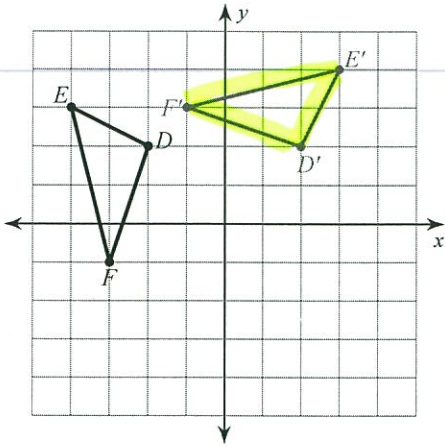


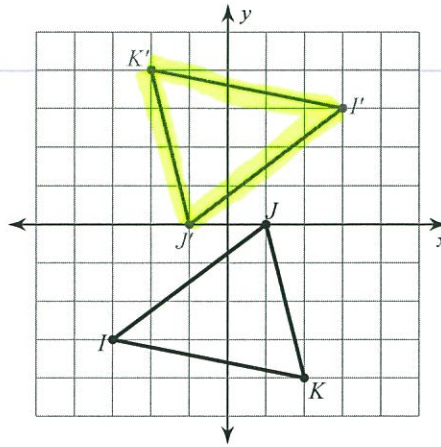
Transformations Test Review

Graph the image of the figure using the transformation given.

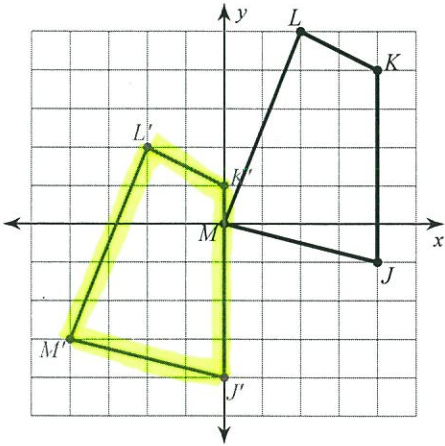
1) rotation 90° clockwise about the origin



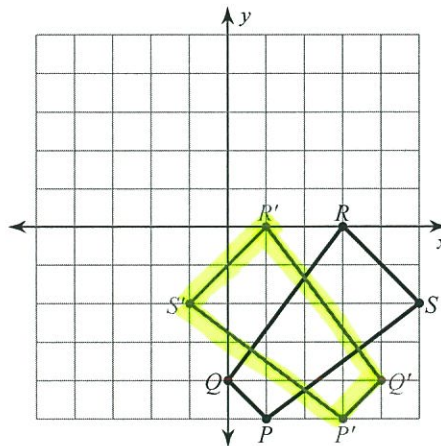
2) rotation 180° about the origin



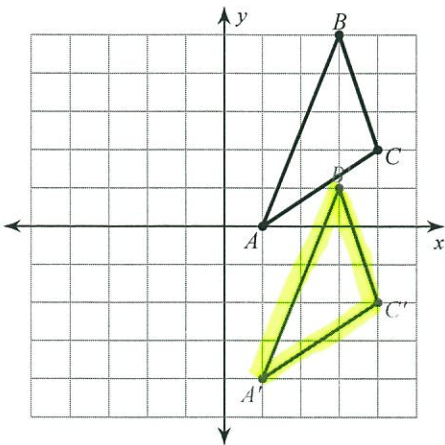
3) translation: 4 units left and 3 units down



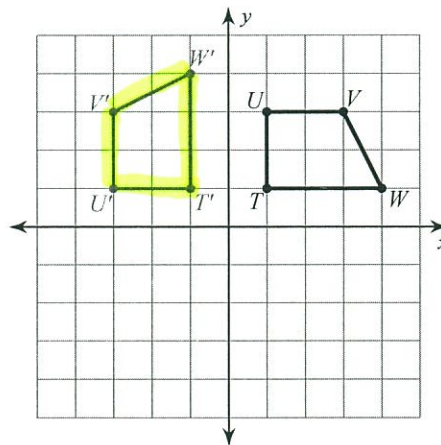
4) reflection across $x = 2$



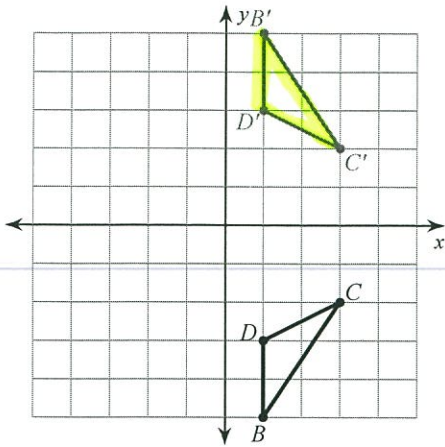
5) translation: 4 units down



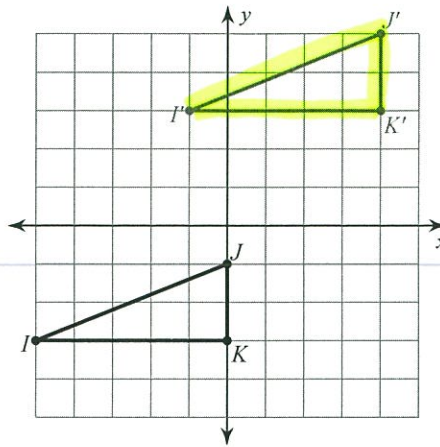
6) rotation 90° counterclockwise about the origin



7) reflection across the x-axis



8) translation: $(x, y) \rightarrow (x + 4, y + 6)$



Find the coordinates of the vertices of each figure after the given transformation.

9) translation: 5 units left and 4 units up
 $W(1, -1), X(1, 0), Y(4, -2), Z(4, -4)$

$W'(-4, 3), X'(-4, 4), Y'(-1, 2), Z'(-1, 0)$

10) dilation of 2.5 about the origin
 $K(-1, -1), L(0, 2), M(2, 0)$

$K'(-2.5, -2.5), L'(0, 5), M'(5, 0)$

11) reflection across the y-axis
 $V(1, -3), W(-1, 2), X(3, 5), Y(3, 0)$

$W'(1, 2), X'(-3, 5), Y'(-3, 0), V'(-1, -3)$

12) rotation 90° counterclockwise about the origin
 $P(-4, -5), Q(-4, 0), R(0, -2)$

$P'(5, -4), Q'(0, -4), R'(2, 0)$

13) reflection across the x-axis
 $I(-5, -2), J(-3, -1), K(-1, -3)$

$J'(-3, 1), K'(-1, 3), I'(-5, 2)$

14) rotation 180° about the origin
 $G(-2, -3), H(0, 0), I(3, -2), J(1, -4)$

$G'(2, 3), H'(0, 0), I'(-3, 2), J'(-1, 4)$

15) dilation of 0.25 about the origin
 $V(-2, -2), W(0, 2), X(2, 1), Y(2, 0)$

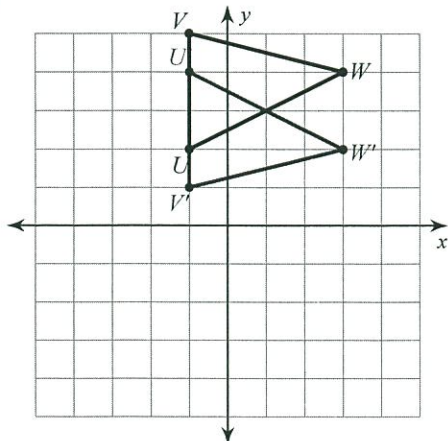
$V'(-0.5, -0.5), W'(0, 0.5), X'(0.5, 0.25), Y'(0.5, 0)$

16) translation: $(x, y) \rightarrow (x + 2, y - 2)$
 $Q(-3, -1), R(-1, 0), S(0, -3)$

$Q'(-1, -3), R'(1, -2), S'(2, -5)$

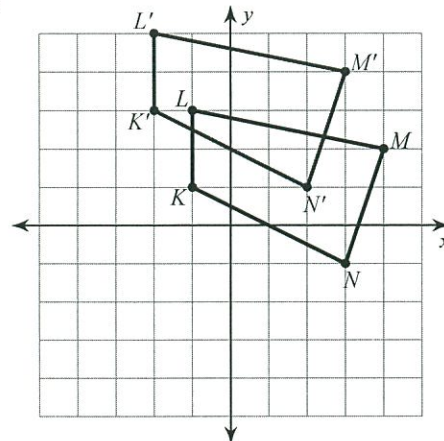
Write a rule to describe each transformation.

17)



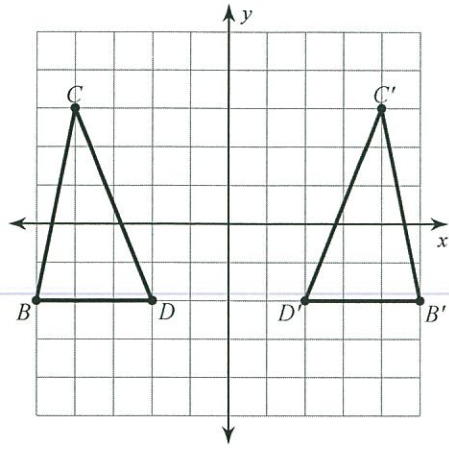
reflection across $y = 3$

18)



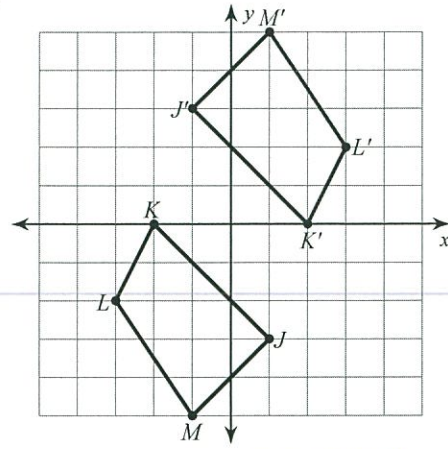
translation: 1 unit left and 2 units up

19)



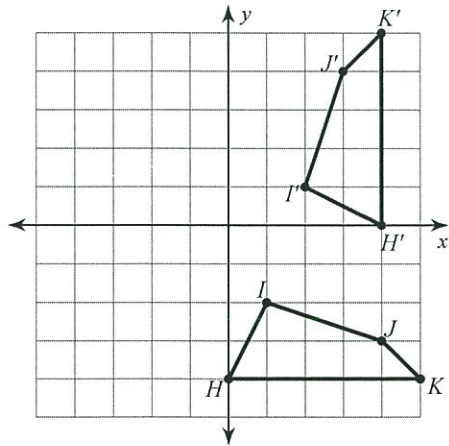
reflection across the y-axis

20)



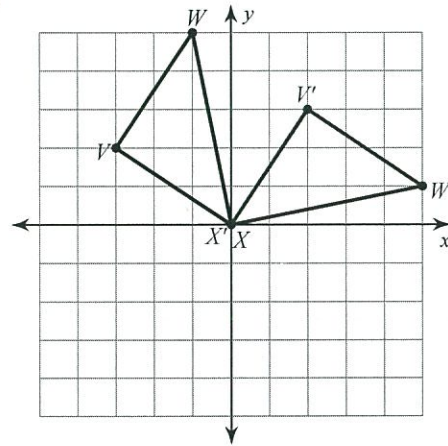
rotation 180° about the origin

21)



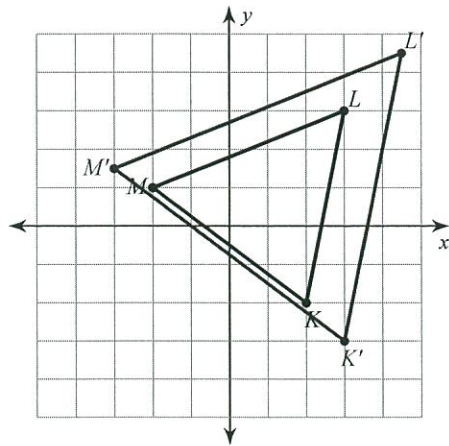
rotation 90° counterclockwise about the origin

22)



rotation 90° clockwise about the origin

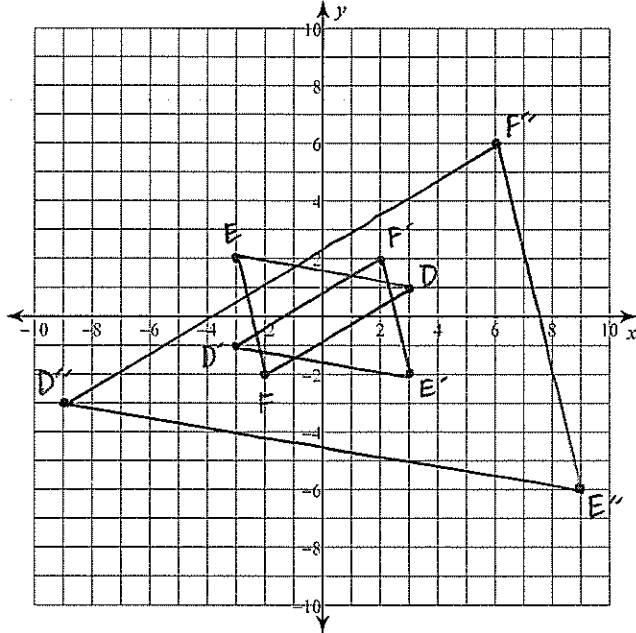
23)



dilation of $\frac{3}{2}$ about the origin

- 24) Triangle DEF has vertices at D (3, 1), E (-3, 2), and F (-2, -2). Complete the composition of transformations in order.

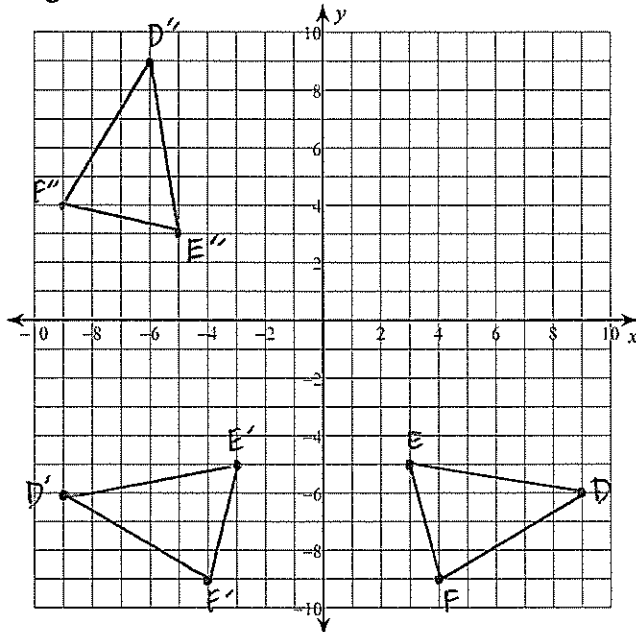
1. Rotation 180°
2. Dilation with a scale factor of 3.



$$\begin{array}{ll}
 D'(-3, -1) & D''(-9, -3) \\
 E'(3, -2) & E''(9, -6) \\
 F'(2, 2) & F''(6, 6)
 \end{array}$$

- 25) Triangle DEF has vertices at D (9, -6), E (3, -5), and F (4, -9). Complete the composition of transformations in order.

1. Reflection over the y-axis
2. Rotation of 90° clockwise about the origin



$$\begin{array}{ll}
 D'(-9, -6) & D''(-6, 9) \\
 E'(-3, -5) & E''(-5, 3) \\
 F'(-4, -9) & F''(-9, 4)
 \end{array}$$