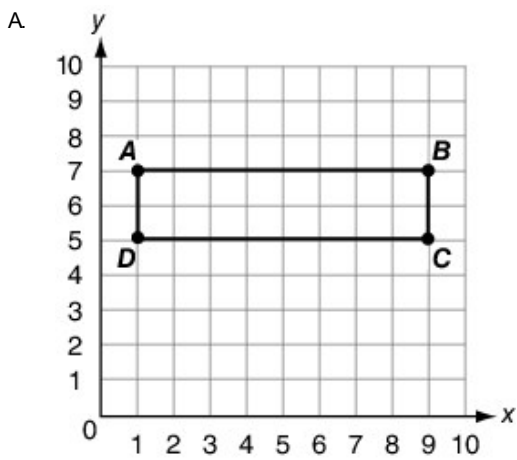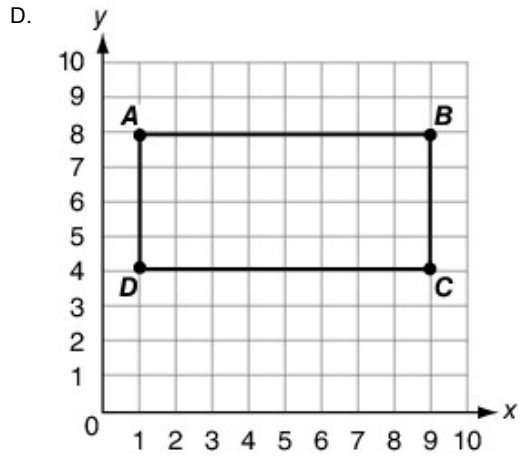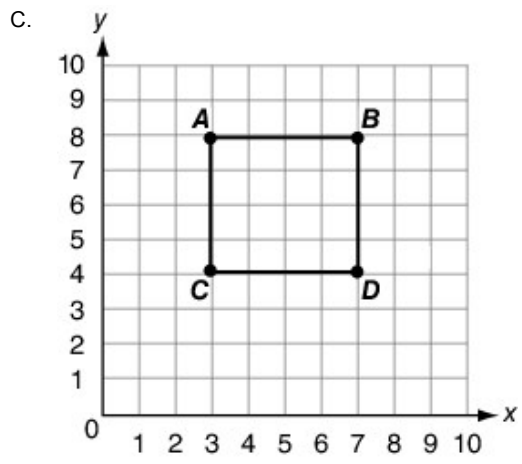
134. On the graph below, rectangle *JKLM* was dilated to create rectangle *J'K'L'M'*.

What scale factor was used for this dilation?

A. $\dfrac{1}{2}$

B. 2

C. 3

135. **Emily works at a design studio that does movie animation. She made the design shown below on her computer.**

Emily created the smaller house first, then dilated that image to produce the larger house. Which algebraic representation best describes the dilation?
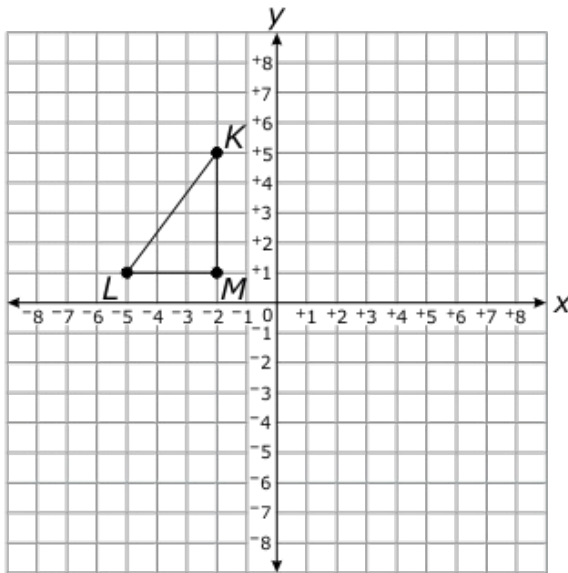
A. $(x, y) \rightarrow (2x, 2y)$

B. $(x, y) \rightarrow (5x, 5y)$

C. $(x, y) \rightarrow (x + 2, y + 4)$

D. $(x, y) \rightarrow (x + 5, y + 3)$

136. A square with the coordinates (0, 0), (0, 3), (3, 3), and (3, 0) will be dilated by a factor of 4. What will be the new coordinates of the square?

A. (0, 0), (0, 3), (12, 12), (12, 0)

B. (0, 0), (0, 12), (12, 12), (12, 0)

C. (0, 0), (0, 12), (12, 4), (12, 0)

D. (4, 4), (4, 12), (12, 12), (12, 4)

137. If $\triangle ABC$ is reflected across the *y*-axis to form $\triangle A'B'C'$, what are the coordinates of A'?
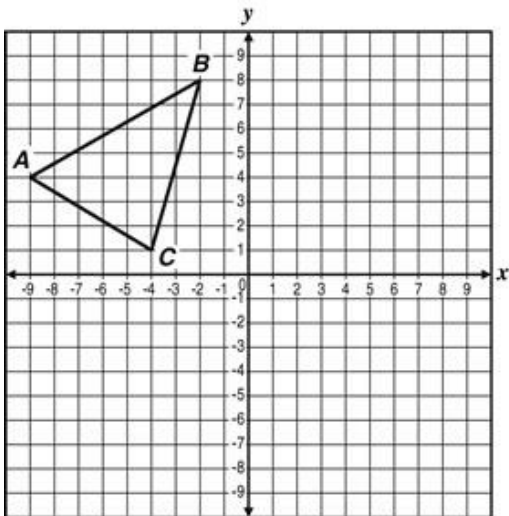
A. $(-9, -4)$

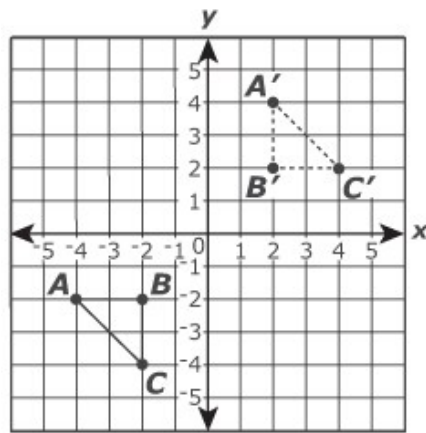B. $(-2, -8)$

C. $(2, 8)$

D. $(9, 4)$

138. Triangle *KLM* is shown below.

Which type of transformation would result in an image triangle with vertices $K'(5, 2)$, $L'(1, 5)$, and $M'(1, 2)$?

A. reflection over the *y*-axis

B. reflection over the *x*-axis

C. rotation

D. translation

139. Triangle *ABC* is transformed to create triangle *A′B′C′*.

Which sequence created triangle *A′B′C′*?

A. A reflection across the *y*-axis and then a translation up 4 units.

B. A reflection across the *x*-axis and then a reflection across the y-axis.

C. A translation up 4 units and then a 90° clockwise rotation about the origin.

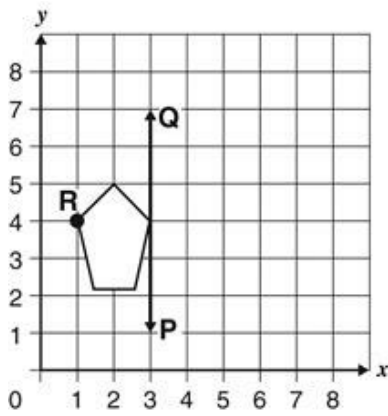D. A reflection across the *x*-axis and then a 90° clockwise rotation about the origin.

140. **Parallelogram *PQRS* has vertices** $P(0, 2)$, $Q(2, 4)$, $R(5, 4)$, and $S(3, 2)$.
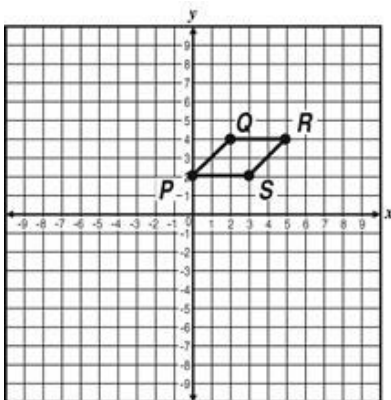
If Parallelogram *PQRS* is translated 1 unit to the right and 5 units down, what are the new coordinates of Point *R*?
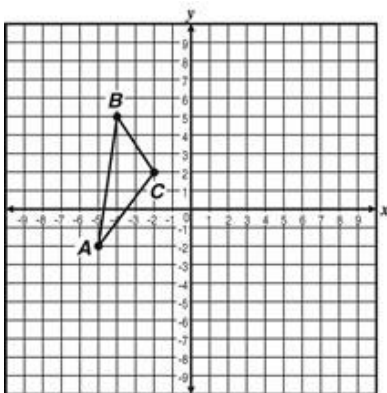
A. $(4, -1)$

B. $(4, -5)$

C. $(5, -4)$

D. $(6, -1)$

141. **Harold drew this sketch of a pentagon on the coordinate grid below.**
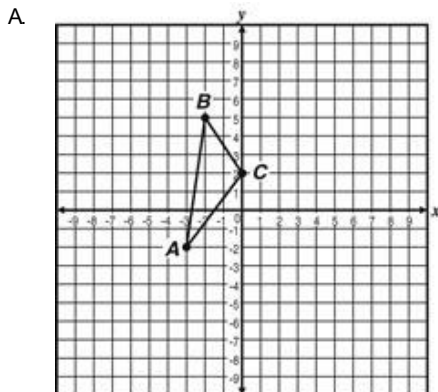

Harold then reflected the figure, including Point *R*, across Line $\overline{PQ}$. Which set of coordinates would be closest to Point *R* after the pentagon was reflected?
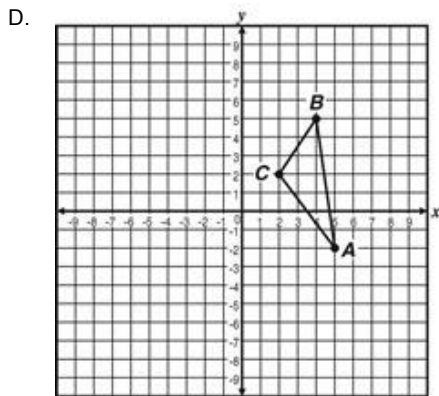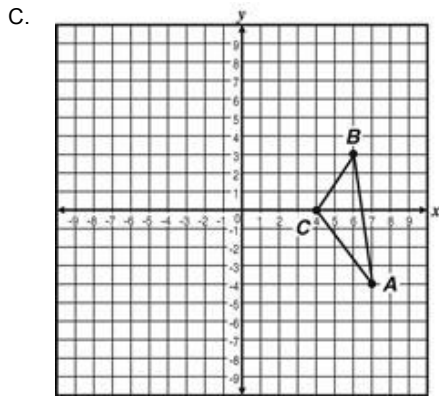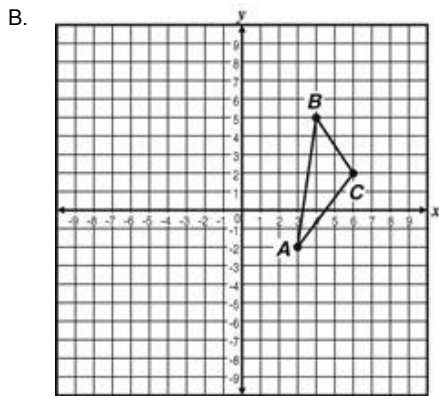
A. (4, 5)
B. (4, 4)
C. (5, 4)
D. (5, 5)

142. **Triangle *ABC* is shown below.**

Which graph shows the new position of Triangle *ABC* after a reflection over the *y*-axis?
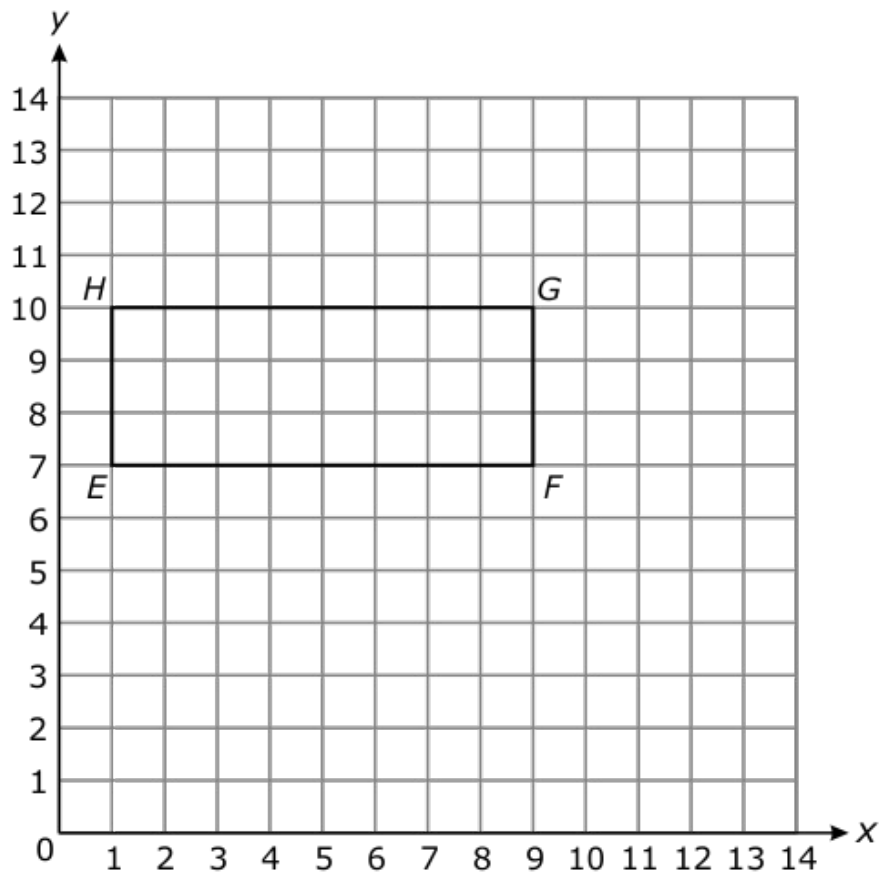
A.

B.

C.

D.

143. The vertices of a triangle are located at *E*(0, 5), *F*(0, 0), and *G*(3, 0). The triangle will be reflected over the *y*-axis. What will be the coordinates of triangle *E'F'G'*?

A. *E'*(¯5, 0), *F'*(0, 0), *G'*(¯3, 0)

B. *E'*(0, ¯5), *F'*(0, 0), *G'*(3, 0)

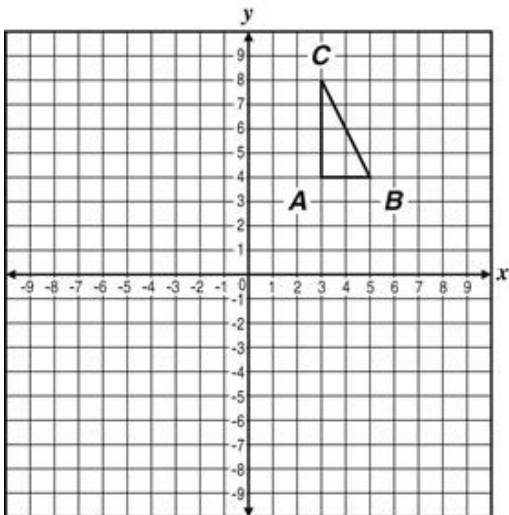C. *E'*(0, 5), *F'*(0, 0), *G'*(¯3, 0)

D. *E'*(0, 5), *F'*(0, 0), *G'*(0, ¯3)

144. Rectangle *EFGH* will be translated 3 units to the right and 5 units down.

What will be the coordinates of *G'*?

A. (6, 5)

B. (12, 5)

C. (14, 7)

145. Triangle *ABC* is plotted on the grid below.

After a single rotation of Triangle *ABC*, the image Point C' is located at (7, 4). Which best describes the rotation that was made?

A.   90° clockwise rotation about Point *A*

B.   90° counter-clockwise rotation about Point *A*

C.   90° clockwise rotation about Point *B*

D.   90° counter-clockwise rotation about Point *B*

146. Parallelogram $ABCD$, shown on the coordinate grid below, is dilated by a scale factor 4, centered at the origin. What are the vertex coordinates of the dilated figure?
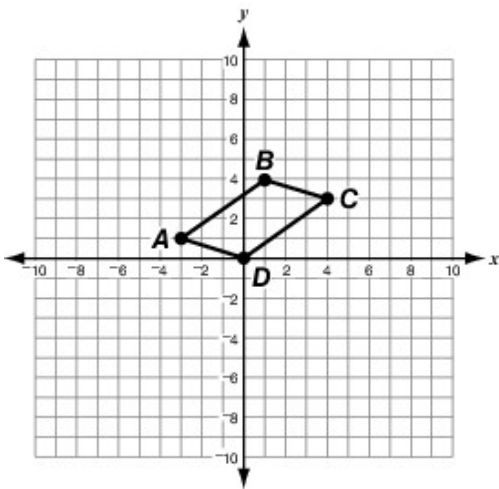

A. $A'(-12, 4), B'(4, 16), C'(16, 12), D'(0, 0)$

B. $A'(4, -12), B'(16, 4), C'(12, 16), D'(0, 0)$

C. $A'(12, -4), B'(-4, -16), C'(-16, -12), D'(0, 0)$

D. $A'(-4, 12), B'(-16, -4), C'(-12, -16), D'(0, 0)$

147. **Rectangle *ABCD* is dilated by a scale factor of 2, forming rectangle *A'B'C'D'*. The dilation is centered about the origin.**
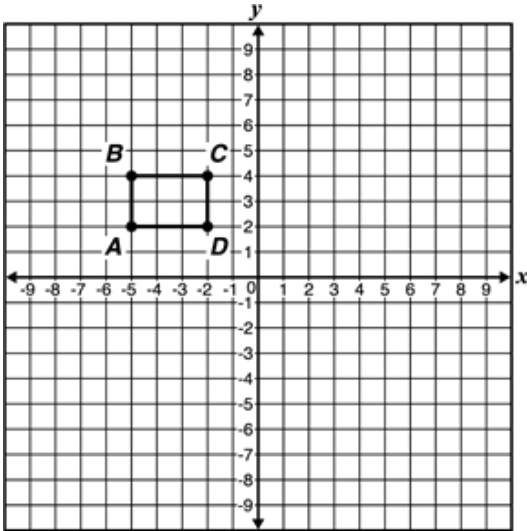

How do the perimeters of the two rectangles compare?

A. The perimeter of *A'B'C'D'* is twice the perimeter of *ABCD*.

B. The perimeter of *A'B'C'D'* is one-half the perimeter of *ABCD*.

C. The perimeter of *A'B'C'D'* is four times the perimeter of *ABCD*.

D. The perimeter of *A'B'C'D'* is 8 more than the perimeter of *ABCD*.

148. **If Triangle *ABC* is translated 4 units to the left and 2 units down into Triangle *DEF*, what will be the coordinates of Point *D*?**
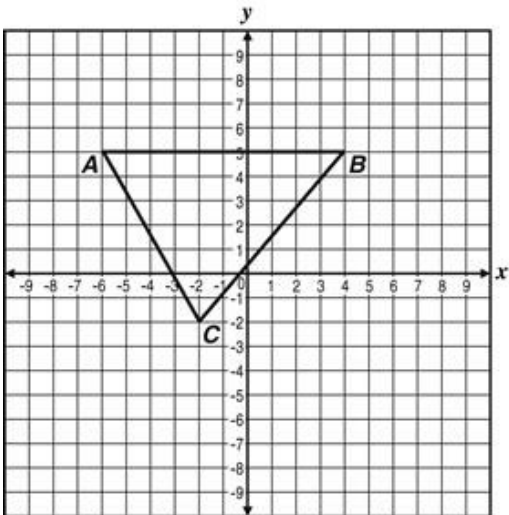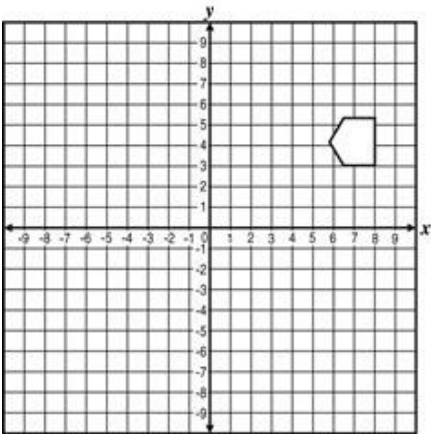

A. (−10, 3)

B. (−8, 1)

C. (−6, −4)

D. (0, 3)

149. **The pentagon in the graph will be reflected about the *y*-axis and then translated 9 units down.**
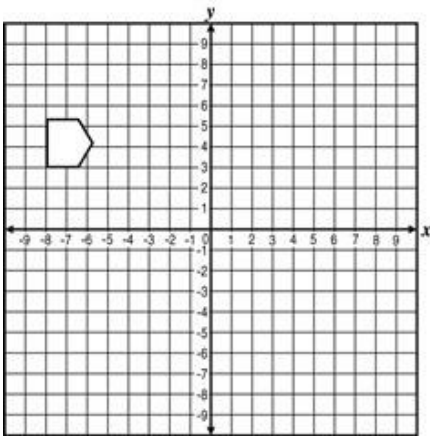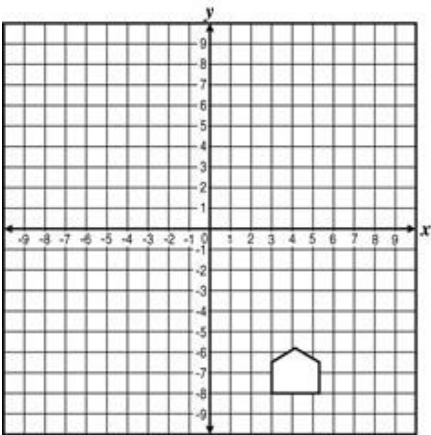
Which of the following represents the pentagon's position after the sequence of transformations?
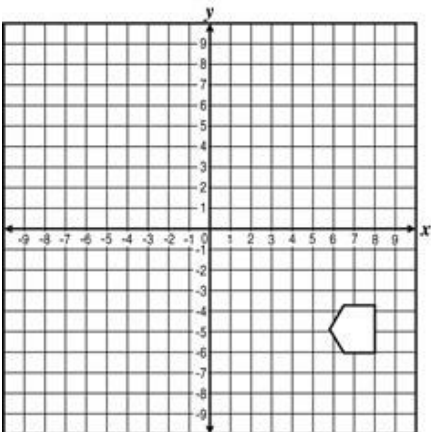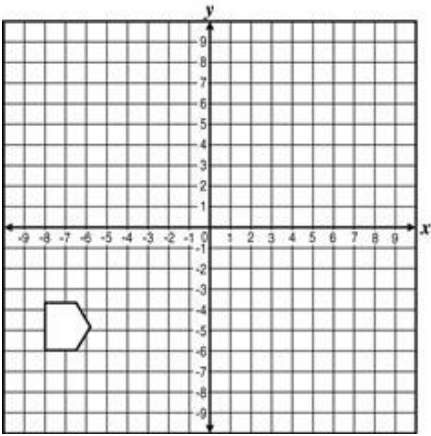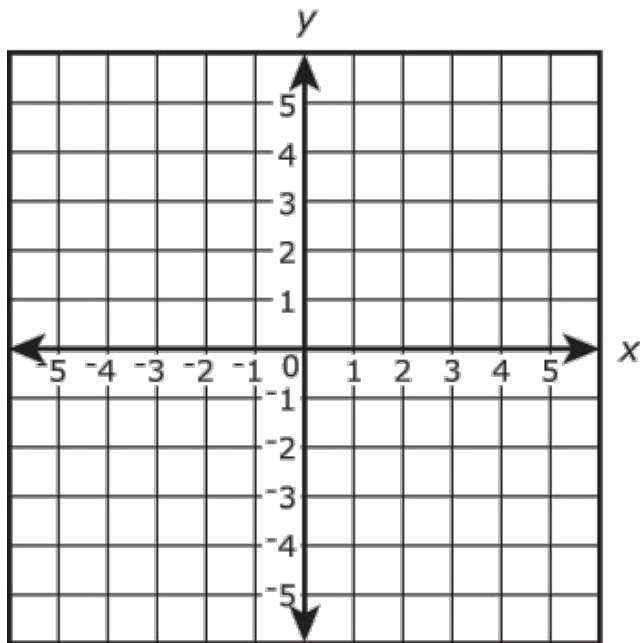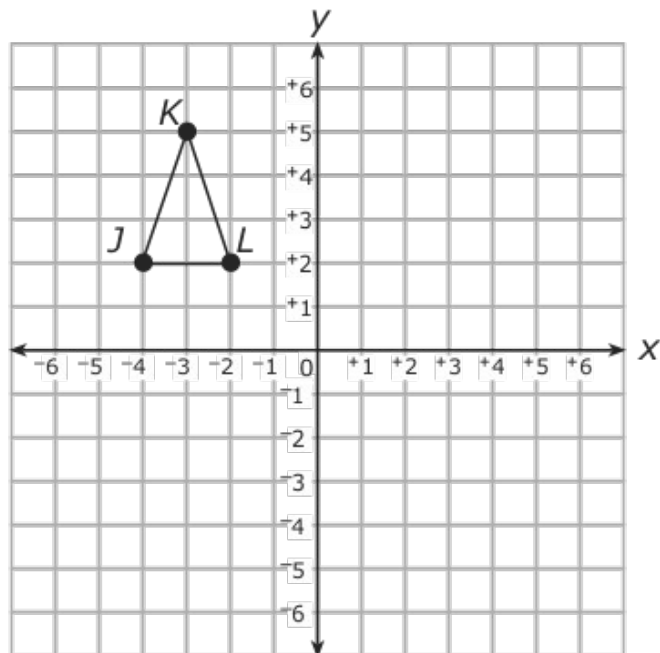
A.

B.

C.

D.

150. Triangle *EFG* is translated 3 units to the right and then reflected over the *x*-axis to become triangle *HIJ*.
The position of *G* is at $(-1, 3)$. What are the coordinates of *J*?

A. $(4, 3)$

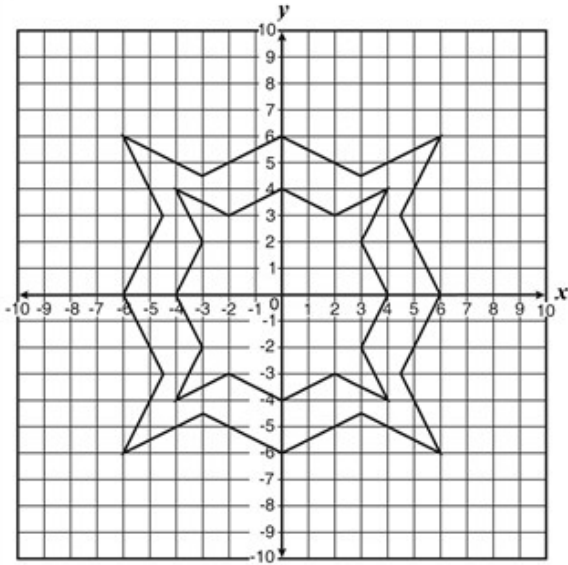B. $(2, 3)$

C. $(2, -3)$

D. $(-4, -3)$

151. Triangle *JKL* is graphed below.

The triangle will be translated 8 units to the right and 6 units down. What will be the coordinates of the image point *J'*?

A. (2, ‾6)

B. (4, ‾4)

C. (6, ‾4)

D. (6, ‾8)

152. **A graphic artist is designing a logo for a telecommunications company. He created the smaller star first, then dilated it to produce the larger star.**

Which algebraic representation best describes this dilation?

A. $(x,y) \rightarrow \left(\frac{3}{2}x, \frac{3}{2}y\right)$

B. $(x,y) \rightarrow \left(\frac{5}{2}x, \frac{5}{2}y\right)$

C. $(x,y) \rightarrow (x, y+2)$

D. $(x,y) \rightarrow (x+2, y)$

153. Parallelogram *FGHI* has vertices at $F(^-4, 7)$, $G(^-6, 4)$, $H(^-10, 4)$, and $I(^-8, 7)$. The parallelogram will be rotated 270° counterclockwise about the origin. What will be the coordinates of *G'*?
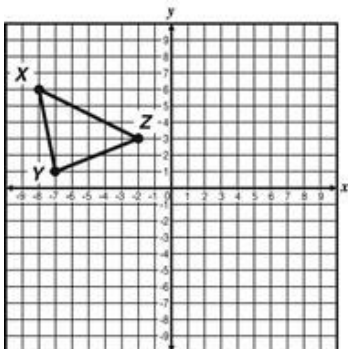
A. $(^-4, ^-6)$

B. $(4, 6)$

C. $(6, 4)$

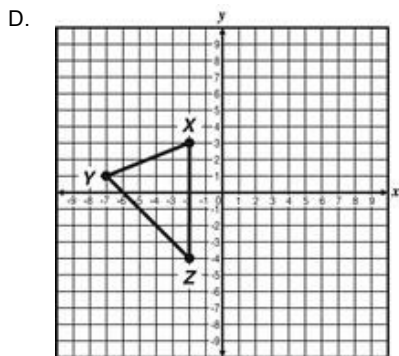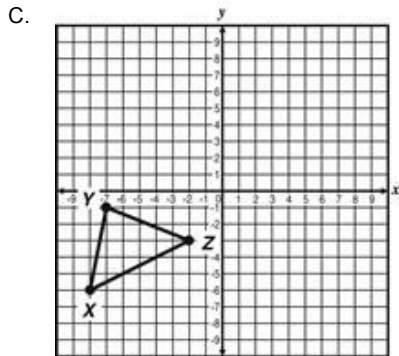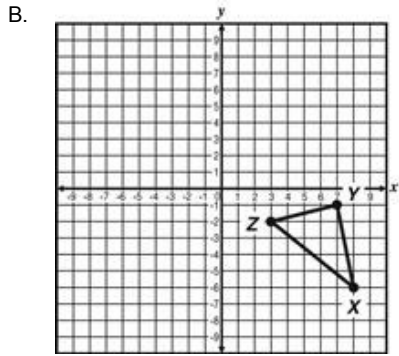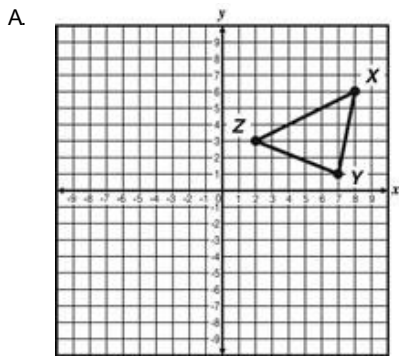154. Katie drew a triangle on the coordinate grid below.
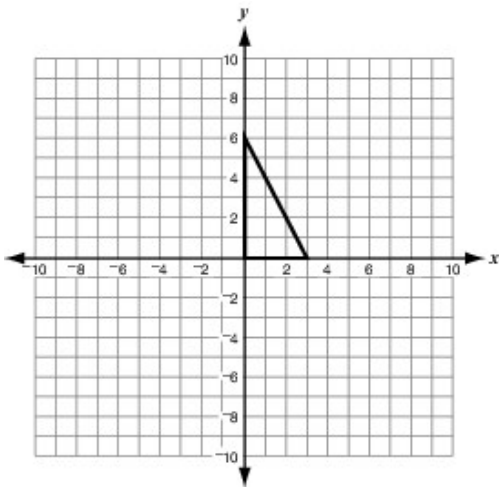
If the triangle is rotated 90º counterclockwise about the origin, what will be the new coordinates of the triangle's vertices?

A. $(0, 6), (-3, 0), (0, 0)$

B. $(-6, 0), (0, 3), (0, 0)$

C. $(6, 0), (0, -3), (0, 0)$

D. $(0, -6), (3, 0), (0, 0)$

155. **The following graph shows Triangle _XYZ_.**

Which of the following graphs shows the reflection of △_XYZ_ over the _y_-axis?

A.

B.

C.

D.

156. Point *Z* is located at (3, 4). The point will be translated 2 units left and 4 units up. What will be the coordinates of the image point *Z'*?

A. (1, 8)

B. (1, 0)

C. (5, 0)

D. (5, 8)

157. A point was translated 5 units to the right and 3 units down. The point was located at (1, 5) after the translation. What were the coordinates of the point before the translation?

A. (⁻4, 2)

B. (⁻4, 8)

C. (6, ⁻1)

D. (6, 8)

158. Triangle *EFG* has vertices *E*(⁻3, 4), *F*(⁻3, ⁻2), and *G*(5, ⁻2). After a dilation is applied, the image triangle *E'F'G'* has vertices *E'*(⁻9, 12), *F'*(⁻9, ⁻6), and *G'*(15, ⁻6). What is the scale factor for the dilation?

A. 2
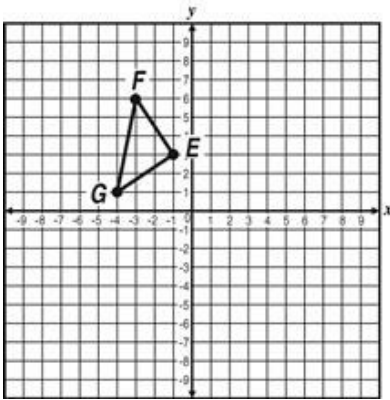
B. 3

C. 4

D. 5

159. **In the diagram below, Triangle *P'Q'R'* is the result of a transformation of Triangle *PQR*.**
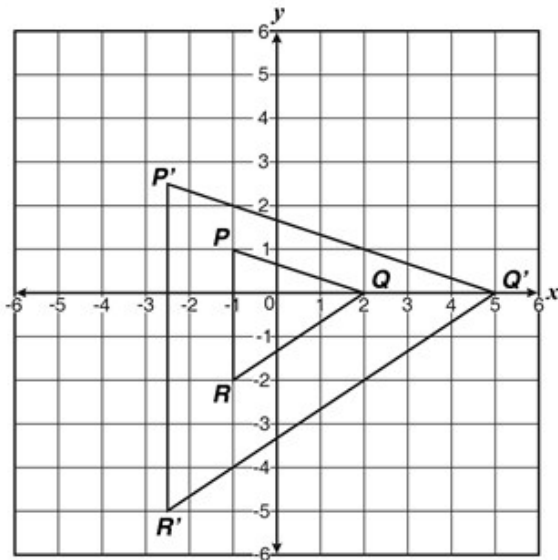
Which algebraic representation best describes this transformation?

A. $(x, y) \rightarrow \left(\frac{5}{2}x, y\right)$

B. $(x, y) \rightarrow \left(-\frac{5}{2}x, y\right)$

C. $(x, y) \rightarrow \left(\frac{5}{2}x, \frac{5}{2}y\right)$

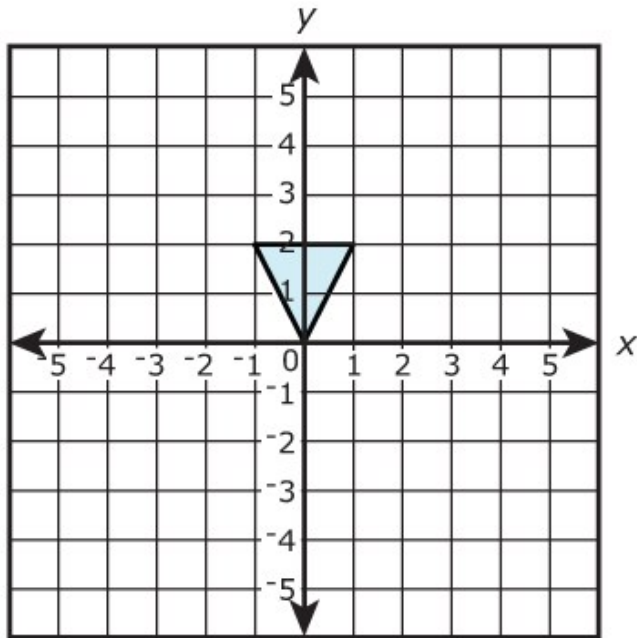D. $(x, y) \rightarrow \left(-\frac{5}{2}x, -\frac{5}{2}y\right)$

160. **The vertices of Triangle *EFG*, which is shown below, are** $E(-1, 3)$, $F(-3, 6)$, and $G(-4, 1)$.

If Triangle *EFG* is reflected over the *x*-axis, what are the new coordinates of Point *G*?

A. $(4, 1)$

B. $(4, -1)$
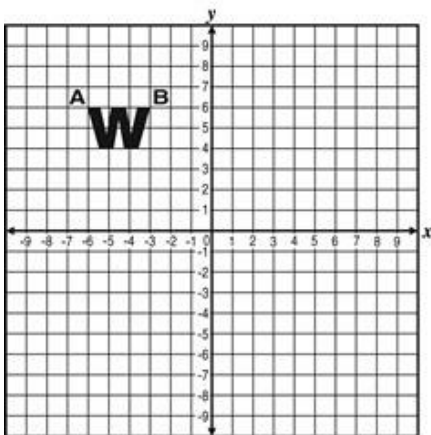
C. $(-4, 1)$

D. $(-4, -1)$

161. The triangle shown in the diagram is dilated at a scale factor of 2, with the center of dilation at the origin.
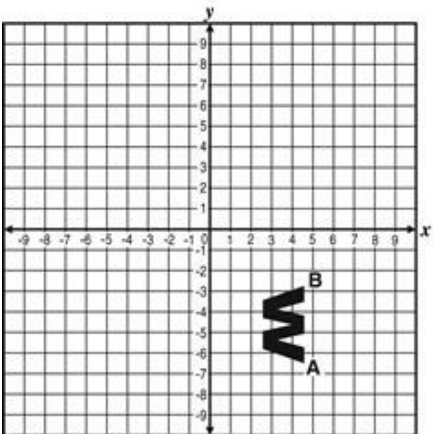

What are the coordinates of its image?

A. $(0, 0), (-2, 4), (2, 4)$

B. $(0, 0), (-1, 4), (1, 4)$

C. $(0, 2), (-1, 2), (1, 2)$

D. $(0, 2), (-2\ 4), (2, 4)$

162. **The figure in the graph below will be rotated 180° clockwise about the origin and then translated 9 units left.**
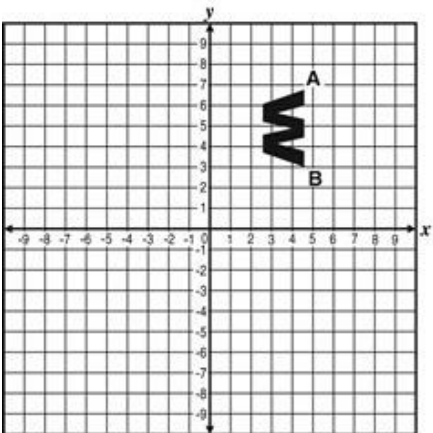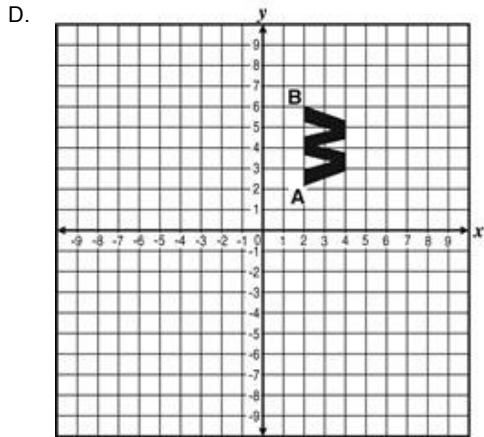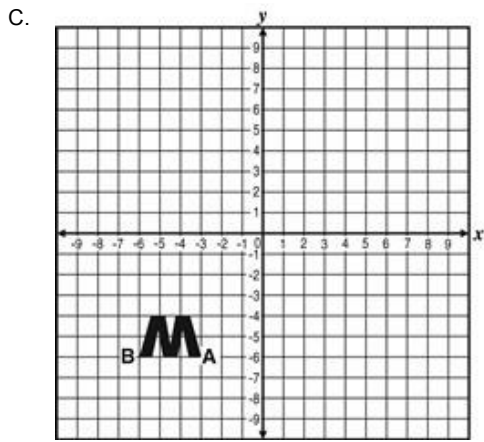

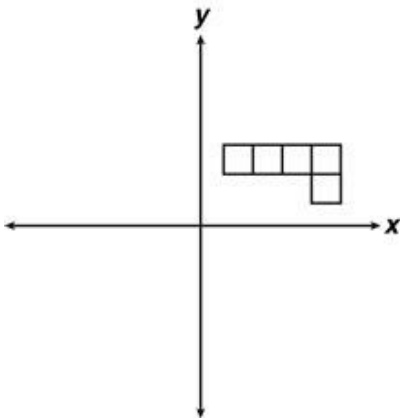**Which of the following shows the figure after this sequence of transformations?**
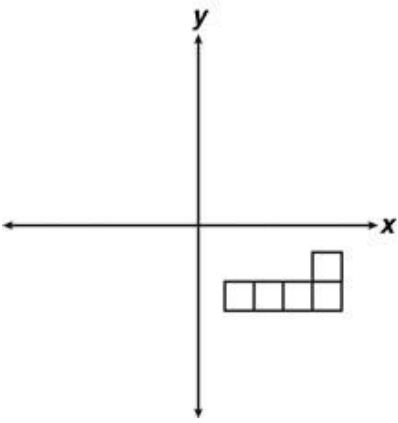
A.

B.

C.

D.

163. **The figure below will be reflected about the *x*-axis and then reflected about the *y*-axis.**
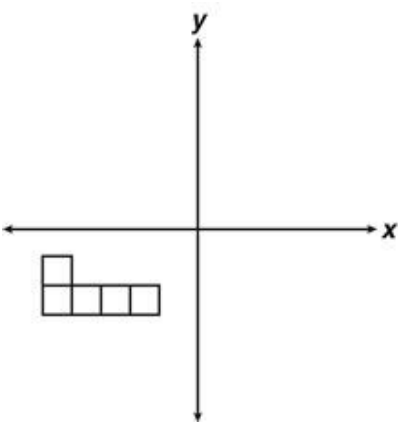

Which of the following figures demonstrates the position of the figure after the transformations?
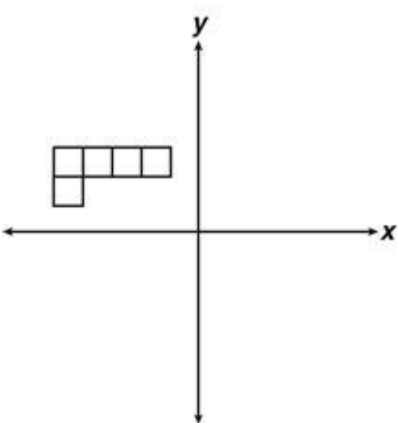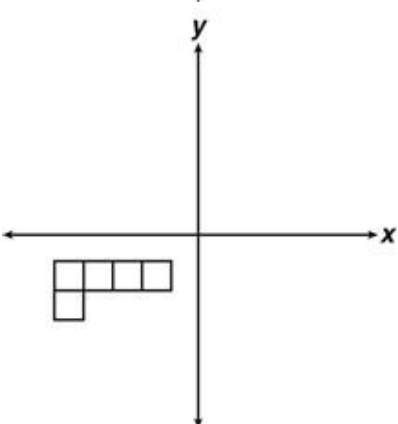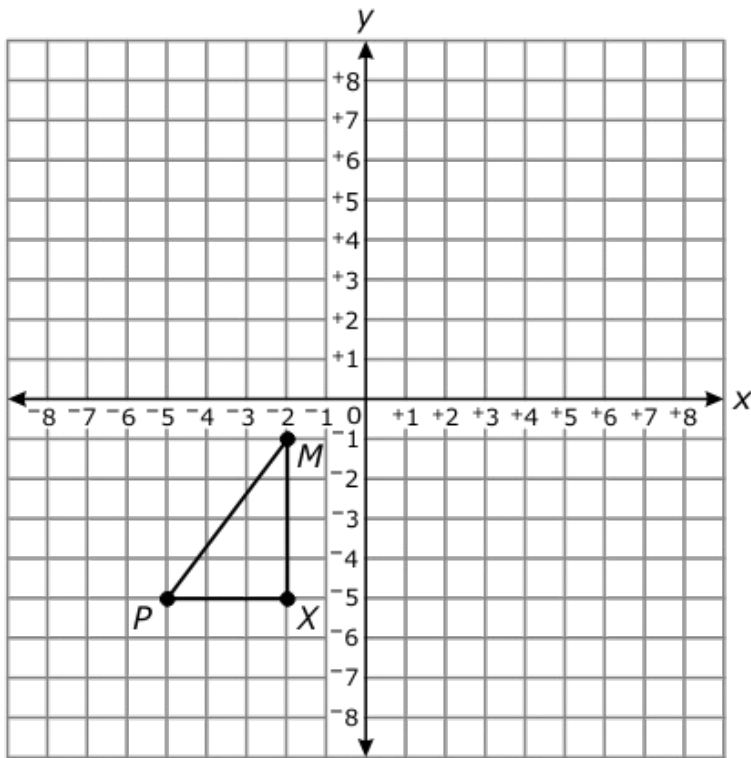
A.

B.

C.

D.

164. Triangle *MXP* will be rotated 90° clockwise about the origin.

What will be the coordinates of triangle *M'X'P'*?

A   *M'*(1, ⁻2), *X'*(5, ⁻2), *P'*(5, ⁻5)

B.   *M'*(2, ⁻1), *X'*(2, ⁻5), *P'*(5, ⁻5)

C.   *M'*(⁻1, 2), *X'*(⁻5, 2), *P'*(⁻5, 5)

165. The vertices of a triangle are located at (⁻7, 8), (⁻6, 7), and (⁻5, 6).
What will be the coordinates of the vertices after a reflection across the
x-axis?

A   (⁻7, ⁻8), (⁻6, ⁻7), (⁻5, ⁻6)

B.   (7, ⁻8), (6, ⁻7), (5, ⁻6)

C.   (7, 8), (6, 7), (5, 6)
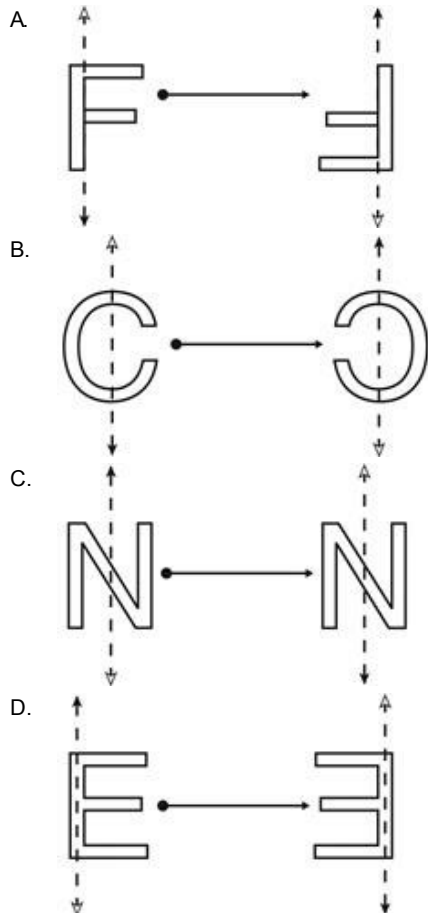
D.   (8, ⁻7), (7, ⁻6), (6, ⁻5)

166. Triangle *PQR* is translated to produce Triangle *P'Q'R'*, as shown. Using the same translation, Square *STUV* will be translated to produce Square *S'T'U'V'*.
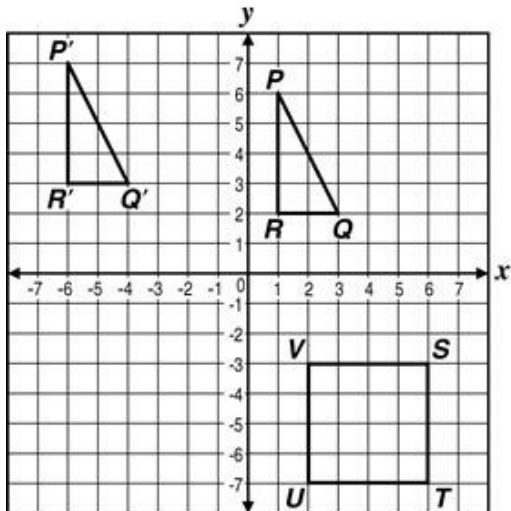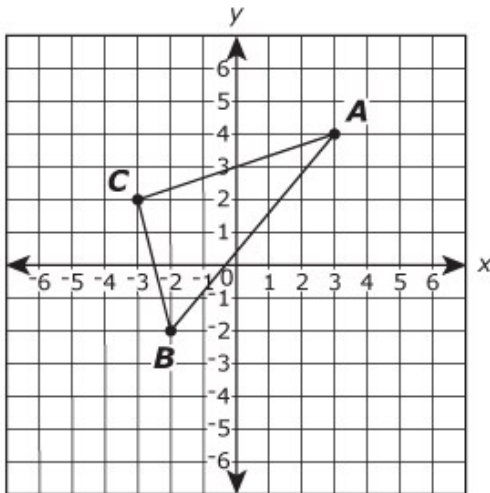

What will be the coordinates of Point *T'*?

A. $(-6, -7)$

B. $(-5, -6)$

C. $(-5, -2)$

D. $(-1, -6)$

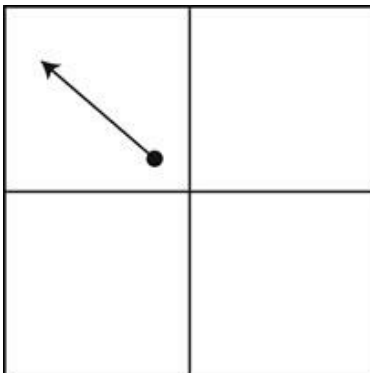167. **Which pair of figures shows an example of rotational symmetry?**

A.

B.

C.

D.

168. Use this graph to answer the question.

If $\triangle ABC$ is reflected over the *y*-axis, which ordered pair would represent the coordinates for *A'* ?

A. (4, −3)

B. (3, −4)

C. (−4, 3)

D. (−3, 4)

169. **The minute hand from an old clock fell on a tile floor. The original position is shown on the tiles below.**

If it was moved 90° counterclockwise about the center of the 4 tiles and then flipped horizontally (reflection), which figure demonstrates the minute hand's final position?

A.

B.

C.

D.
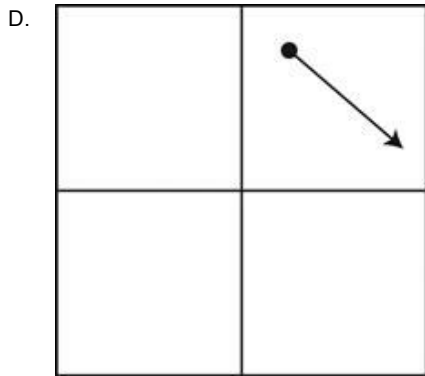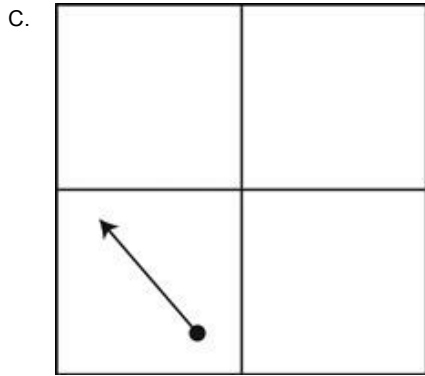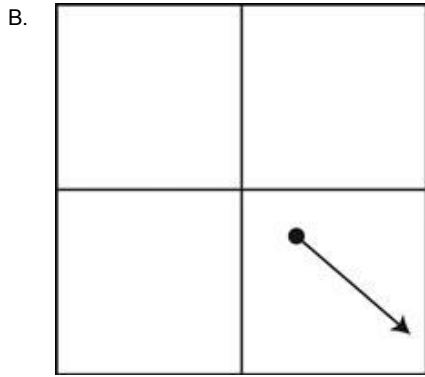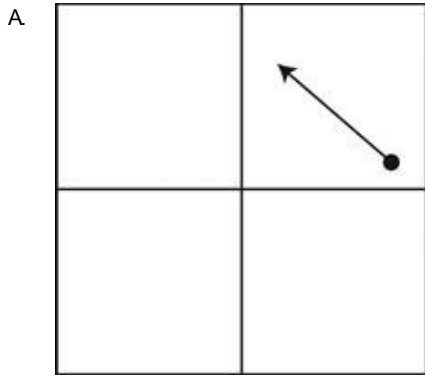
170. Triangle *KLM* was transformed to triangle *K′L′M′*.
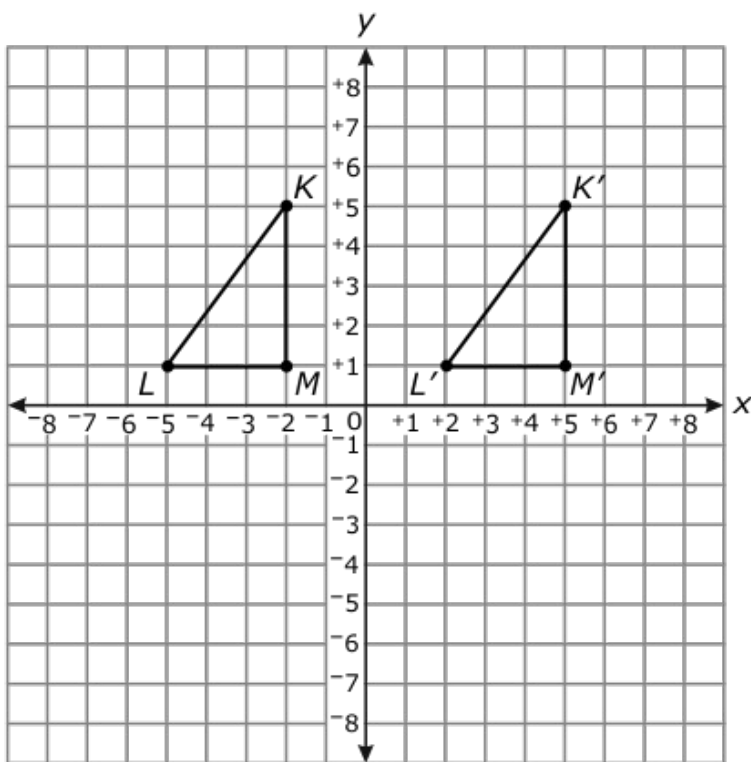
What type of transformation occurred?

A.   translation

B.   rotation

C.   reflection

171. **The point** $(-2, 5)$ **is translated down 4 units. What are the new coordinates?**

A. $(-6, 5)$

B. $(-2, 1)$

C. $(-2, 9)$

D. $(2, 5)$

172. **A shape is shown next to a ruler below?**

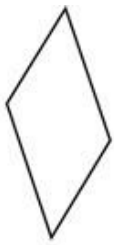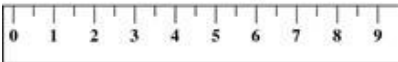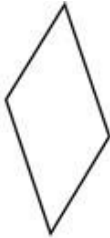**Which figure shows the shape after a translation of 5 units?**

A.

B.

C.
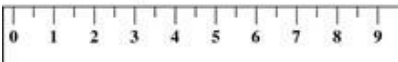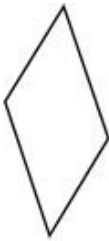
D.
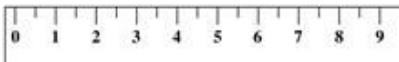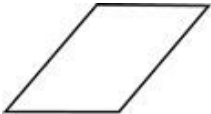
173. **Mari drew a pentagon and Line *PQ* on a coordinate grid, as shown below. In her drawing, Line *PQ* is located at** $x = 5$.
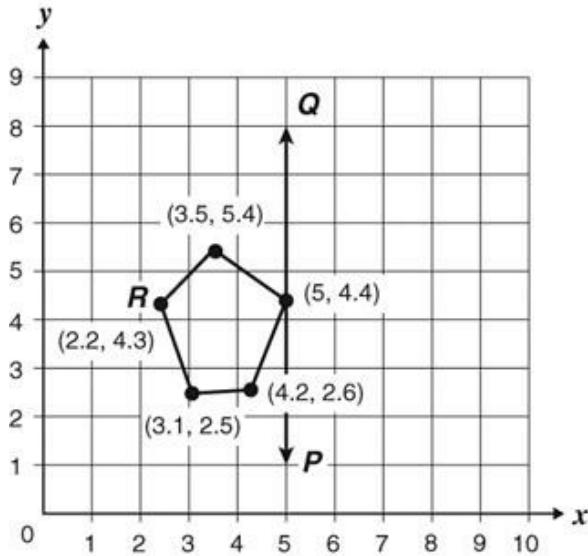
If Mari reflects the pentagon over Line *PQ*, what will be the coordinates of the reflected image of Point *R*?

A. $(7.2, 4.3)$

B. $(7.2, 4.4)$

C. $(7.8, 4.3)$

D. $(7.8, 4.4)$

174. **The diagram shows Quadrilateral *PQRS* on a coordinate plane.**
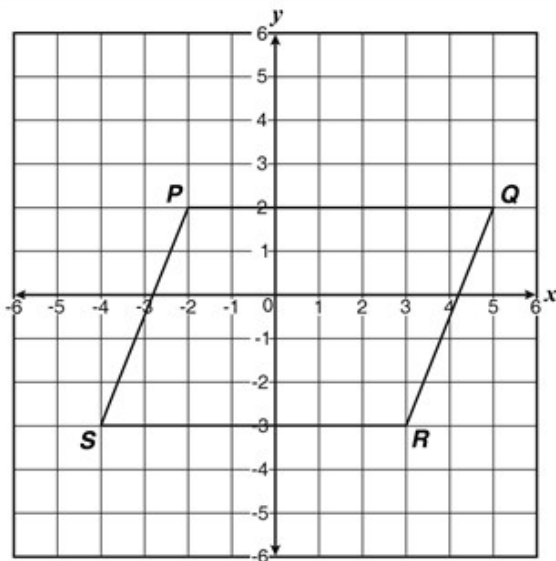
If Quadrilateral *P'Q'R'S'* is the result of the transformation described by $(x, y) \rightarrow (0.5x, 0.5y)$, **what are the coordinates of Point *S'*?**

A. $(-2, -3)$

B. $(-2, -1.5)$

C. $(-3.5, -2.5)$

D. $(-4.5, -3.5)$

175. **A regular pentagon has rotational symmetry. What is the minimum number of degrees a regular pentagon must be rotated about its center in order to prove this?**

    A. 90°

    B. 72°

    C. 60°

    D. 45°

176. Parallelogram *JKLM* has coordinates $J(^-2, ^-1)$, $K(0, 2)$, $L(4, 2)$ and $M(2, ^-1)$. The image was dilated by a scale factor of 0.25. What are the coordinates of the image?

    A. $J'(^-1, ^-0.5)$, $K'(0, 1)$, $L'(2, 1)$, $M'(1, ^-0.5)$

    B. $J'(^-0.5, ^-0.25)$, $K'(0, 0.5)$, $L'(1, 0.5)$, $M'(0.5, ^-0.25)$
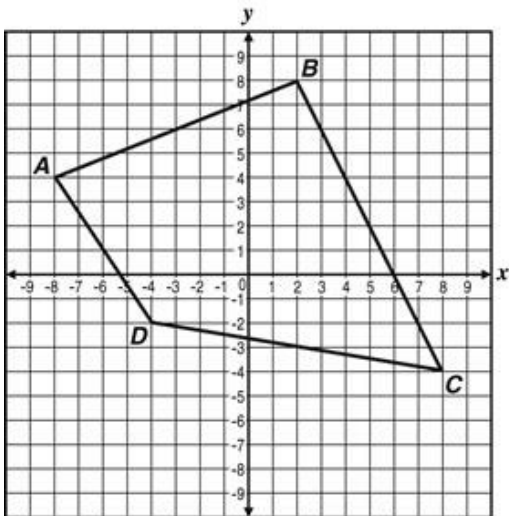
    C. $J'(^-0.5, 0.25)$, $K'(0, 0.5)$, $L'(1, 0.5)$, $M'(0.5, 0.25)$

    D. $J'(1, 0.5)$, $K'(0, 1)$, $L'(0.5, 1)$, $M'(2, 1)$

177. **Quadrilateral *ABCD* is shown on this grid.**

If Quadrilateral *ABCD* is dilated about the origin using a scale factor of $\frac{1}{2}$ to make Quadrilateral $A'B'C'D'$, what will be the coordinates of A', B', C', and D'?

    A. $A'(-4, 2)$, $B'(1, 4)$, $C'(4, -2)$, $D'(-2, -1)$

    B. $A'(-8, 4)$, $B'(2, 8)$, $C'(8, -4)$, $D'(-4, -2)$

    C. $A'(-10, 2)$, $B'(0, 6)$, $C'(6, -6)$, $D'(-6, -4)$

    D. $A'(-16, 8)$, $B'(4, 16)$, $C'(16, -8)$, $D'(-8, -4)$

178. The parallelogram shown below is translated 8 units to the left and then reflected across the *x*-axis.
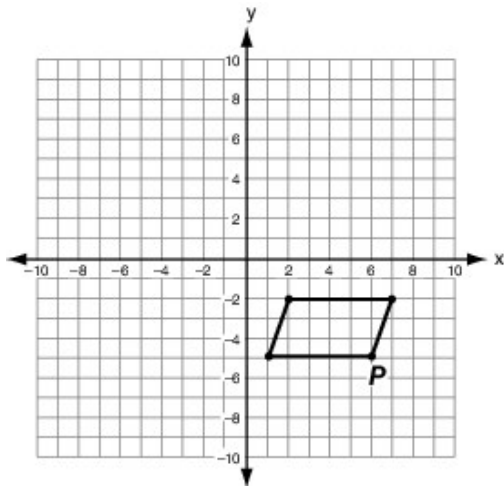
What are the coordinates of point p in the transformed parallelogram?

A. $(-6, 5)$

B. $(-2, -5)$
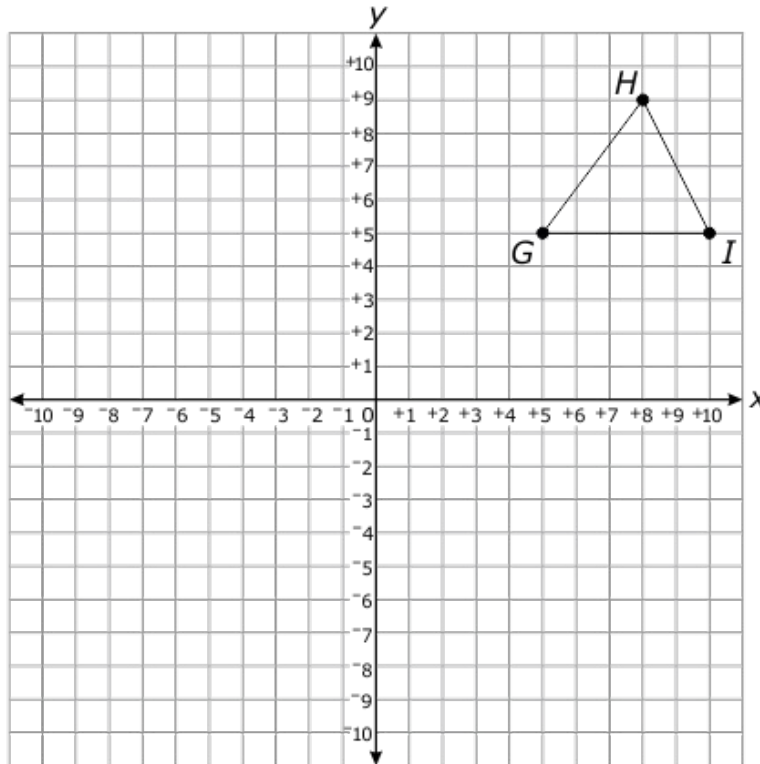
C. $(-2, 5)$

D. $(6, 5)$

179. Triangle *GHI* is graphed below.

The coordinates of *GHI* after a transformation are *G'*(⁻5, ⁻5), *H'*(⁻8, ⁻9), and *I'*(⁻10, ⁻5). Which transformation occurred?

A. a rotation 180° counterclockwise about the origin

B. a rotation 90° clockwise about the origin

C. a reflection about the *x*-axis

D. a reflection about the *y*-axis

180. The vertices of triangle *GHI* are *G*(1, 2), *H*(3, 4), and *I*(4, 2). The triangle will be reflected across the *x*-axis. What will be the coordinates of the image point *H'*?

A. (⁻3, 4)

B. (3, 4)

C. (3, ⁻4)

D. (4, ⁻3)

181. The coordinates for rectangle *WXYZ* are shown in the table.

Point	Coordinates
W	(−3, 4)
X	(−4, 2)
Y	(0, 0)
Z	(1, 2)

Which table shows the coordinates for congruent rectangle *W′X′Y′Z′* after rectangle *WXYZ* has been translated 4 units down and 3 units right?

A.

Point	Coordinates
W′	(−4, 2)
X′	(−5, 0)
Y′	(−1, −2)
Z′	(0, 0)

B.

Point	Coordinates
W′	(0, 0)
X′	(−1, −2)
Y′	(3, −4)
Z′	(4, −2)

C.

Point	Coordinates
W′	(1, 1)
X′	(0, −1)
Y′	(4, −3)
Z′	(5, −1)

D.

Point	Coordinates
W′	(1, 2)
X′	(0, 0)
Y′	(4, −2)
Z′	(5, 0)

182. Triangle *PQR* will be translated 2 units down and 3 units to the left.
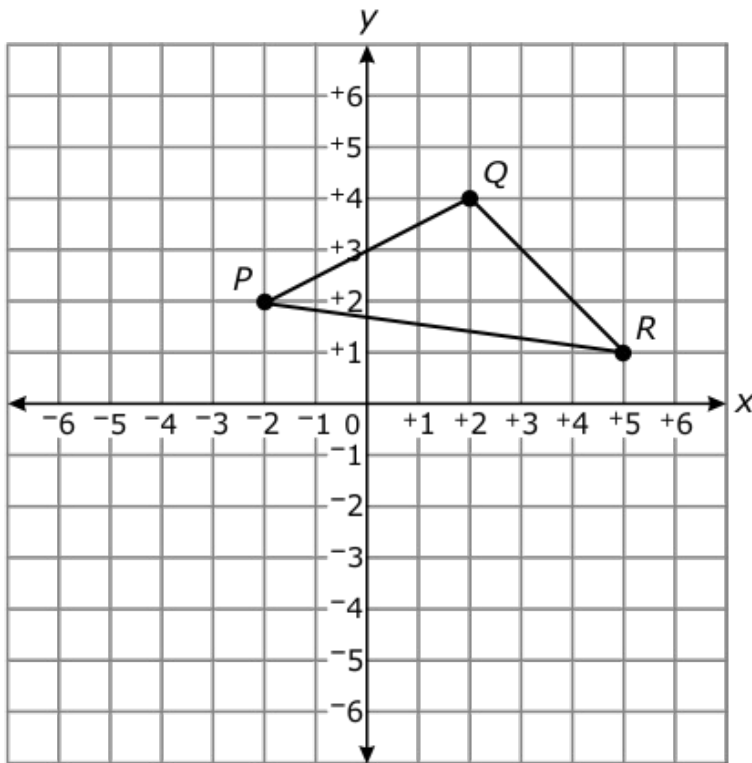

What will be the coordinates of *R′*?

A. (2, ⁻1)

B. (3, ⁻2)

C. (7, ⁻1)

183. **Triangle *XYZ* is located in the first quadrant of the coordinate plane. If this triangle is reflected over the *y*-axis, what is true about the vertices of the reflection?**

    A.   The *x*-values are negative and the *y*-values are positive.

    B.   The *x*-values are positive and the *y*-values are negative.

    C.   The *x*- and *y*-values are positive.

    D.   The *x*- and *y*-values are negative.

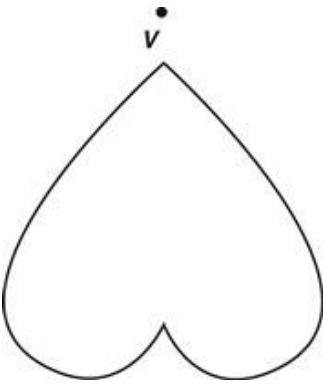184. **If $\triangle ABC$ below is translated 4 units to the left, what are the new coordinates of Point *C*?**
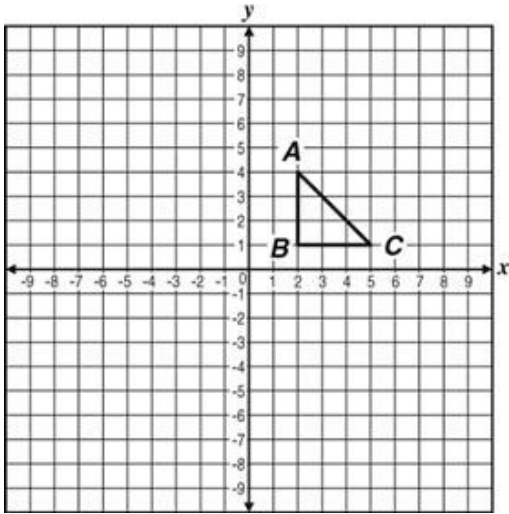
    A.   (–4, 1)

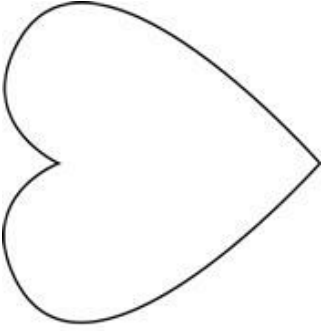   B.   (–2, 1)

    C.   (–2, 4)

    D.   (1, 1)

185. **Which shows the result of the picture below being rotated 180° clockwise about Point *V*?**
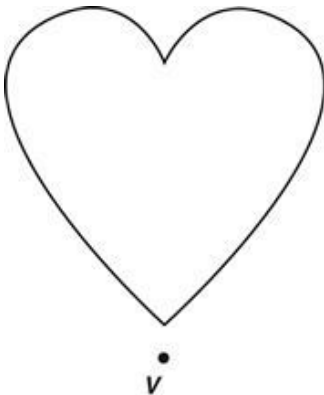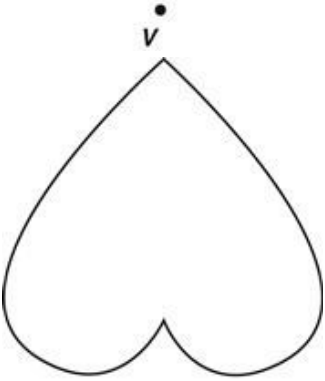
A.

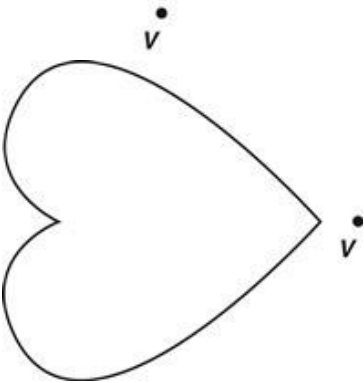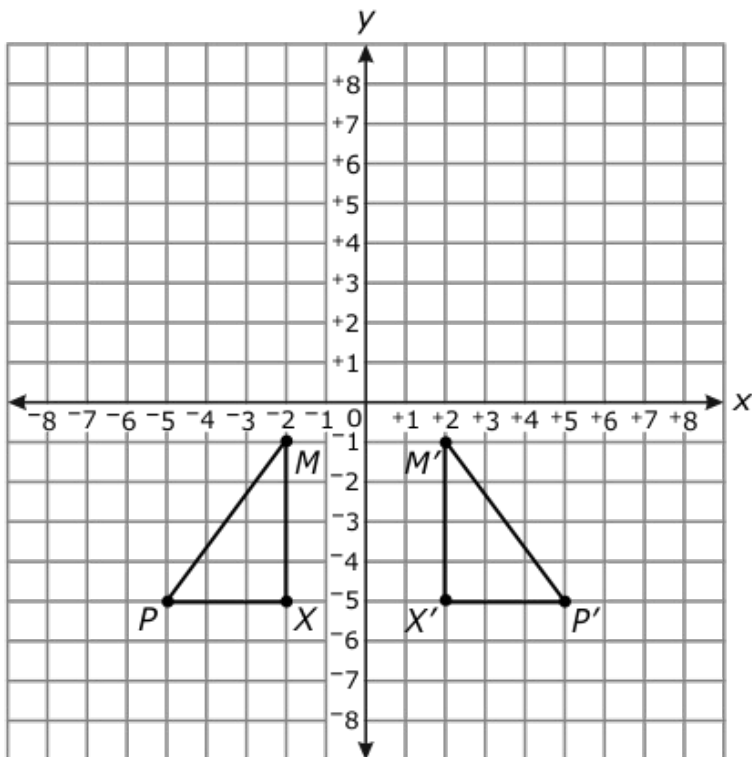

B.

C.

D.

186. Triangle *MXP* was transformed to points *M'*(2, ⁻1), *X'*(2, ⁻5), and *P'*(4, ⁻5).

What type of transformation occurred?

A. rotation

B. translation

C. reflection