Reflection: x-axis, y-axis, y=x, y=-x
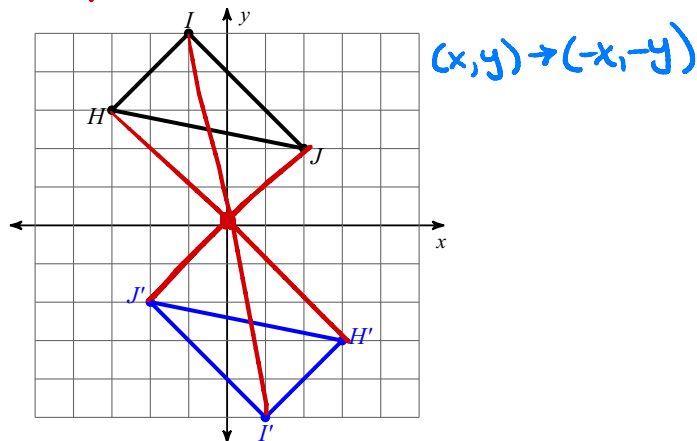algebraic rule

H Math 2   Name __Key__

Transformation Practice

Write a rule to describe each transformation verbally and algebraically.
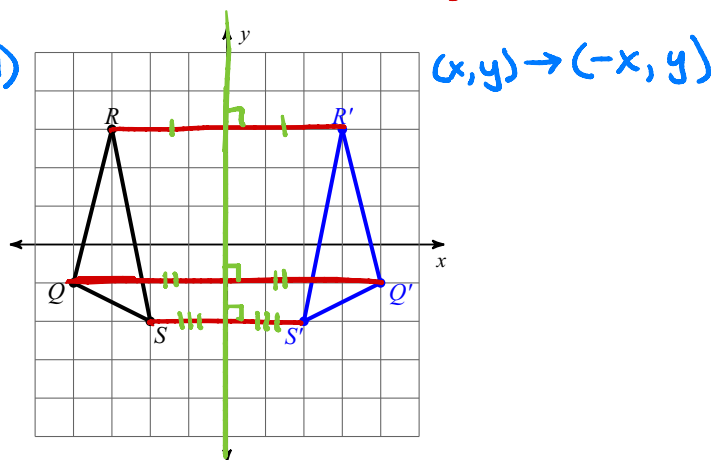
1) Reflection over x-axis

$(x,y) \rightarrow (x,-y)$

$Z(4,-2)$
$Z'(4,2)$
$x,-y$
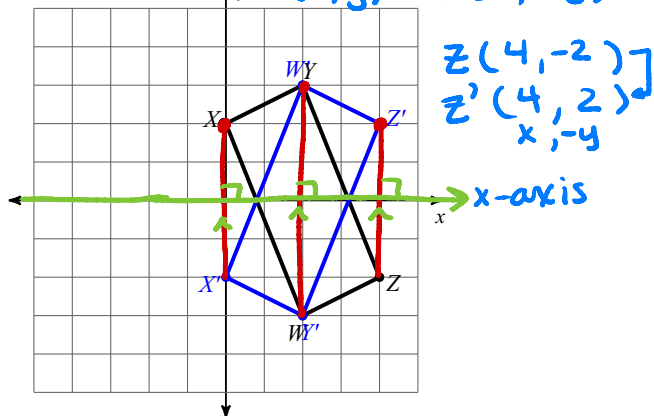
2) Rotate 180° about the origin

$(x,y) \rightarrow (-x,-y)$
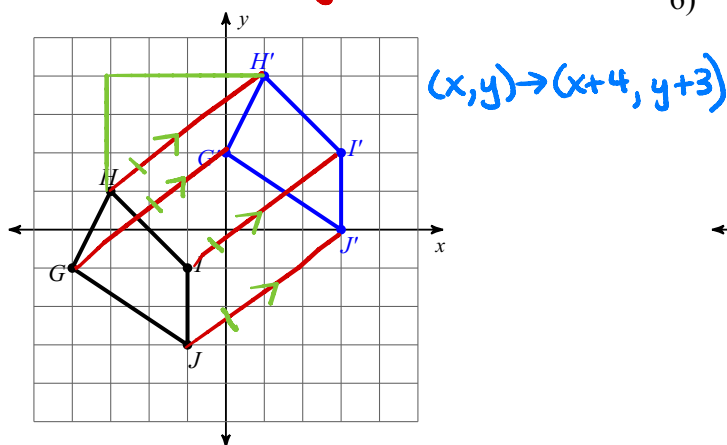

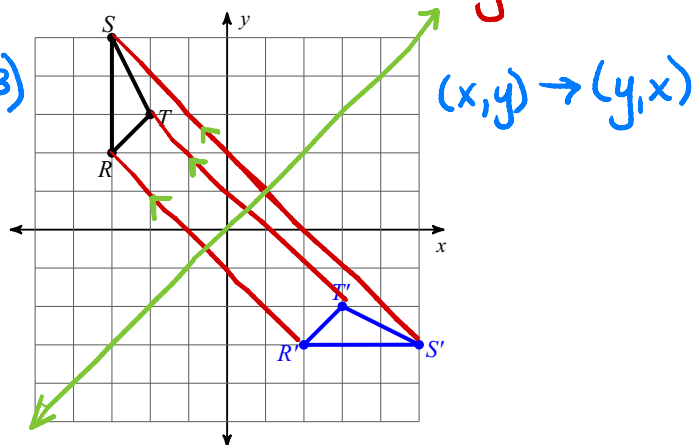3) Translate left 2 & up 1

$(x,y) \rightarrow (x-2, y+1)$
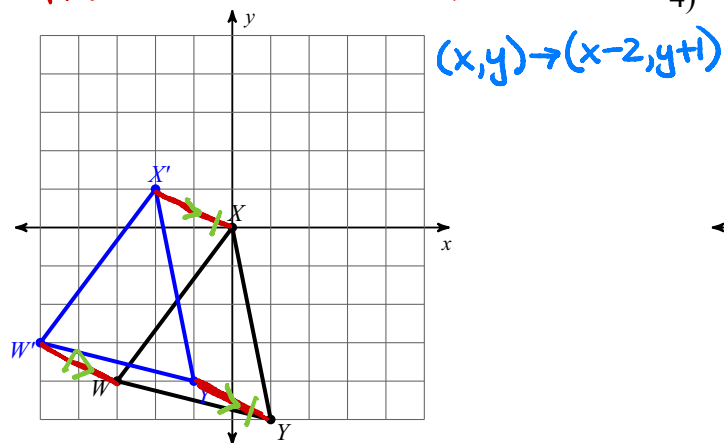
4) Reflect over the y-axis

$(x,y) \rightarrow (-x, y)$
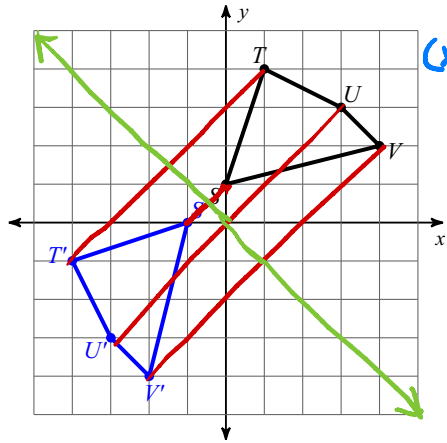

5) Translate right 4 & up 3

$(x,y) \rightarrow (x+4, y+3)$
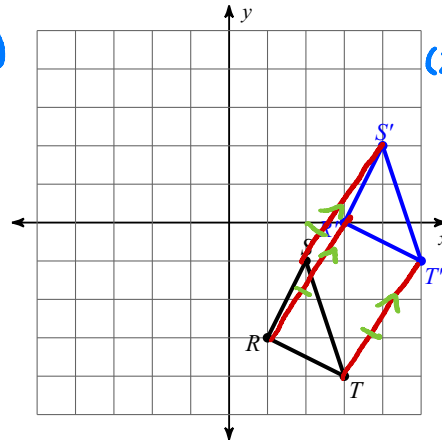

6) Reflect over the line y=x.

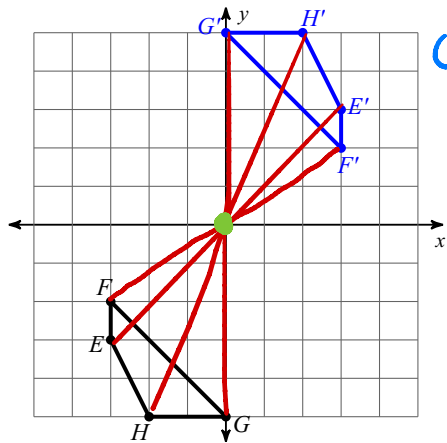$(x,y) \rightarrow (y,x)$

7)
Reflect over the line y=-x

$(x,y) \rightarrow (-y,-x)$
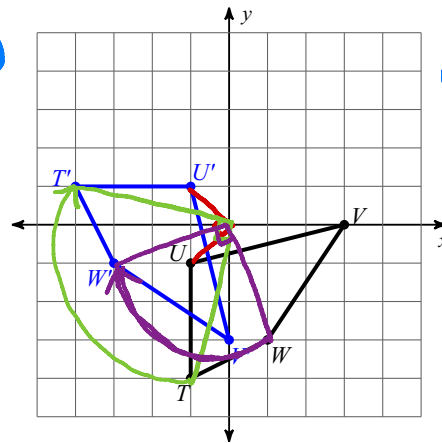
8)
Translate right 2 & up 3

$(x,y) \rightarrow (x+2, y+3)$

9)
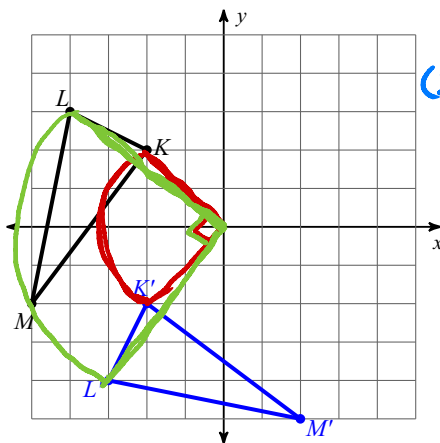Rotation 180° about the origin

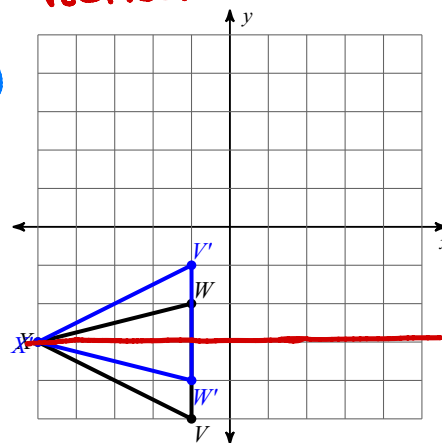$(x,y) \rightarrow (-x,-y)$

10)
Rotation 90° CW or 270° CCW.

$(x,y) \rightarrow (y,-x)$

11)
Rotation 90° CCW or 270° CW
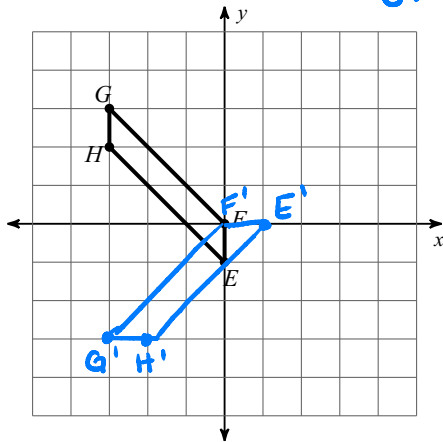
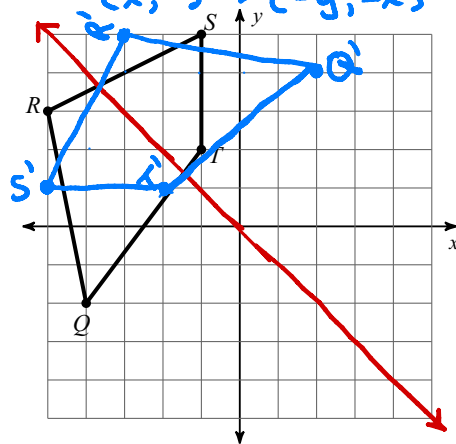$(x,y) \rightarrow (-y,x)$

12)
Reflection over the line y=-3

$y=-3$

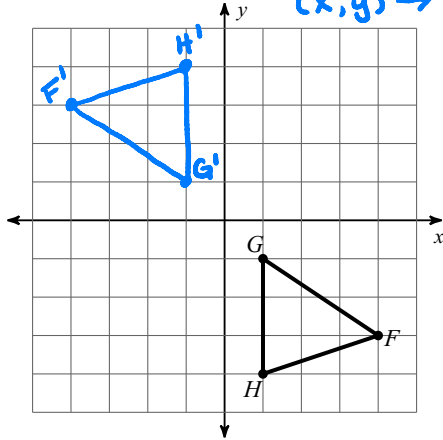**Graph the image of the figure using the transformation given and write the algebraic rule.**

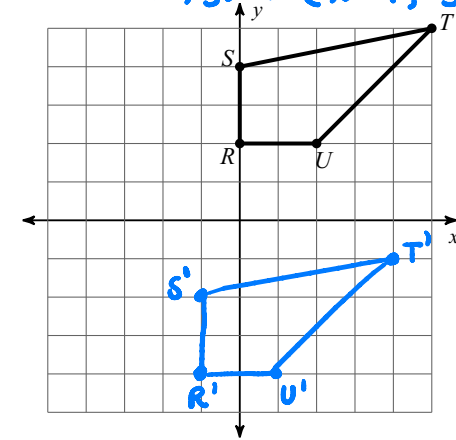13) rotation 90° counterclockwise about the origin $(x, y) \rightarrow (-y, x)$

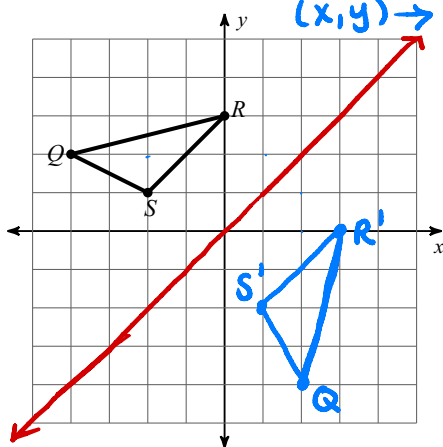14) reflection across $y = -x$ $(x, y) \rightarrow (-y, -x)$

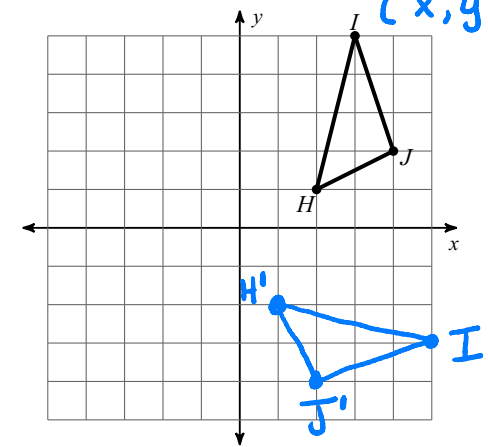15) rotation 180° about the origin $(x, y) \rightarrow (-x, -y)$

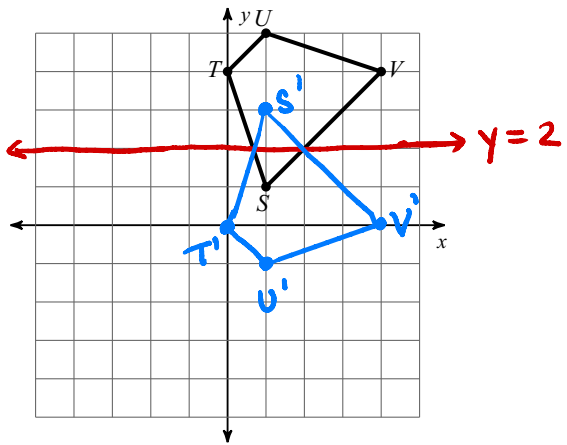16) translation: 1 unit left and 6 units down $(x, y) \rightarrow (x - 1, y - 6)$

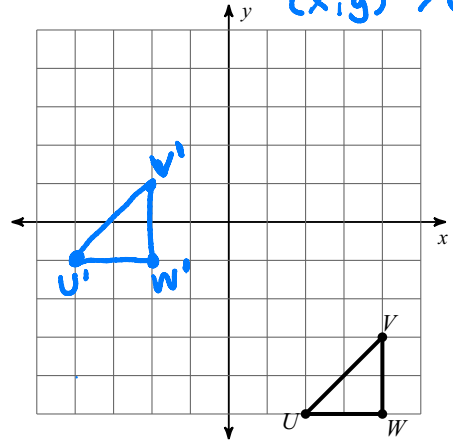17) reflection across $y = x$ $(x, y) \rightarrow (y, x)$

18) rotation 90° clockwise about the origin $(x, y) \rightarrow (y, -x)$
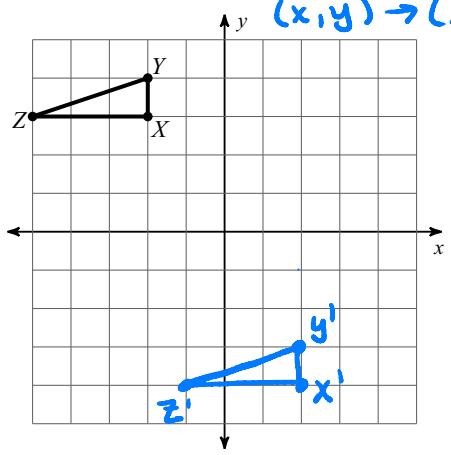
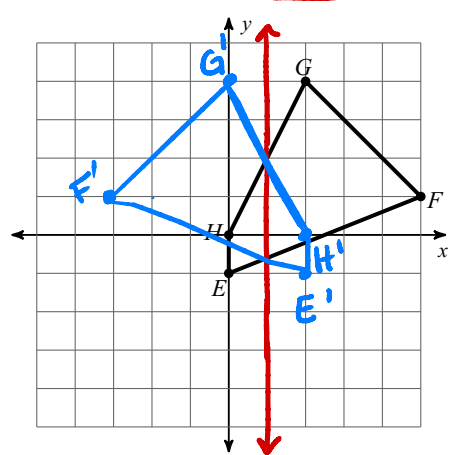-3- Made with Infinite Geometry.

19) reflection across $y = 2$

20) translation: 6 units left and 4 units up
$(x, y) \rightarrow (x-6, y+4)$

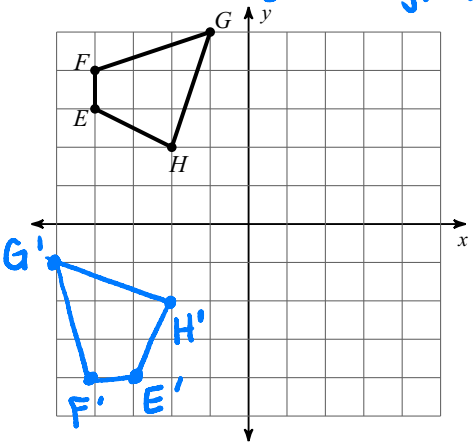

21) translation: 4 units right and 7 units down
$(x, y) \rightarrow (x+4, y-7)$

22) reflection across $x = 1$

23) rotation 90° counterclockwise about the origin
$(x, y) \rightarrow (-y, x)$

24) rotation 90° clockwise about the origin
$(x, y) \rightarrow (y, -x)$