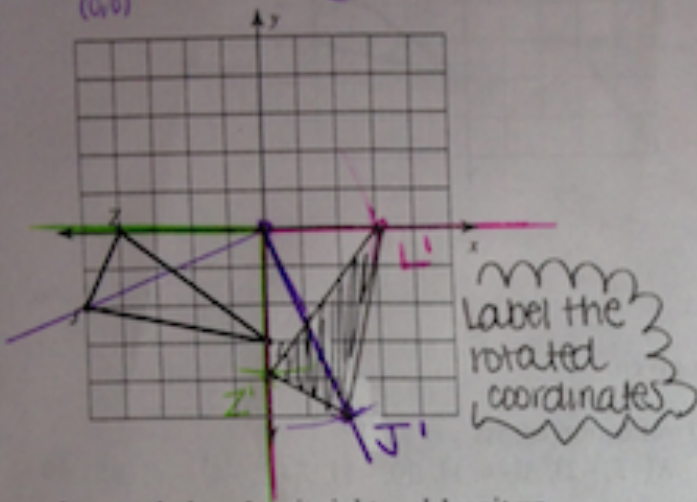


All Transformations

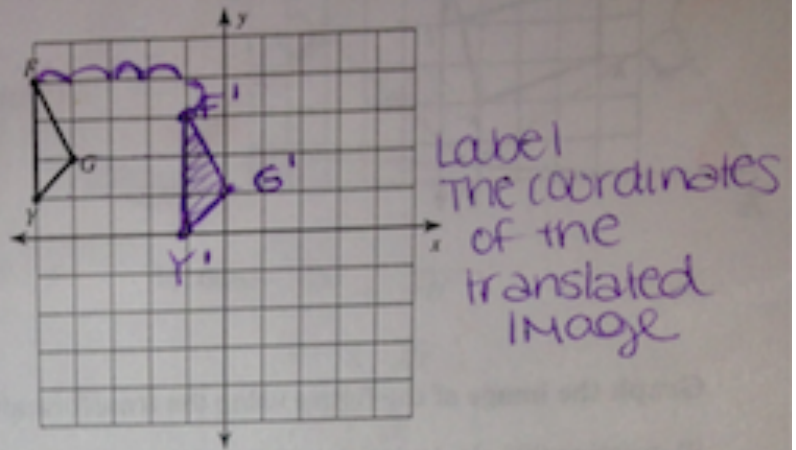
Date _____ Period _____

Graph the image of the figure using the transformation given.

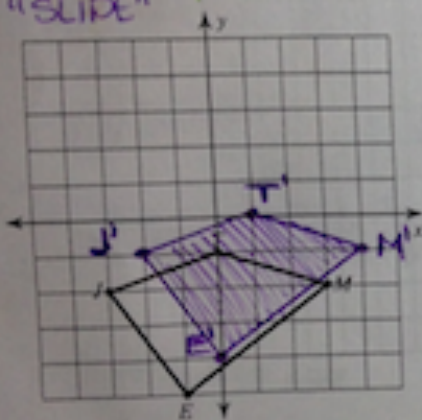
- 1) rotation 90° counterclockwise about the origin
 "turn"
 (0,0)



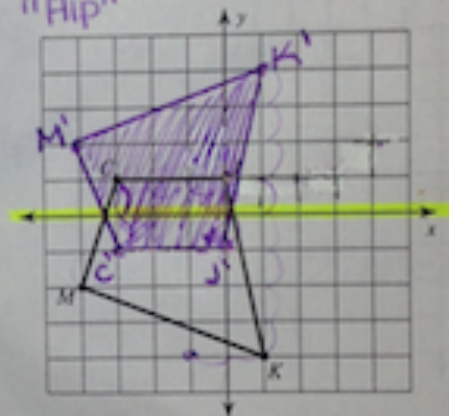
- 2) translation: 4 units right and 1 unit down



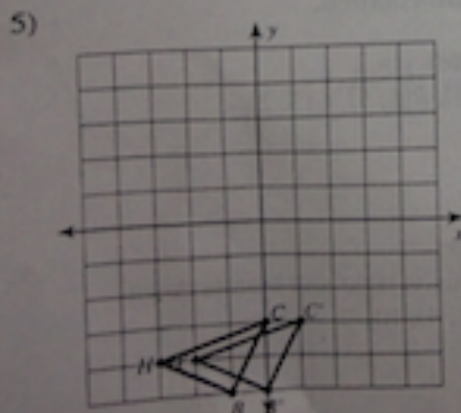
- 3) translation: 1 unit right and 1 unit up
 "SLIDE"



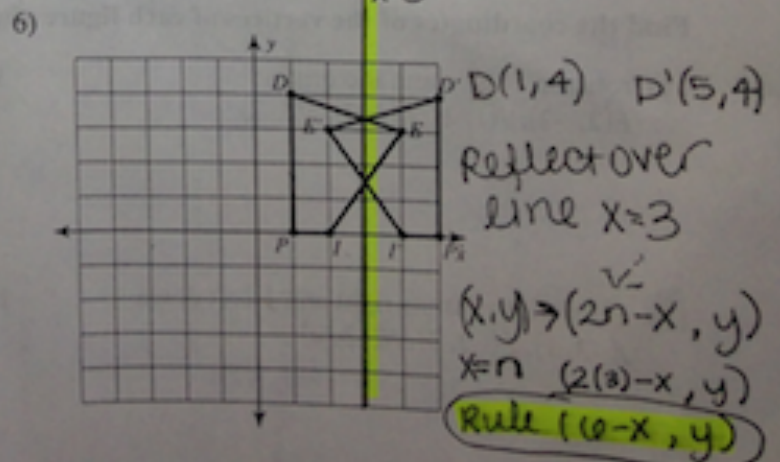
- 4) reflection across the x-axis
 "Flip"



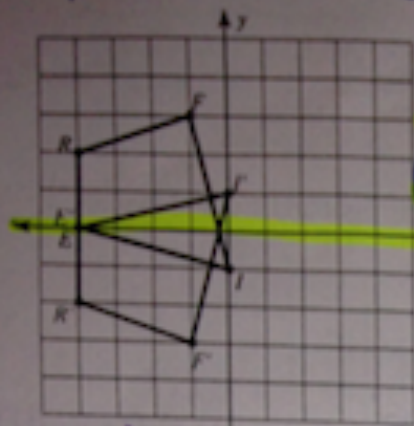
Write a rule to describe each transformation.



$C(0, -3) \rightarrow (0+1, -3) \rightarrow C'(1, -3)$
 * rule: $(x+1, y)$
 $H(-3, -4) \rightarrow (-3+1, -4) \rightarrow (-2, -4) H'$
 translate 1 unit Right \rightarrow



7) Reflect across x-axis (line $y=0$)



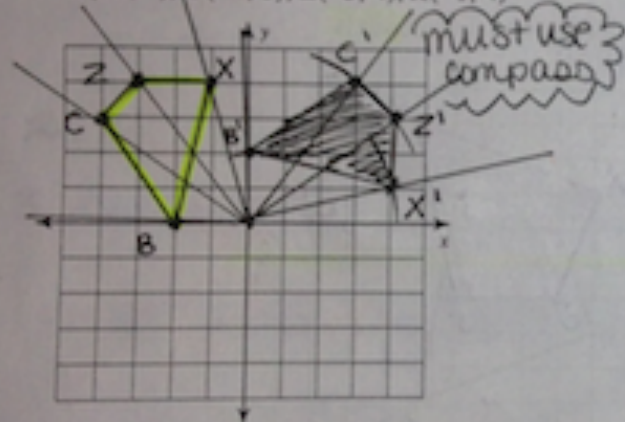
Rule:
 $(x,y) \rightarrow (x,-y)$

$E(-4,0) E'(-4,0)$
 $R(-4,2) R'(-4,-2)$
 $F(-1,3) F'(-1,-3)$

I notice the x-coordinates stay the same & the y-coordinates have the opposite sign

Graph the image of the figure using the transformation given.

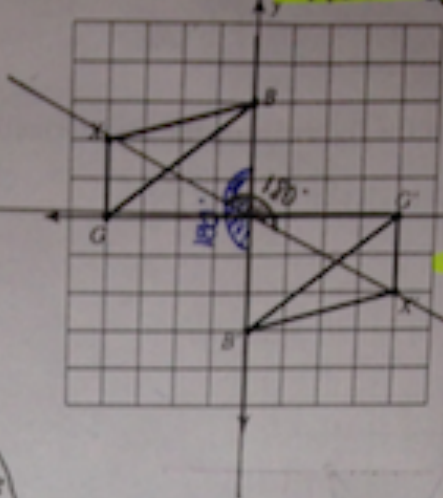
- 9) rotation 90° clockwise about the origin
 $B(-2,0), C(-4,3), Z(-3,4), X(-1,4)$



8)

Rotate 180°

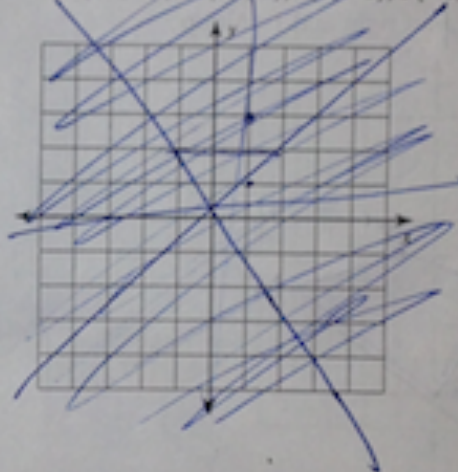
about the origin



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

SKIP

- ~~10) reflection across $y=x$
 $K(-5,-2), A(-4,1), J(0,1), L(-2,-4)$~~



Find the coordinates of the vertices of each figure after the given transformation.

- "turn"
11) rotation 180° about the origin
 $E(2,-2), J(1,2), R(3,3), S(5,2)$

Rule: $(x,y) \rightarrow (-x,-y)$
 $E(2,-2) \rightarrow E'(-2,2) / J(1,2) \rightarrow J'(-1,-2)$
 $R(3,3) \rightarrow R'(-3,-3) / S(5,2) \rightarrow S'(-5,-2)$

It doesn't matter if you rotate clockwise or counter-clockwise w/ 180° , the rule is the same

- "flip"
12) reflection across $y=2 \rightarrow y=n$ so $n=2$
 $J(1,3), U(0,5), R(1,5), C(3,2)$

Rule: $(x,y) \rightarrow (x, 2n-y)$
 $J(1,3) \rightarrow (1, (2-2)-3) \rightarrow J'(1,1)$
 $U(0,5) \rightarrow (0, (2-2)-5) \rightarrow U'(0,-1)$
 $R(1,5) \rightarrow (1, (2-2)-5) \rightarrow R'(1,-1)$
 $C(3,2) \rightarrow (3, (2-2)-2) \rightarrow C'(3,2)$

- "slide"
13) translation: 7 units right and 1 unit down
 $J(-3,1), F(-2,3), N(-2,0)$

Rule: $(x,y) \rightarrow (x+7, y-1)$
 $J(-3,1) \rightarrow (-3+7, 1-1) \rightarrow J'(4,0)$
 $F(-2,3) \rightarrow (-2+7, 3-1) \rightarrow F'(5,2)$
 $N(-2,0) \rightarrow (-2+7, 0-1) \rightarrow N'(5,-1)$

- 14) translation: 6 units right and 3 units down
 $S(-3,3), C(-1,4), W(-2,-1)$

Rule: $(x,y) \rightarrow (x+6, y-3)$
 $S(-3,3) \rightarrow (-3+6, 3-3) \rightarrow S'(3,0)$
 $C(-1,4) \rightarrow (-1+6, 4-3) \rightarrow C'(5,1)$
 $W(-2,-1) \rightarrow (-2+6, -1-3) \rightarrow W'(4,-4)$