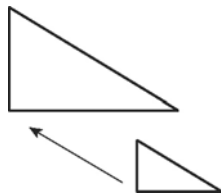


Geometry Notes Section 9-7

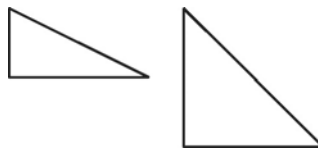
Dilations

A dilation is a transformation that changes the size of a figure but not the shape.

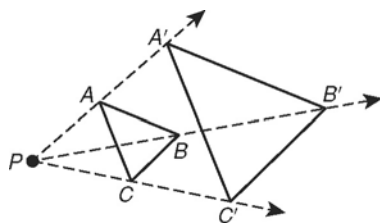
Dilation



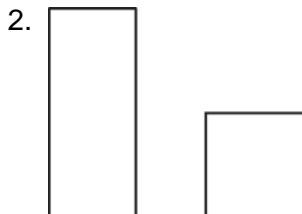
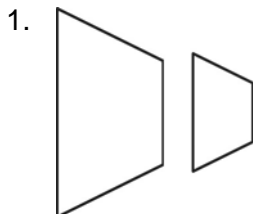
Not a Dilation



A dilation is a transformation in which the lines connecting every point A with its image A' all intersect at point P , called the **center of dilation**.



Tell whether each transformation appears to be a dilation.

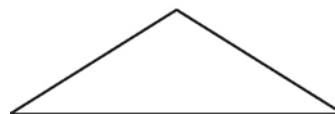


Draw the image of the triangle under a dilation with the given scale factor.

3. scale factor: 2

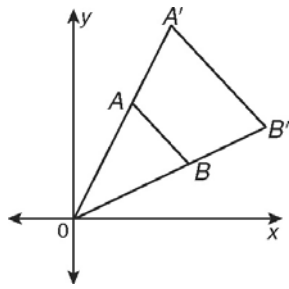


4. scale factor: $\frac{1}{2}$



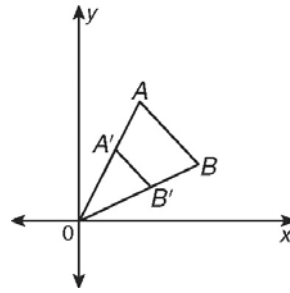
Dilations in the Coordinate Plane

For $k > 1$



$$(x, y) \rightarrow (kx, ky)$$

For $0 < k < 1$



$$(x, y) \rightarrow (kx, ky)$$

If k has a negative value, the preimage is rotated by 180° .

Draw the image of $\triangle EFG$ with vertices $E(0, 0)$, $F(0, 1)$, and $G(2, 1)$ under a dilation with a scale factor of -3 and centered at the origin.

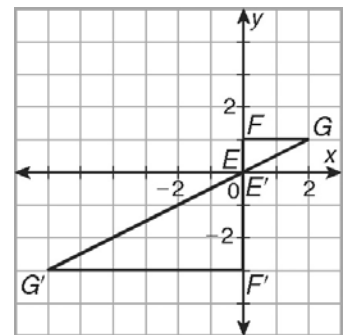
The image of (x, y) is $(-3x, -3y)$.

$$E(0, 0) \rightarrow E'(0, 0)$$

$$F(0, 1) \rightarrow F'(0, -3)$$

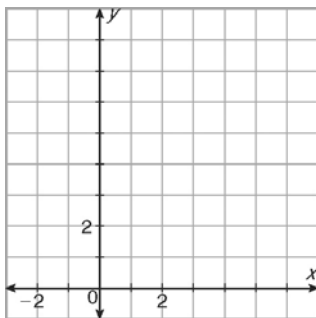
$$G(2, 1) \rightarrow G'(-6, -3)$$

Graph the preimage and image.

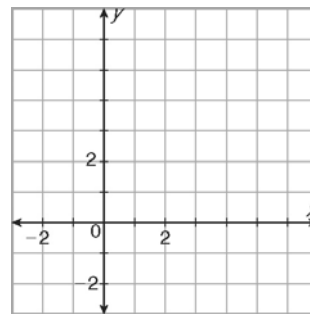


Draw the image of the figure with the given vertices under a dilation with the given scale factor and centered at the origin.

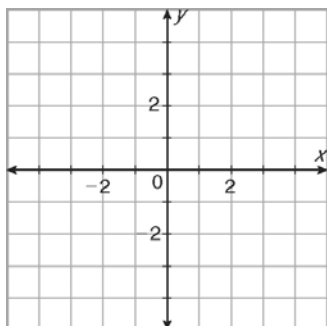
5. $J(0, 0)$, $K(-1, 2)$, $L(3, 4)$; scale factor: 2



6. $A(0, 0)$, $B(0, 6)$, $C(6, 3)$; scale factor: $\frac{1}{3}$



7. $R(1, 0)$, $S(1, -2)$, $T(-1, -2)$; scale factor: -2



8. $G(2, 0)$, $H(0, 4)$, $I(4, 2)$; scale factor: $-\frac{1}{2}$

