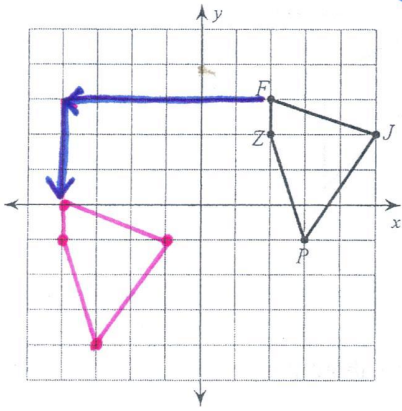


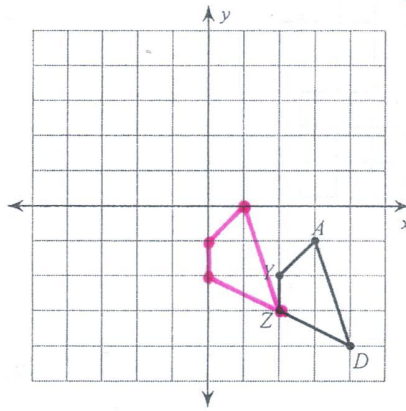
Transformations Notes

Graph the image of the figure using the transformation given.

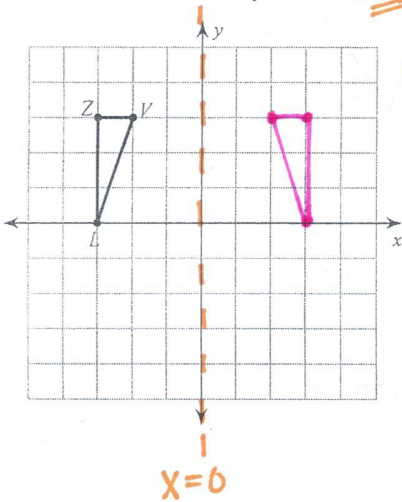
- 1) translation: $(x, y) \rightarrow (x - 6, y - 3)$
left 6
down 3



- 2) translation: $(x, y) \rightarrow (x - 2, y + 1)$
left 2
up 1

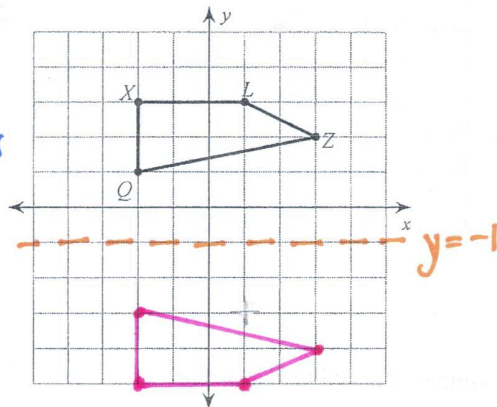


- 3) reflection across the y-axis \rightarrow or the $x=0$ line

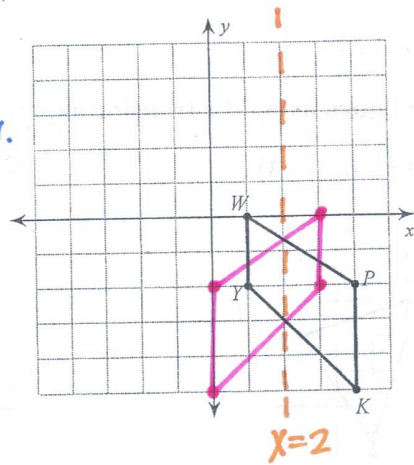
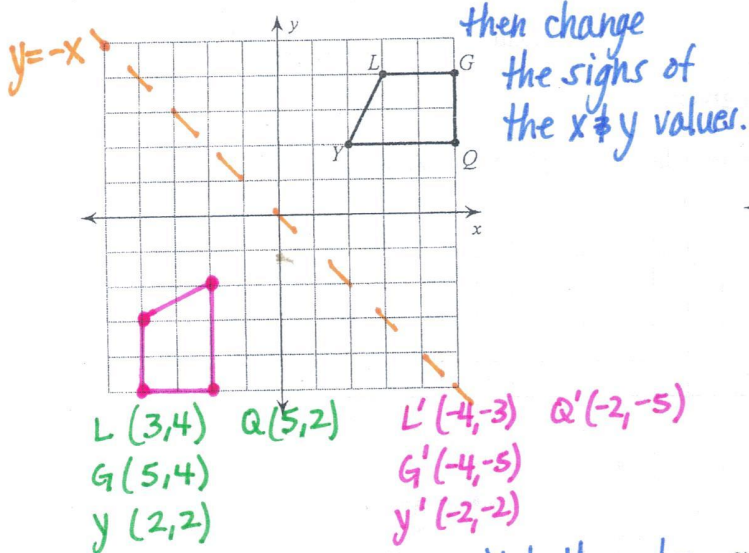


change the sign of the x-values

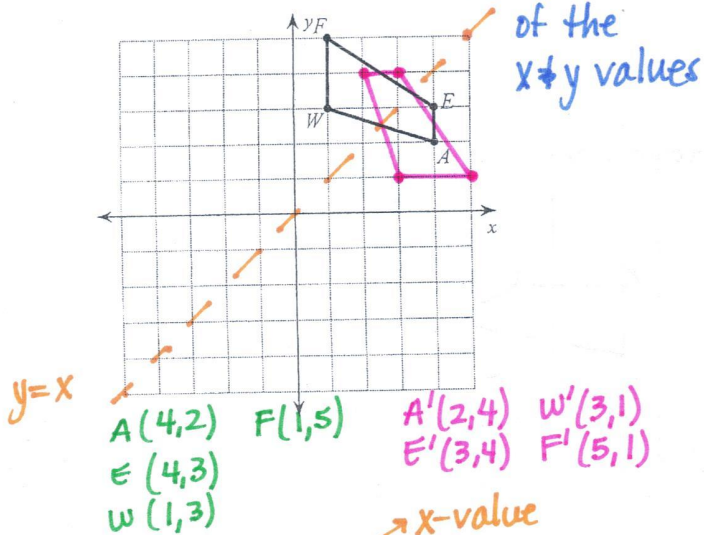
- 4) reflection across $y = -1$



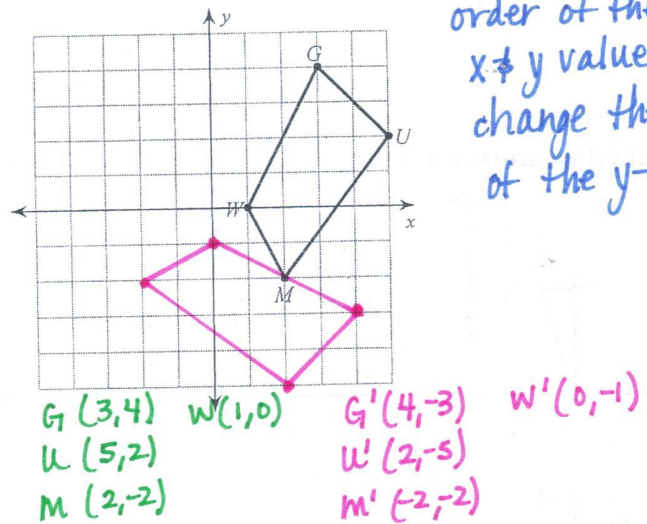
- 5) reflection across $y = -x$ → switch the order then change the signs of the $x \neq y$ values. 6) reflection across $x = 2$



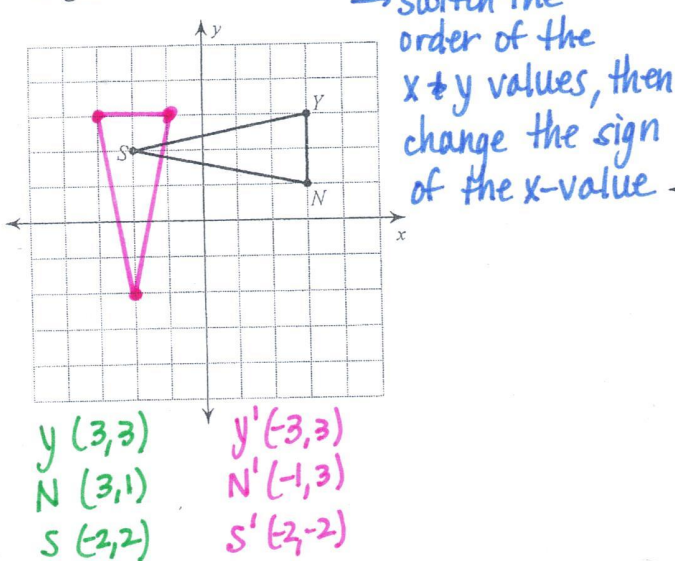
- 7) reflection across $y = x$ → switch the order of the $x \neq y$ values



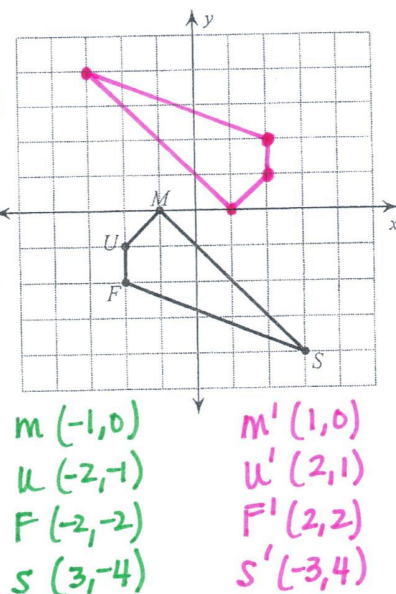
- 8) rotation 90° clockwise about the origin → switch the order of the $x \neq y$ values, then change the sign of the y -value



- 9) rotation 90° counterclockwise about the origin → switch the order of the $x \neq y$ values, then change the sign of the x -value



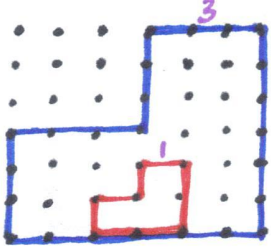
- 10) rotation 180° about the origin → change the sign of the $x \neq y$ values.

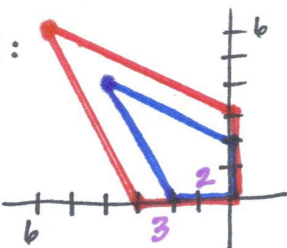


* rotation 270° clockwise = rotation 90° counterclockwise
 * rotation 270° counterclockwise = rotation 90° clockwise

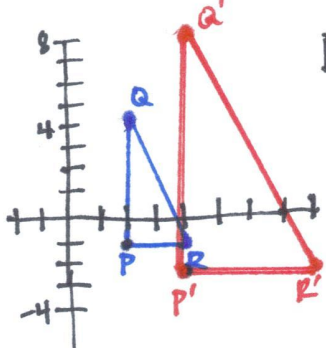
Dilations (Section 10-6)

* A dilation is a reduction or enlargement of an image with a scale factor that is the ratio of the lengths of the corresponding sides.

#1 ex:  red is the dilation of the blue image.
enlargement/reduction
scale? $\frac{1}{3}$

#2 ex:  enlargement/reduction
scale? $\frac{3}{2}$

scale factor of 2: so times x's by 2 & y's by 2.

#3 ex:  $D_2(\triangle PQR)$
 $P(2,-1) \rightarrow P'(4,-2)$
 $Q(2,4) \rightarrow Q'(4,8)$
 $R(4,-1) \rightarrow R'(8,-2)$

* Dilations & scale factors can be used in real-world enlargements or reductions.

Got it?

ex: $h = 20.4$ cm
go from 100% to 25%
scale factor of 0.25
what is h' ?

* new image = actual \cdot (scale factor)

$$h' = 20.4 (0.25)$$

$$h' = 5.1 \text{ cm}$$