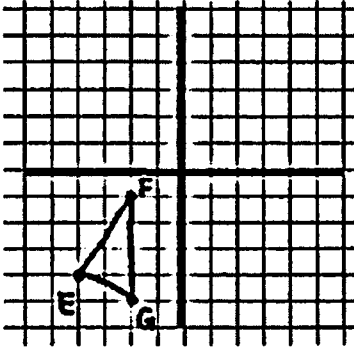
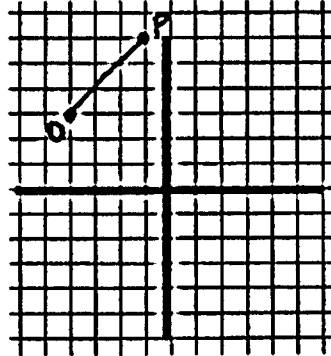


Directions: Complete each sequence of transformations.

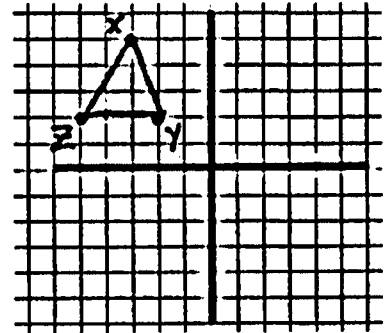
- 1) Translate 3 units right & 5 units up.  
Then, rotate  $90^\circ$  CCW about the origin.



- 2) Rotate  $180^\circ$  CCW about  $(-2, -1)$ .  
Then, reflect over  $y = x$ .



- 3) Shrink horizontally by  $\frac{1}{2}$ .  
Then, reflect over  $y = 0$ .



Directions: Find  $A''$  given the sequence of transformations.

- 4)  $A(4, -2)$ ; Reflect over  $y = -x$ ; then, dilate by a scale factor of 2 with the origin as a center.

- 5)  $A(0, -3)$ ; Rotate  $90^\circ$  CW about the origin; then, horizontally stretch by 3.

- 6)  $A(-2, 2)$ ; Translate 6 units down; then, dilate by a scale factor of  $\frac{1}{2}$  with a center of  $(4, -1)$ .

Directions: Use the rule for the sequence of transformations to find  $B''$ .

7)  $(x, y) \rightarrow "(x - 3, -y)"$  when  $B(4, 5)$

8)  $(x, y) \rightarrow "(y, 4x)"$  when  $B(-1, 6)$

9)  $(x, y) \rightarrow "(-4x, y)"$  when  $B(-5, -1)$

10)  $(x, y) \rightarrow "(-3y, 3x)"$  when  $B(0, 2)$

Directions: Describe the sequence of transformations displayed in each rule.

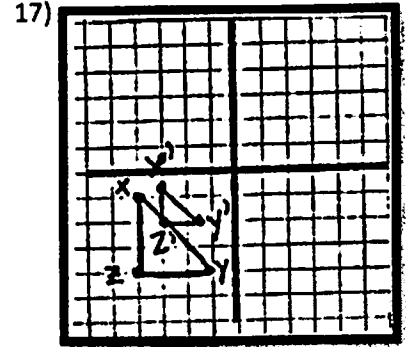
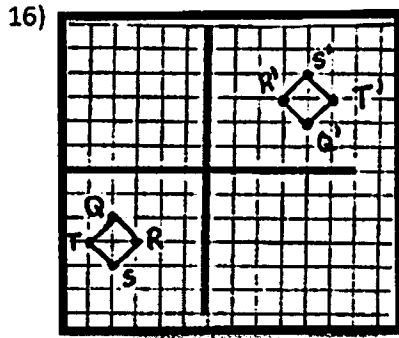
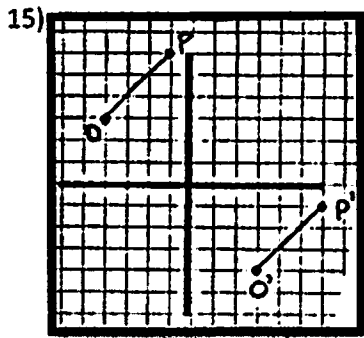
11)  $(x, y) \rightarrow "(x - 3, -y)"$

12)  $(x, y) \rightarrow "(y, 4x)"$

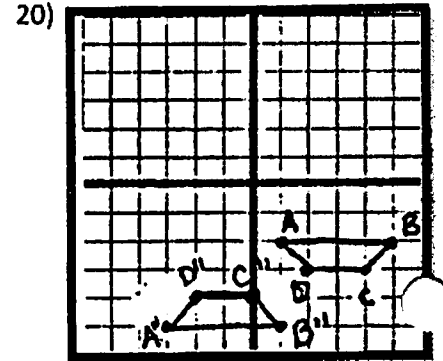
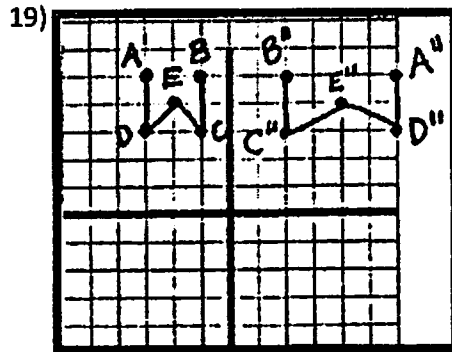
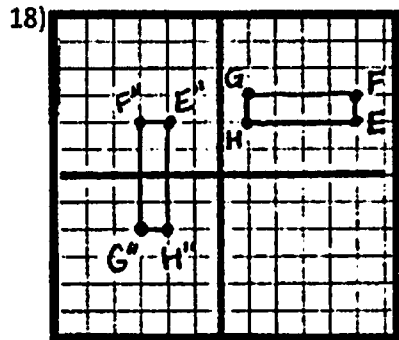
13)  $(x, y) \rightarrow "(-4x, y)"$

14)  $(x, y) \rightarrow "(-3y, 3x)"$

Directions: Describe how each pre-image can be mapped onto the image using ONE transformation.



Directions: Describe how each pre-image can be mapped onto the image using TWO transformations.



Directions: Describe how each pre-image can be mapped onto itself using the specified number of transformations.

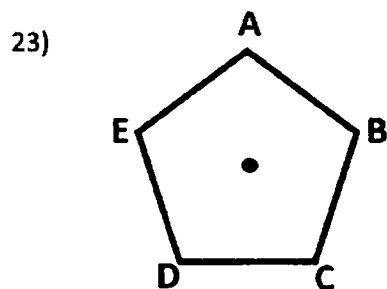
21) A(3, 5) & B(2, 1);

2 transformations involving 2 dilations

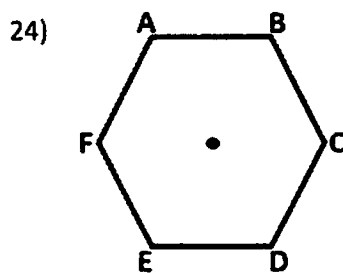
22) A(3, 5) & B(2, 1);

3 transformations using a rotation & 2 reflections

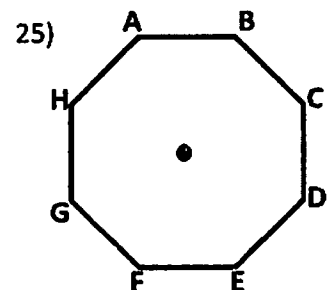
Directions: Circle each of the angle measures that would map the image onto itself through a rotation around the fixed point. Each polygon is a regular polygon.



36° 72° 90° 144°



90° 120° 180° 240°



45° 90° 120° 585°