Reflections Over y = x, y = –x, y = #, & x = #  Honors Geometry  Name_____

**Directions: Write the rule of the transformation.**

1) A line segment is reflected over y = –x

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

2) A line segment is reflected over y = –4.

$(x, y) \rightarrow (x, -y - 8)$

3) A triangle is reflected over x = 7.

$(x, y) \rightarrow (-x + 14, y)$

4) A triangle is reflected over y = x.

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

**Directions: Describe the transformation and write the image of (-5, 9).**

5) (x, y) → (y, x)

REF. OVER $y = x$ (9, –5)

6) (x, y) → (–y, –x)

REFLECTION OVER $y = -x$ (–9, 5)

* 7) (x, y) → (–x, y) → (–x, –y)

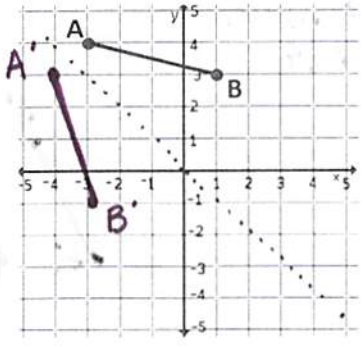
$(x, y) \rightarrow (-x, -y)$

REFL. OVER Y AXIS & X-AXIS (5, –9)

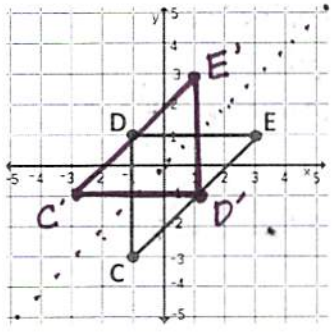
* Write this as one transformation and describe it.

**Directions: Complete the transformation of the new image.**

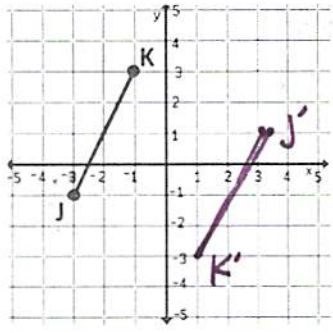
8) $\overline{AB}(x, y) \rightarrow A'\overline{B'}(-y, -x)$



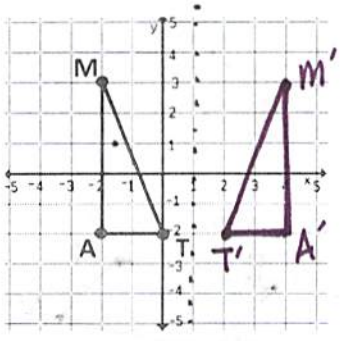

9) ΔCDE (x, y) → ΔC'D'E' (y, x)



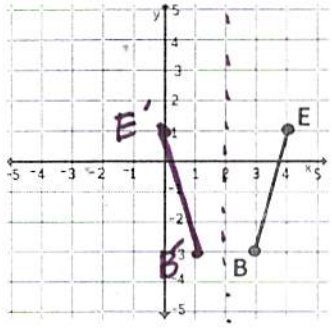

10) $\overline{JK}(x, y) \rightarrow J'\overline{K'}(-x, -y)$



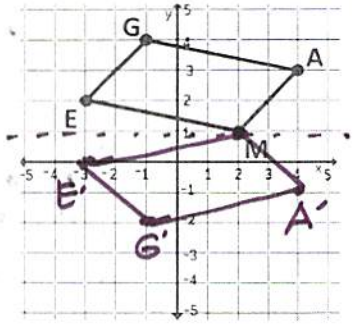

11) Reflect ΔMAT over x = 1.




12) Reflect $\overline{BE}$ over x = 2.

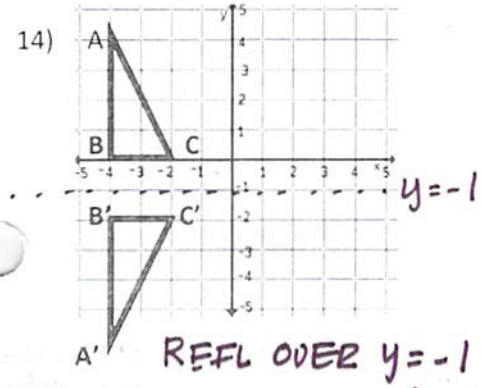



13) Reflect quad GAME over y = 1.




**Describe in words the transformation shown and write the rule for this transformation.**

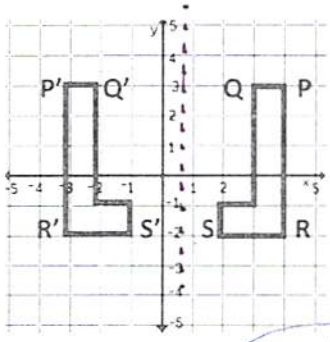
14)




REFL OVER $y = -1$

$(x, y) \rightarrow (x, -y - 2)$

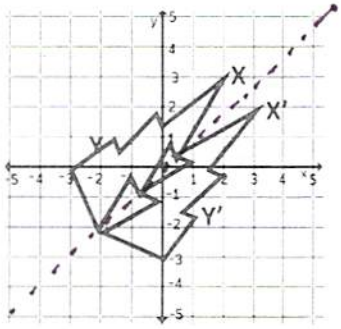
15)




REFL. OVER $x = \frac{1}{2}$

$(x, y) \rightarrow (-x + 1, y)$

16)




REFL. OVER $y = x$

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

Glide Reflections

**Directions: Write the rule of the transformation. (This is a mixed review).**

17) A line segment is reflected over y = –x and then translated left 4 units and up 4 units.

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

18) A line segment is translated 5 units left and then reflected over the x axis.

$(x, y) \rightarrow (x-5, -y)$

19) A triangle is reflected over x = 0 (y axis) and then translated up 7 units.

$(x, y) \rightarrow (-x, y+7)$

20) A triangle is reflected over y = x and then translated using <5, 5>.

$(x, y) \rightarrow (y+5, x+5)$

**Directions: Describe the transformation.).**

21) (x, y) → (–x, y + 6)

REFLECT OVER Y-AXIS
TRANS UP 6

22) (x, y) → (x + 3, –y)

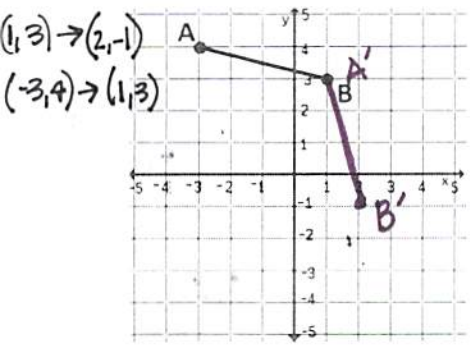
REFLECT OVER X-AXIS
TRANS RIGHT 3

23) (x, y) → (y + 3, x + 3)

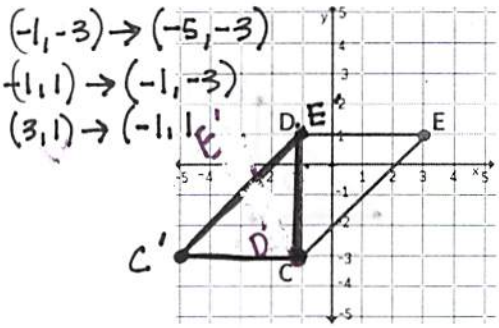
REFL OVER y=x
TRANS <3, 3>

**Directions: Complete the transformation of the new image.**

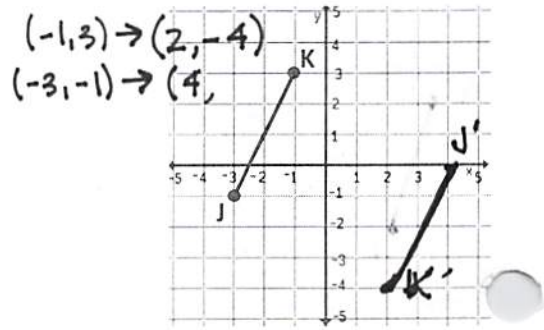
24) $\overline{AB}(x, y) \rightarrow \overline{A'B'}(-y + 5, -x)$



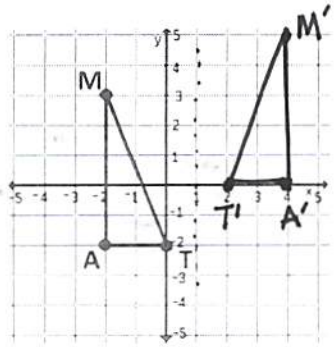

25) ΔCDE (x, y) → ΔC'D'E' (y – 2, x – 2)



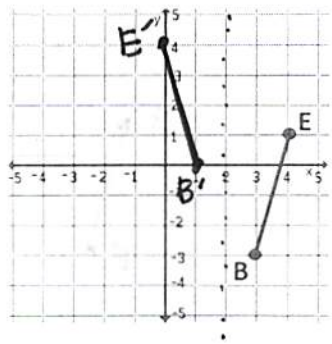

26) $\overline{JK}(x, y) \rightarrow \overline{J'K'}(-x + 1, -y - 1)$



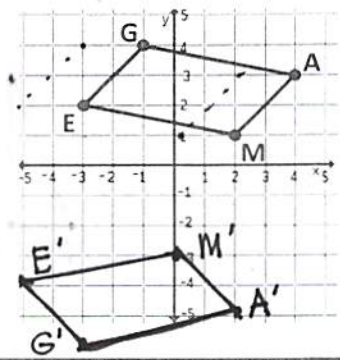

27) Reflect ΔMAT over x = 1 and then translate it using < 0, 2>.




28) Reflect $\overline{BE}$ over x = 2 and then translate it up 3.

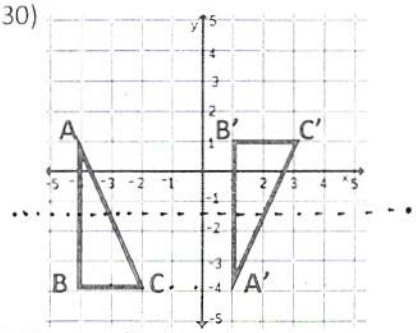



29) Translate quad GAME by <–2, 0> and then reflect it over y = –1.



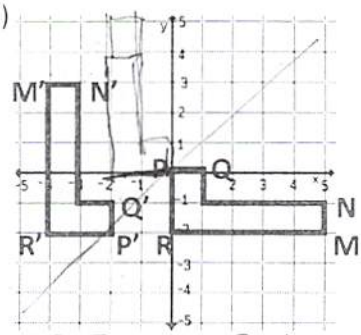

**Describe in words the transformation shown and write the rule for this transformation.**

30)



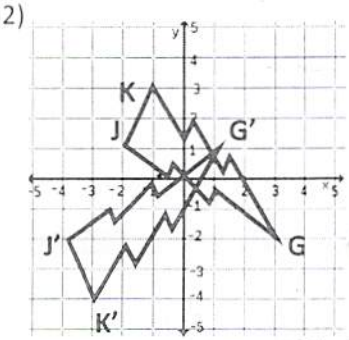

REFLECT OVER y = -1.5
TRANSLATE 5 RIGHT.
$(x, y) \rightarrow (x+5, -y-3)$

31)




REFLECT OVER y=x
THEN TRANSLATE <-2, -2>
$(x, y) \rightarrow (y-2, x-2)$

32)




REFLECT OVER $y = -\frac{1}{2}$
TRANSLATE 2 ~~RIGHT~~ LEFT
$(x, y) \rightarrow (x-2, -y-1)$