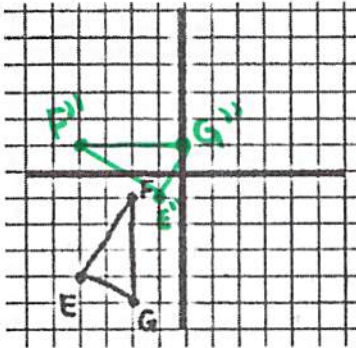
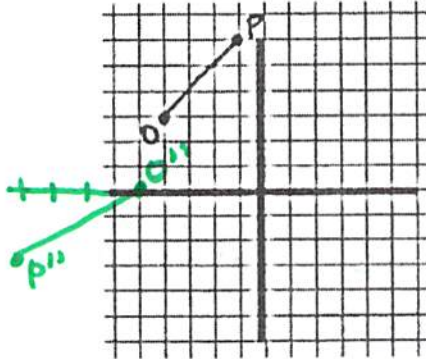


Directions: Complete each sequence of transformations.

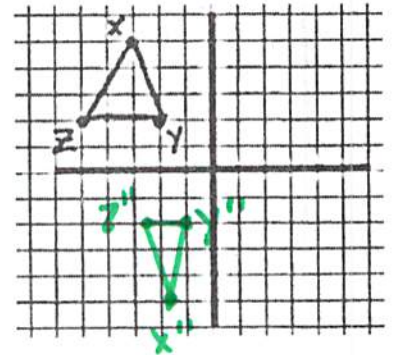
- 1) Translate 3 units right & 5 units up.
Then, rotate 90° CCW about the origin.



- 2) Rotate 180° 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.

$$A''(4, -8)$$

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

$$A''(-9, 0)$$

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

$$A''(1, -2.5)$$

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

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

$$B''(1, -5)$$

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

$$B''(6, -4)$$

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

$$B''(20, -1)$$

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

$$B''(-6, 0)$$

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

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

left 3 & ref. over x-axis

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

ref over y-axis & horz str by 4

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

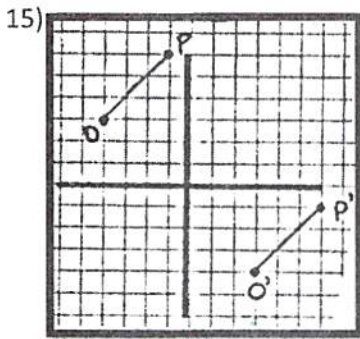
horz str by 4 & ref over $y = x$

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

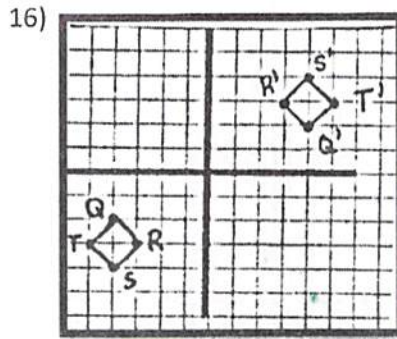
dil by 3 & 90° CW rot.

reflect over $y = x$ & vert str by 4
OR

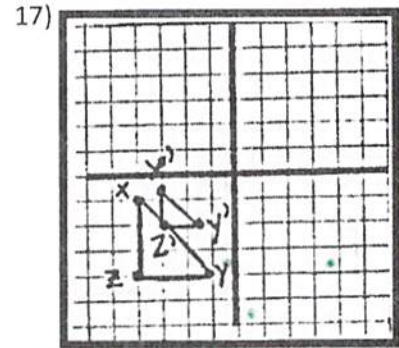
Directions: Describe how each pre-image can be mapped onto the image using ONE transformation.



ref over $y=x$

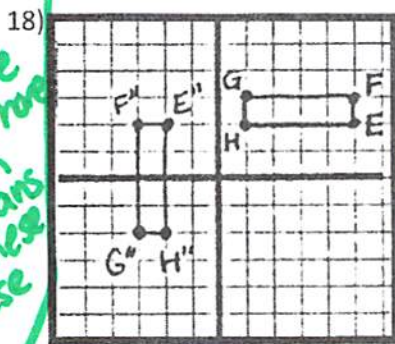


rot 180° CW



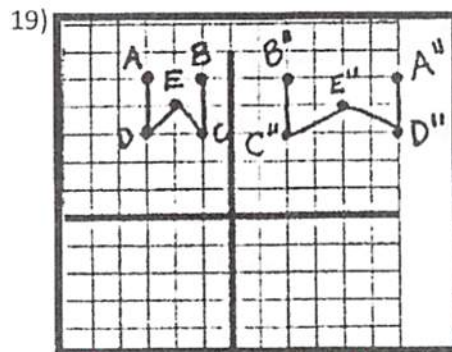
dil by $1/2$ using $(-2, 0)$ as the center

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

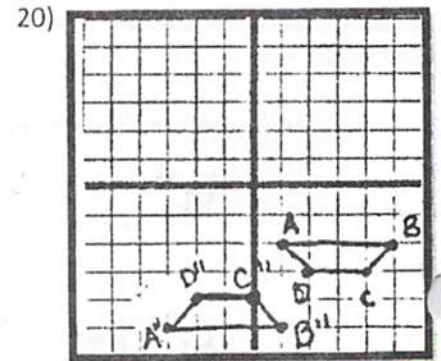


* there are more than one ans on these... these are just an example

90° CCW rot then down 3



ref over y -axis then horz str by 2



ref over $y=3.5$ then trans 4 units left

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

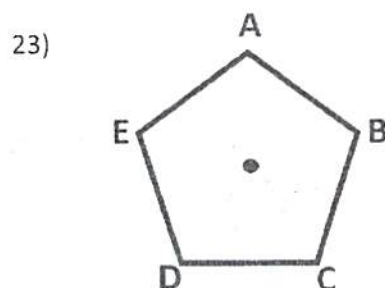
ex: dil by $1/2$ then dil by 2 (ans will vary)

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

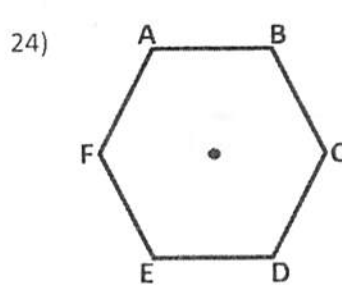
3 transformations using a rotation & 2 reflections

ex: ① ref over x -axis
② rot 360° CW
③ ref over x -axis

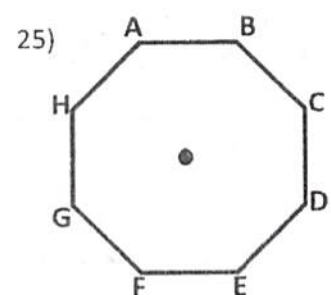
Directions: Circle each of the angle measures that would map the image onto itself through a rotation around the fixed point. Each polygon is a regular polygon.



36° 72° 90° 144°



90° 120° 180° 240°



45° 90° 120° 585°