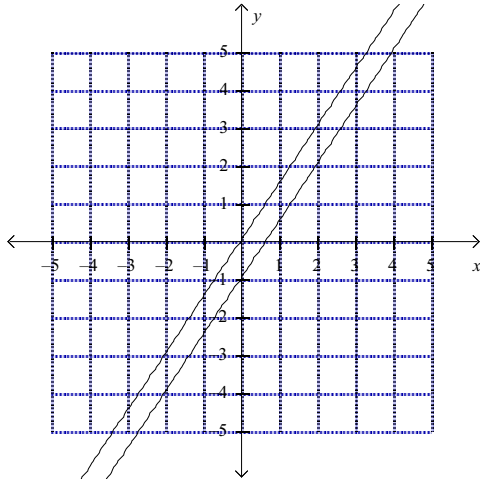Unit 1 Assessment

1. Two parallel lines are shown below. Describe the result of the lines after the translation $(x,y) \rightarrow (x+2, y-1)$.

a.   They intersect at $(2, -1)$.
b.   They intersect at $(-2, 1)$.
c.   They do not intersect.
d.   They intersect at their new y-intercepts.

2. What can be concluded from observing a 45-degree angle reflected across the y-axis three times?
a.   The measure of the angle doubles with each reflection.
b.   The measure of the angle increases 45 degrees with each reflection.
c.   The measure of the angle decreases by one-third with each reflection.
d.   The measure of the angle remains the same with each reflection.

3. An octagon has a perimeter of p units. What is the perimeter of the image of the octagon after the translation $(x, y) \rightarrow (x - h, y + k)$, a rotation 90 degrees clockwise, and a reflection across the y-axis?
a.   z units
b.   w units
c.   v units
d.   p units

4. Which of the following is a pair of corresponding angles?

$$\Delta\, fhj \sim \Delta\, abc$$

A. $\angle f$ and $\angle j$

B. $\angle h$ and $\angle a$

C. $\angle b$ and $\angle j$

D. $\angle a$ and $\angle f$

5. Jo uses geometry software to rotate two parallel segments 90° clockwise about the origin. The resultant segments are shown at the right. Which statement is true?
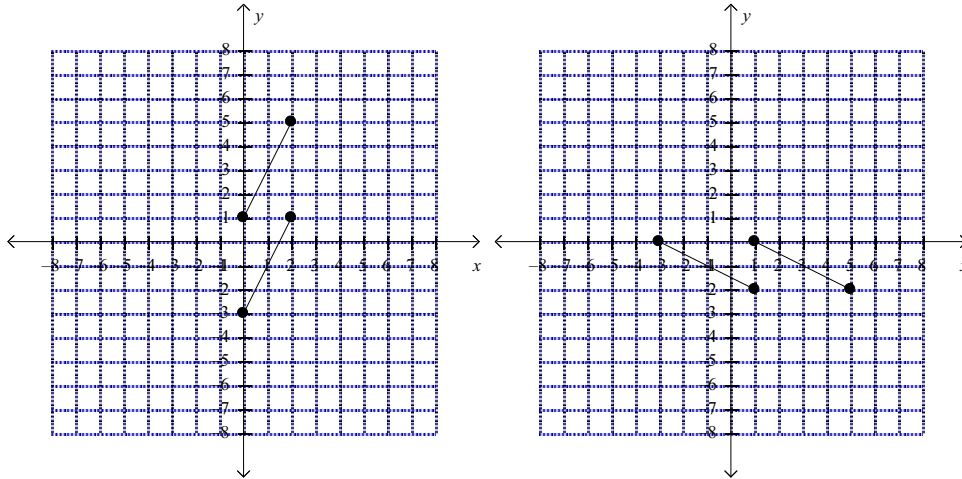
a.   The resultant segments are parallel.

b.   Each resultant segment is parallel to its original segment.

c.   The resultant segments are not parallel.

d.   It cannot be determined whether the resultant segments are parallel.

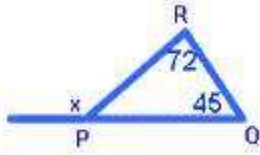6. Bracken graphs two points and connects them with a line segment.
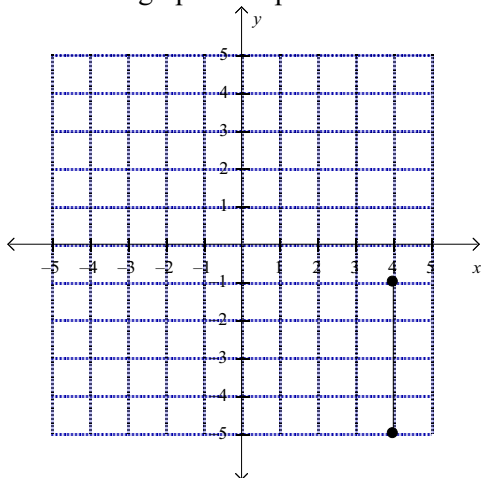
He reflects the line segment across the x-axis then the y-axis, and then the x-axis and y-axis again. What are the endpoints of the image?
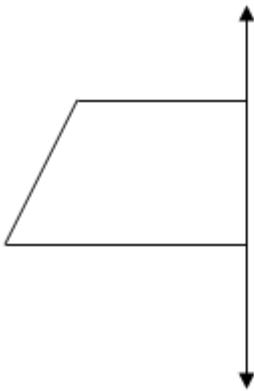
a. $(4,-1)$ and $(4,-5)$

b.   (−1, 4) and (−5, 4)
c.   (4, 1) and (4, 5)
d.   (−4, 5) and (−4, 1)

7. What is the measure of angle x in the figure below?
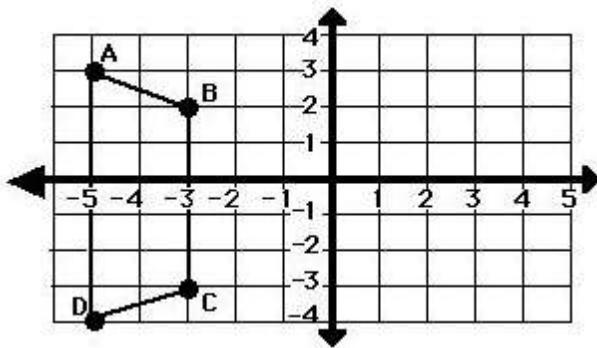

    A. 117
    B. 120
    C. 180
    D. 63

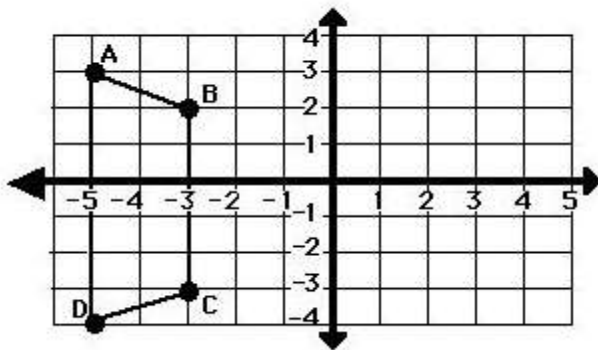8. The figure below is reflected over the line. Which shape is formed by the figure and its reflection?

    A. triangle
    B. trapezoid
    C. rectangle
    D. octagon

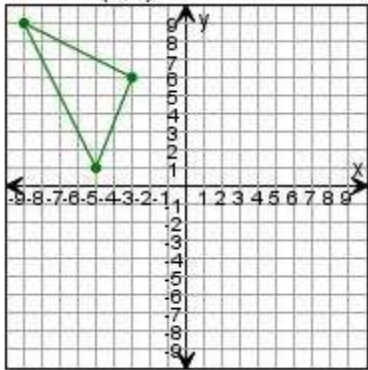9. What are the coordinates of point A after a reflection across the y-axis?

   A. (-5,3)
   B. (-5,4)
   C. (5,3)
   D. (5,-3)

10. If figure ABCD is translated right 4 and down 3, what are the new coordinates of point B?
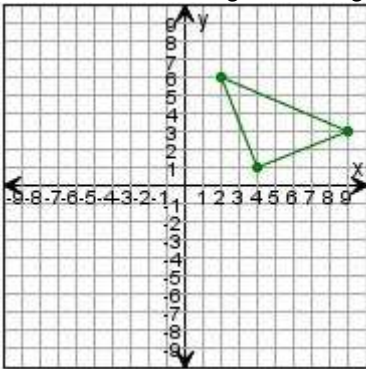

   A. (-2, 0)
   B. (0, -2)
   C. (-1, 1)
   D. (1, -1)

11. The triangle below is rotated 90 degrees clockwise around the origin. What are the coordinates of the new triangle?
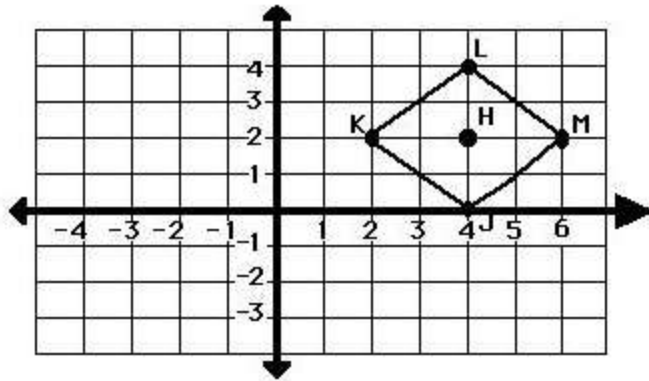

    A. (9, -9), (3, -6), and (5, -1)

    B. (-9, -9), (-3, -6), and (-5, -1)

    C. (9, 9), (6, 3), and (1, 5)

    D. (-9, 9), (-3, 6), and (-5, 1)

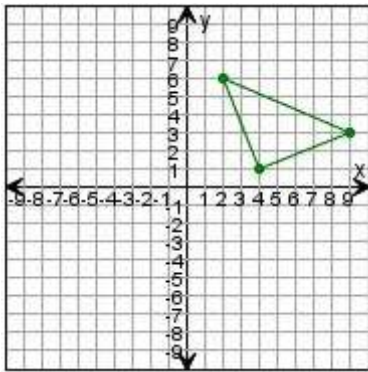12. Rotate the triangle 180 degrees. What are the coordinates of the new triangle?

    A. (2, 6), (4, 1), and (9, 3)

    B. (-2, 6), (-4, 1), and (-9, 3)

    C. (2, -6), (4, -1), and (9, -3)

    D. (-2, -6), (-4, -1), and (-9, -3)

13. What are the new coordinates of the rectangle after a dilation of 50%?

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

14. What are the coordinates of the triangle after a dilation with a scale factor of 2?

  A. (8, 2), (18, 6), and (4, 12)
  B. (2, 3), (4, 2), and (1, 3)
  C. (6, -4), (3, -9), and (6, -2)
 D. (4, 6), (9, 3), and (2, 6)

15. Which statement must be true?
  A. If 2 figures are similar, they must be congruent.
  B. If 2 figures are similar, they cannot be congruent.
  C. If 2 figures are congruent, they must be similar.
  D. If 2 figures are congruent, they cannot be similar.

16. Which statement best describes the figures below?
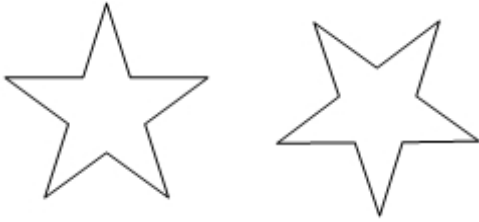
    A. The figures are neither congruent nor similar.

    B. The figures are similar but not congruent.

    C. The figures are congruent but not similar.

    D. The figures are both congruent and similar.

17.   Which statement is true about the following pair of polygons?

9 ft

6 ft

5 ft   4 ft
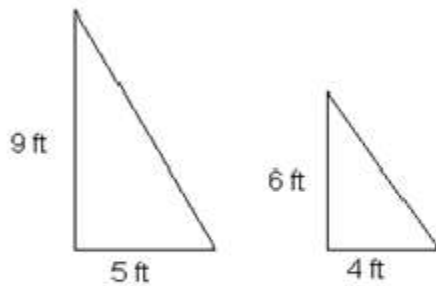
[A] They are similar because $\frac{6}{9} = \frac{4}{5}$.   [B] They are similar because $\frac{6}{5} = \frac{9}{4}$.

[C] They are not similar because $\frac{6}{9} \neq \frac{4}{5}$.   [D] They are not similar because $\frac{5}{6} \neq \frac{4}{9}$.

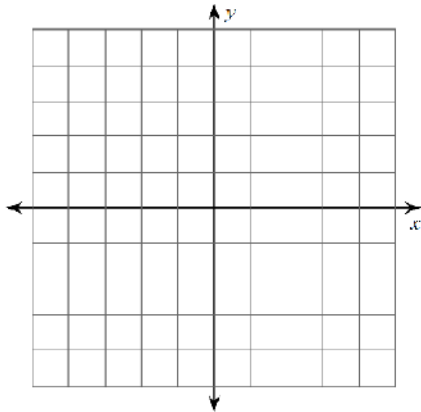18. $\triangle UVW$ is similar to $\triangle XYZ$. Find XY.

20   18

V   14   W   x   z

9
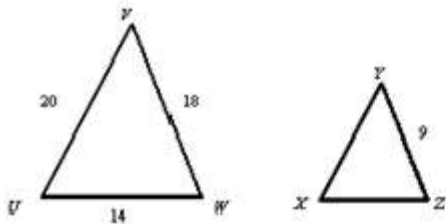
[A] 11   [B] 7   [C] 9   [D] 10

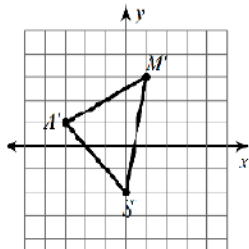19. The angles of a triangle measure (4x + 6)°, (7x + 8) °, and (12x + 5) °. What are the measures of the angles?

a. 34°, 57°, and 89°
b. 34°, 50°, and 96°
c. 38°, 57°, and 85°
d. 45°, and 58°, and 77°

20. Which of the following shows the given transformation?

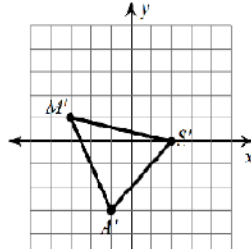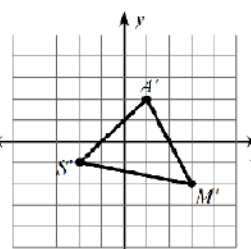translation: 1 unit down
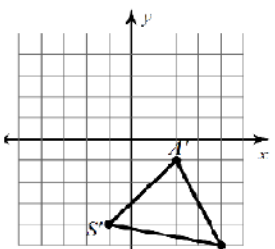$S(-2, 0)$, $A(1, 3)$, $M(3, -1)$

A)

B)
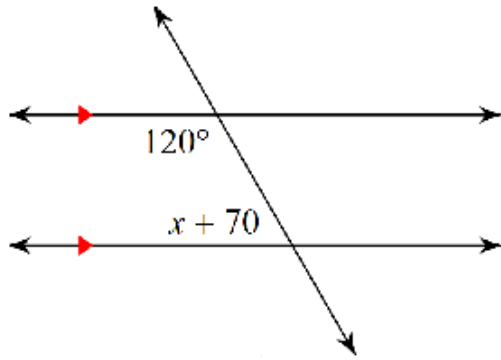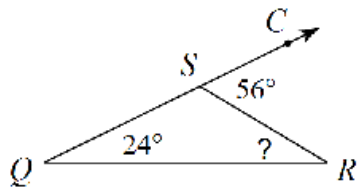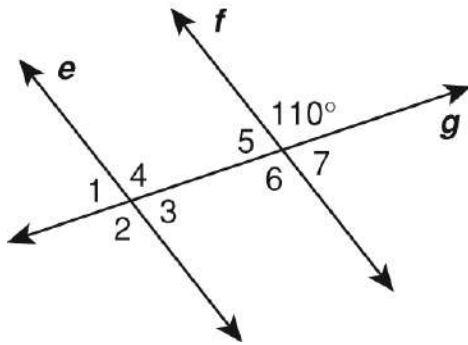
C)

D)

21. Find the measure of the missing angle.

120°

x + 70

A) 7   B) −10   C) 9   D) 11

22. Find the measure of the missing angle.

C

S

56°

24°

?

Q   R

A) 32°   B) 26°   C) 38°   D) 124°

23. In the figure, line e || line f. Which statement is true?
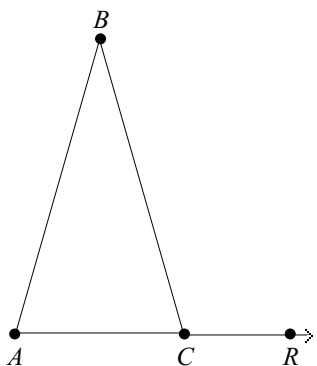

f

e

110°

g

5

4

1

6 7

3

2

a. $\angle 2 \cong \angle 7$ c. line $f \perp$ line g
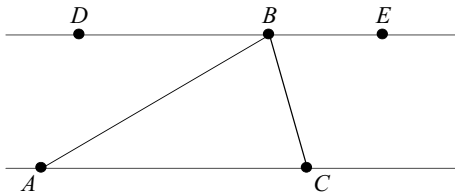
b. $m\angle 3 = 70°$ d. $m\angle 6 = 70°$

24. Lines l and m are parallel. If $m \angle x = 55°$, find the measures of angles Z, A, and B. Justify your answers.
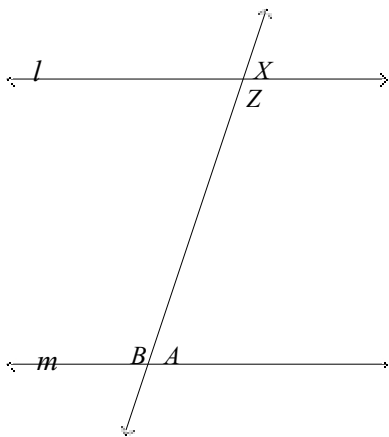
25. $m \angle A = 71°$ and $m \angle B = 38°$. Find $m\angle BCR$ and justify your answer.

26. Yolanda wants to show that the sum of the interior angle measures of a triangle is 180°. In the figure, she draws line DE parallel to line AC.

Part A: Complete the statement that Yolanda would like to show:
$m\angle BAC +$ _____ $+$ _____ $= 180°$

Part B: Write two congruence statements for the alternate interior angles formed by the parallel lines and the sides of the triangle.

Part C: What is $m\angle ABD + m\angle ABC + m\angle CBE$? Explain.

Part D: Use your answers from **Parts B** and **C** to justify the statement in **Part A**.