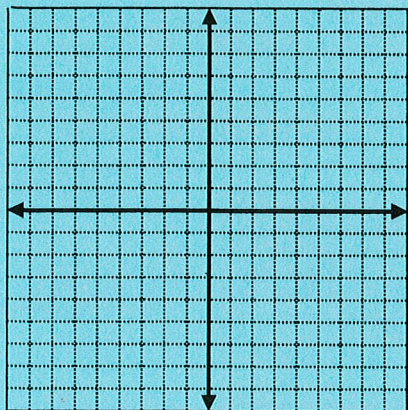


Unit 2 Test Review

1) Translate the following figures. Identify the location of the image points. (Both figures should be on your graph).

a. $\triangle JET$ has the coordinates
J(3, 5), E(4, 2), and T(-4, 3)

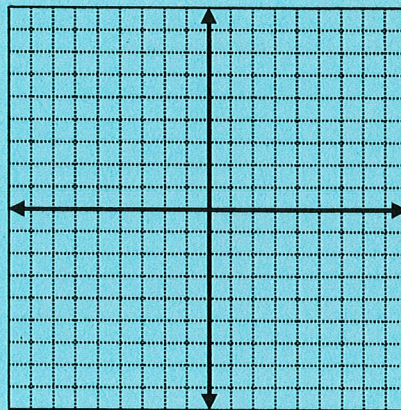
Translate: $\langle 4, -3 \rangle$



J'(7,2)
E'(8,-1)
T'(0,0)

b. $\triangle HAM$ has the coordinates
H(-7, -9), A(-6, -5), and M(2, -6)

Translate: $(x, y) \rightarrow (x - 2, y + 4)$



H'(-9,-5)
A'(-8,-1)
T'(0,-2)

2) Write a rule for each of the following.

a. Translation 3 units to the right and 8 units up

$\langle 3, 8 \rangle$ and $(x, y) \rightarrow (x+3, y+8)$

b. $\langle -7, 2 \rangle$

$(x, y) \rightarrow (x-7, y+2)$ L7 up 2

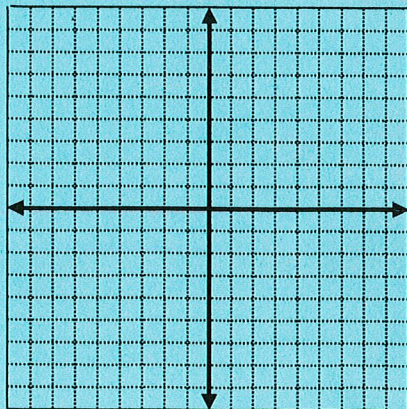
c. $(3, -4) \rightarrow (-2, -1)$

L5, up 3 $(x, y) \rightarrow (x-5, y+3)$ $\langle -5, 3 \rangle$

3) Reflect the following figures. Identify the location of the image points. (Both figures should be on your graph).

a. $\triangle YOU$ has vertices
Y(2, 1), O(3, -5) and U(-2, 4)

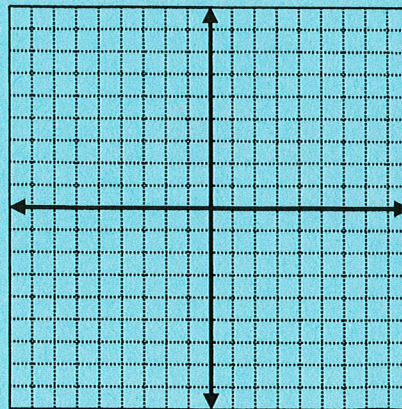
Reflect: $x = -3$



Y'(-8,1)
O'(-9,-5)
U'(-4,4)

b. $\triangle GYM$ has vertices
G(-2, 3), Y(1, 6) and M(3, 4)

Reflect: line $y = x$



G'(3,2)
Y'(6,1)
M'(4,3)

4) Write a rule for each of the following.

a. Reflection over the x-axis

$$(x, -y)$$

b. Reflection over the line $y=x$

$$(y, x)$$

c. Reflection over the y-axis

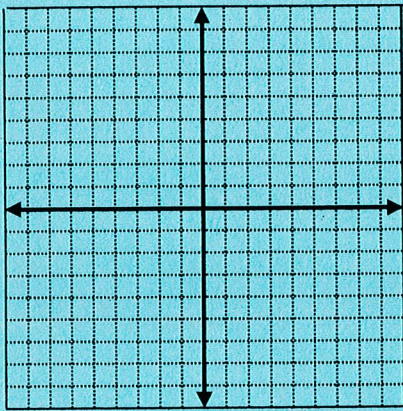
$$(-x, y)$$

5) Rotate the following figures. Identify the location of the image points. (Both figures should be on your graph).

a. $\triangle XYZ$ with vertices

$X(-1, 3)$, $Y(4, -2)$, and $Z(2, -5)$

Rotate: 90°



$$x'(-3, -1)$$

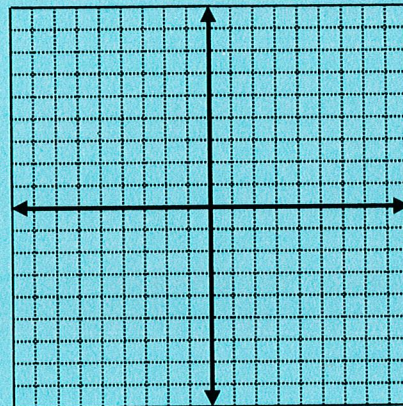
$$y'(2, 4)$$

$$z'(5, 2)$$

b. $\triangle SUN$ with vertices

$S(4, 7)$, $U(5, 4)$, and $N(8, 6)$

Rotate: 270° about the point $(0, 0)$



$$s'(7, -4)$$

$$u'(4, -5)$$

$$n'(6, -8)$$

6) Write a rule for each of the following.

a. Rotation of 270° about the origin

$$(y, -x)$$

b. Rotation of 90° about the origin

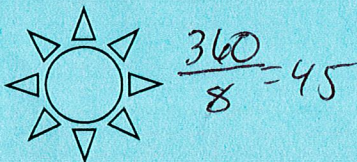
$$(y, x)$$

c. Rotation of 180° about the origin

$$(-x, -y)$$

7) Do the following have rotational symmetry? If they do what is the angle of rotation?

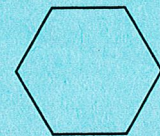
a.



$$\frac{360}{8} = 45$$

b.

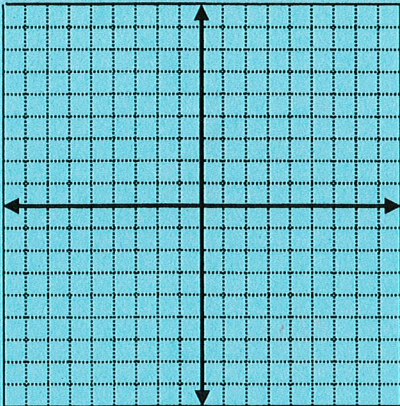
$$\frac{360}{6} = 60$$



8) Dilate the following figures. Identify the location of the image points. (Both your figures should be on your graph).

a. $\triangle RST$ with vertices
 $R(2, 1)$, $S(-3, 2)$, and $T(-2, -2)$

Dilation: Scale Factor 3



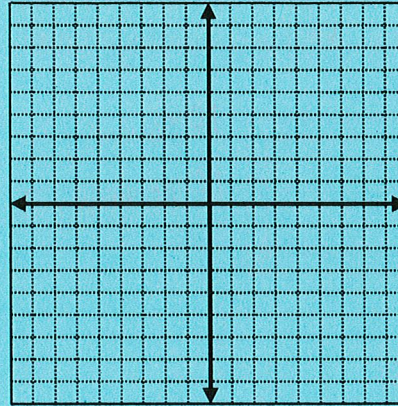
$R'(6, 3)$

$S'(-9, 6)$

$T'(-6, -6)$

b. $\triangle SAM$ with vertices
 $S(2, 4)$, $A(-8, 6)$, $M(-4, 2)$

Dilation: Scale factor $\frac{1}{2}$



$S'(1, 2)$

$A'(-4, 3)$

$M'(-2, 1)$

9) Write a rule for the following.

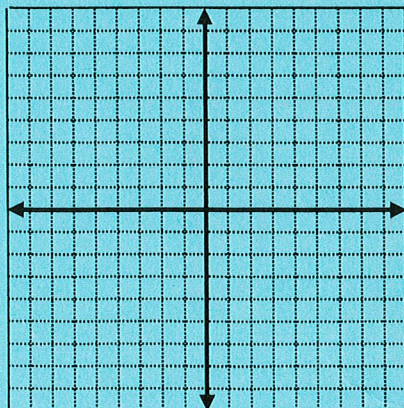
a. Dilation with a scale factor of 2

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

10) Perform the following glide reflections. Identify the location of the image points. (Both your figures should be on your graph).

a. $\triangle MSU$ with vertices
 $M(5, 0)$, $S(3, 7)$, and $U(7, 4)$

$\langle -4, -5 \rangle$ and reflected over the y-axis



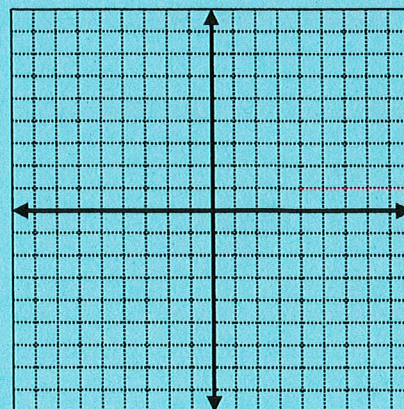
$S''(1, 2)$

$U''(-3, -1)$

$M''(-1, -5)$

b. $\triangle WIN$ with vertices
 $W(-8, -7)$, $I(-3, -5)$, and $N(-6, -1)$

$\langle 3, 1 \rangle$ and reflected over the x-axis



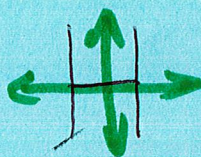
$W''(-5, 6)$

$I''(0, 4)$

$N''(-3, 0)$

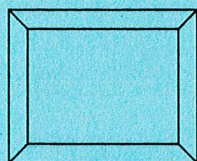
11) How many lines of symmetry does the letter H have?
 Draw the lines of symmetry.



2



12) Do the following have reflectional symmetry? If so how many lines of symmetry do the following figures have? Draw all the lines of symmetry.

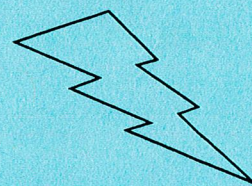
a.



If square, 4 
 If rectangle, 2 

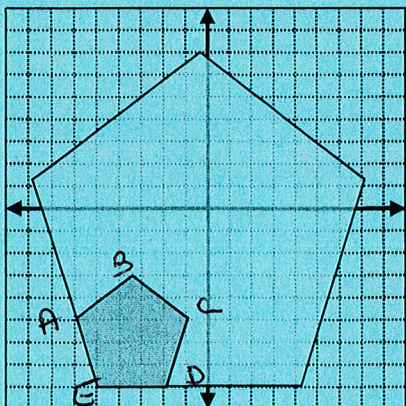
2 or 4

b.



None

13) Using the given diagram to find the scale factor of the dilation. (The gray figure is the pre-image).



Scale Factor $\frac{9}{3} = 3$

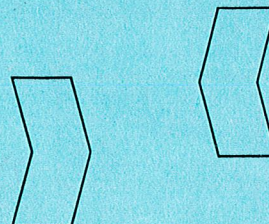
Enlargement or Reduction?

14) The right figure is an isometry of the left figure. Tell whether their orientations are the same or opposite. Then, classify the isometry.

a. Reflection



b. Glide



***Be able to explain what happens with 2 reflections over parallel or intersecting lines. → translation

*** Be able to rotate points/lines around regular polygons (last question of last quiz!)