Do Now! Compare your homework to the answers below.

Graph the image of the figure using the transformation given.

1) rotation 180° about the origin

- Q' (0,1)
- H' (3,5)
- J' (5,3)

2) rotation 90° counterclockwise about the origin

- B' (-5,4)
- S' (-2,2)
- L' (0,5)

3) rotation 90° clockwise about the origin

- S' (1,5)
- H' (-3,1)
- F' (3,1)
- M' (-3,4)

4) rotation 180° about the origin

- H (2,3)
- U (4,5)
5) rotation 90° clockwise about the origin
   \(U(1, -2), W(0, 2), K(3, 2), G(3, -3)\)

6) rotation 180° about the origin
   \(V(2, 0), S(1, 3), G(5, 0)\)

Translation: 3 left 4 down

\[\begin{align*}
  &U'(2, -1) & W'(2, 0) & V'(5, 0) & G'(3, -3) \\
  &D'(1, 3) & C'(0, -1) & B'(2, -1) & A'(-1, 1)
\end{align*}\]
Reflection: Across the x-axis

\[ Q (-5,0) \]
\[ R (0,0) \]
\[ S (-2,-4) \]
\[ Q' (-5,0) \]
\[ R' (0,0) \]
\[ S' (-2,4) \]

Match the vocabulary word to its definition:

1) An operation that affects all parts of a figure. **Transformation**
2) The starting figure. **Preimage/Original**
3) A transformation that “flips” a figure over a line. **Reflection**
4) The notation used to denote the image. Example: A’  **Prime**
5) A transformation that changes the size of the shape by stretching or shrinking the figure. **Dilation**
Match the vocabulary word to its definition:

6) The directional change of each vertex of the shape. **Orientation**

7) A transformation that “slides” all points of a figure the same distance in the same direction. **Translation**

8) A transformation that “turns” a figure about a point. **Rotation**

9) The figure after a transformation. **Image**

What will be the coordinates of \((6,7)\) after \(T(x + 5, y - 7)\)? \(x+5\) \(y-7\) \((-1,0)\) \((-6,0)\) 

Write the translation rule that makes \(A(5,9)\) into \(A'(-1,1)\).

\((x-6, y-8)\)

What are the coordinates of the point \((-9,1)\) after a reflection in the \(x\)-axis? \((-9,1)\)

What are the coordinates of the point \((-3,-2)\) after a reflection in the \(y\)-axis? \((3, -2)\)
Which of the following properties stay constant under the **reflection** transformation: 

- size, orientation or location.

What is a possible explanation of what occurred in the picture?

Translation or Reflection

Plot triangle ABC, given A(-3,1), B(-2,3) and C(-2,0) on the grid to the right. Under a translation **T(x + 7, y - 1)**, find the coordinates of the image.

A'
B'
C'

Plot the image on the grid to the right. Make sure everything is labeled!
Plot triangle ABC, given A(-3,1), B(-2,3) and C(-2,0) on the grid to the right. Under a translation $T(x+7, y-1)$, find the coordinates of the image.

$A' (4,0)$  
$B' (5,2)$  
$C' (5,-1)$

Plot the image on the grid to the right. Make sure everything is labeled!

Plot figure DEFG, given the coordinates D(2,5), E(7,5), F(6,2) and G(3,2) on the grid to the right. State the coordinates of the image of DEFG after a reflection in the x-axis.

D'  
E'  
F'  
G'  
Graph the image on the grid. Label everything!
Plot figure DEFG, given the coordinates D(2,5), E(7,5), F(6,2) and G(3,2) on the grid to the right. State the coordinates of the image of DEFG after a reflection in the x-axis.

D' (2, -5)
E' (7, -5)
F' (6, -2)
G' (3, -2)

Graph the image on the grid.
Label everything!

Plot figure HIJK, given the coordinates H(0,0), I(2,1), J(4,0) and K(2,-1) on the grid to the right. State the coordinates of the image of HIJK after a reflection in the y-axis.

H'
I'
J'
K'

Graph the image on the grid.
Label everything!
Plot figure HIJK, given the coordinates H(0,0), I(2,1), J(4,0) and K(2,-1) on the grid to the right. State the coordinates of the image of HIJK after a reflection in the y-axis.

\[
\begin{align*}
H' & : (0,0) \\
I' & : (-2,1) \\
J' & : (-4,0) \\
K' & : (-2,-1)
\end{align*}
\]

Graph the image on the grid.
Label everything!

Plot figure BEN, given the coordinates B(-2,-1), E(-5,-1), and N(-5,-5). State the coordinates of the image of BEN after a 90° rotation counterclockwise.

\[
\begin{align*}
B' & : \\
E' & : \\
N' & :
\end{align*}
\]

Graph the image on the grid.
Label everything!
Plot figure BEN, given the coordinates B(-2,-1), E(-5,-1), and N(-5,-5). State the coordinates of the image of BEN after a 90° rotation counterclockwise.

B' (1, -2)
E' (1, -5)
N' (5, -5)

Graph the image on the grid. Label everything!