Geometry – Multiple Transformations Due 11/06 Name: _____

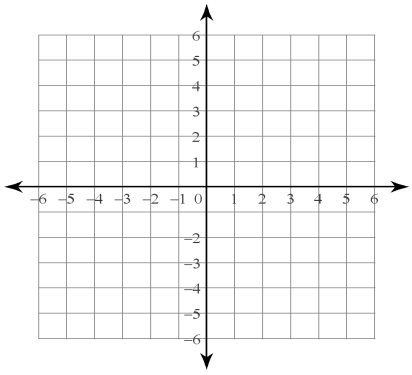
The following worksheet is for you to discover how to do MULTIPLE TRANSFORMATIONS!
Work with a partner or group of 3 – but make sure you are **WORKING THE WHOLE PERIOD!!!**
You should already know how to do the following:

- Translations (slides)
- Reflections (flips, like with a mirror)
- Rotations (spins or turns)

Let's start out with some easier single-transformations to get "warmed-up".

1) Translate ΔQRS if Q(4,1), R(1,-2), S(2,3) by the rule (x,y)→(x – 3, y – 4) to make ΔJKL

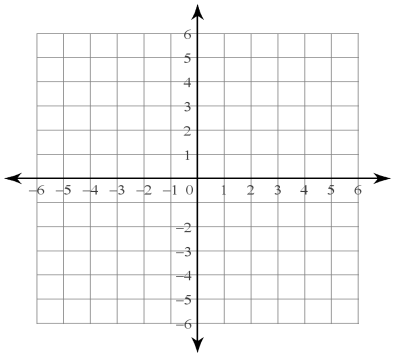
$y = |x-2| - 1$



J (_____,_____)
K (_____,_____)
L (_____,_____)

2)Reflect ΔJKL if J(1,-3), K(-2,-6), and L(-1,-1) over the x-axis to make ΔNIP

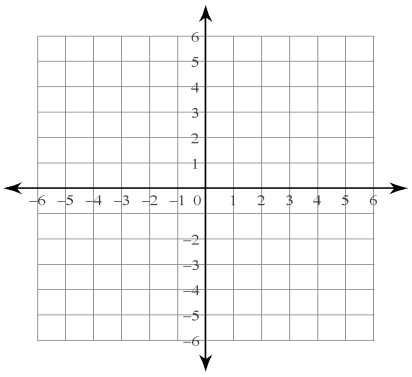
$y = |x-2| - 1$



N(___,___)
I(___,___)
P(___,___)

3) Rotate ΔCAR if C(-1,-4), A(2,3), R(-3,-2) 180^o about the origin to make ΔFIG

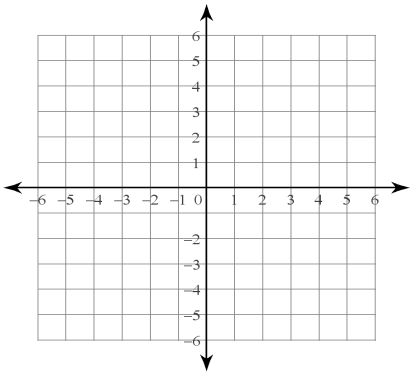
$y = |x-2| - 1$



F(___,___)
I(___,___)
G(___,___)

4) Reflect ΔFIG if F(1,4), I(-2,-3), and G(3,2) over the y-axis to make ΔRAT

$y = |x-2| - 1$



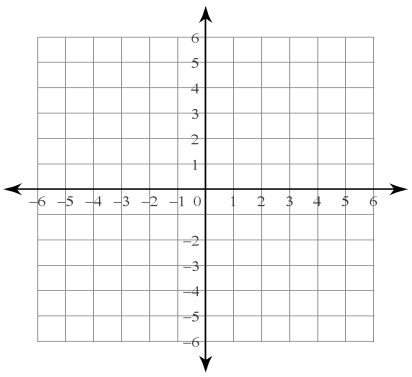
R(___,___)
A(___,___)
T(___,___)

5) What did you notice in problems 1&2 and problems 3&4. How were the shapes related? Explain how you could translate ΔQRS by the rule (x,y)→(x – 3, y – 4) and then reflect the image of the x-axis. Where does the final image end up?

How would you rotate ΔCAR 180^o about the origin and then reflect it over the x-axis?

6) Now you are going to try some multiple transformations:

a) Translate ΔALT if A(-5,-1), L(-3,-2), T(-3,2) by the rule (x,y)→(x +6, y – 3) to make ΔHIK, then reflect the image over the y-axis to make ΔTEP.

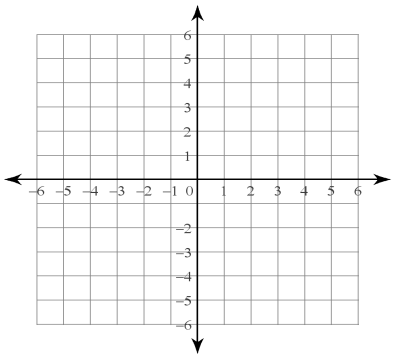


H(_____,_____)
I(_____,_____)
K (_____,_____)

T (_____,____)
E(_____,____)
P (_____,____)

b)Reflect ΔTAB if T(2,3), A(1,1), and B(4,-3) over the x-axis to make ΔEIP, then reflect the image over the y-axis to make ΔREY

$y = |x - 2| - 1$

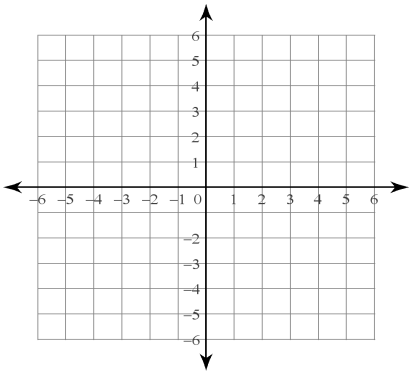


E(___,___)
I(___,___)
P(___,___)

R(___,___)
E(___,___)
Y(___,___)

c) Rotate ΔALT if A(-5,-1), L(-3,-2), T(-3,2) 90^o clockwise about the origin to make ΔHIK , then reflect the image over the x-axis to make ΔTEP.

$y = |x - 2| - 1$

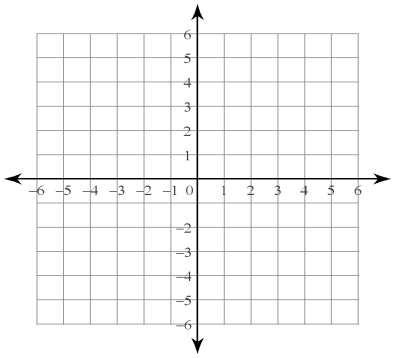


H (_____,_____)
I (_____,_____)
K(_____,_____)

T(_____,____)
E(_____,____)
P(_____,____)

d)Reflect ΔTAB if T(2,3), A(1,1), and B(4,-3) over the y-axis to make ΔEIP, then translatethe image by the rule (x,y)→(x +2, y – 1) to make ΔREY.

$y = |x - 2| - 1$

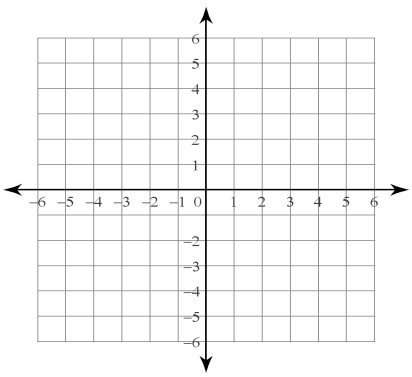


E(___,___)
I(___,___)
P(___,___)

R(___,___)
E(___,___)
Y(___,___)

e) Rotate ΔALT if A(-5,-1), L(-3,-2), T(-3,2) 180^o clockwise about the origin to make ΔHIK, then reflect the image over the y-axis to make ΔTEP.

$y = |x - 2| - 1$

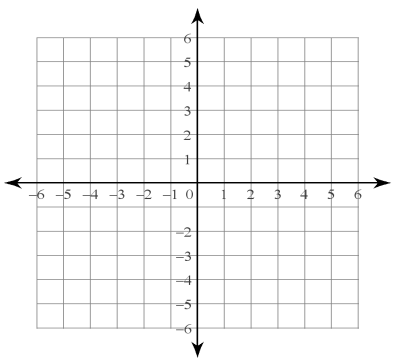


H (_____,_____)
I (_____,_____)
K (_____,_____)

T(_____,____)
E(_____,____)
P(_____,____)

f)Reflect ΔTAB if T(2,3), A(1,1), and B(4,-3) over the line x-axis to make ΔEIP , then translate the image by the rule (x,y)→(x – 5, y – 4) to make ΔREY

$y = |x - 2| - 1$



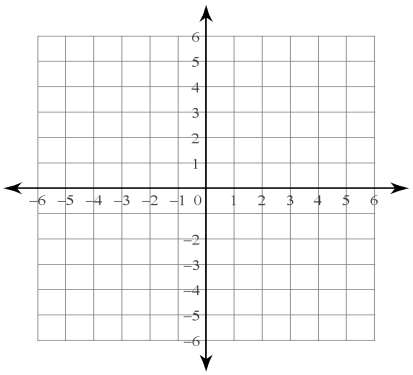
E(___,___)
I(___,___)
P(___,___)

R(___,___)
E(___,___)
Y(___,___)

7) Now we are going to explore if the order in which you to multiple transformations matters.

a) Translate ΔALT if A(-5,-1), L(-3,-2), T(-3,2) by the rule (x,y)→(x + 3, y + 2) to make ΔHIK , then reflect the image over the y-axis to make ΔTEP.

$y = |x - 2| - 1$

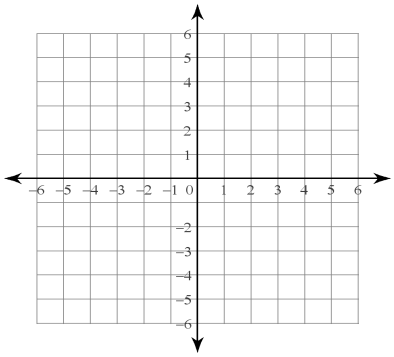


H (_____,_____)
I (_____,_____)
K (_____,_____)

T(_____,_____)
E(_____,_____)
P(_____,_____)

b)Reflect ΔALT if A(-5,-1), L(-3,-2), T(-3,2) over the y-axis to make ΔHIK, then translate the image by the rule (x,y)→(x + 3, y + 2) to make ΔTEP.

$y = |x - 2| - 1$



H(___,___)
I(___,___)
K(___,___)

T(___,___)
E(___,___)
P(___,___)

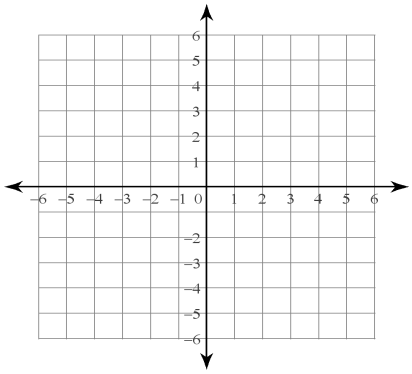
Did the order you did the transformations change the final image?

So, does order matter?

What about with rotations and reflections?

c) Rotate ΔTAB if T(2,3), A(1,1), B(4,-3) 90^o clockwise about the origin to make ΔHIK , then reflect the image over the line x-axis to make ΔTEP.

$y = |x - 2| - 1$

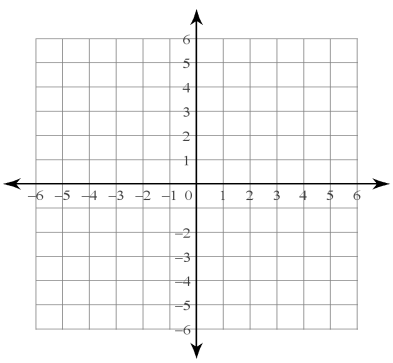


H (_____,_____)
I (_____,_____)
K (_____,_____)

T(_____,_____)
E(_____,_____)
P(_____,_____)

d)Reflect ΔTAB if T(2,3), A(1,1), and B(4,-3) over the x-axis to make ΔHIK, then Rotate the image 90^o clockwise about the origin to make ΔTEP.

$y = |x - 2| - 1$



H(___,___)
I(___,___)
K(___,___)

T(___,___)
E(___,___)
P(___,___)

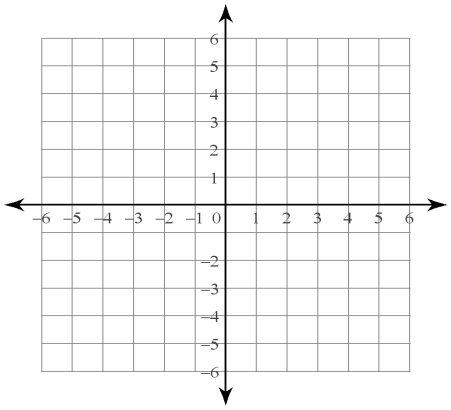
Did the order you did the transformations change the final image?

So, does order matter?

So, if you want to get the correct answer, should you do the transformations in the order given?

For this page you are going to try to discover what transformation(s) have taken place.
For each problem, write the name of the transformation, and any information needed to perform the transformation.

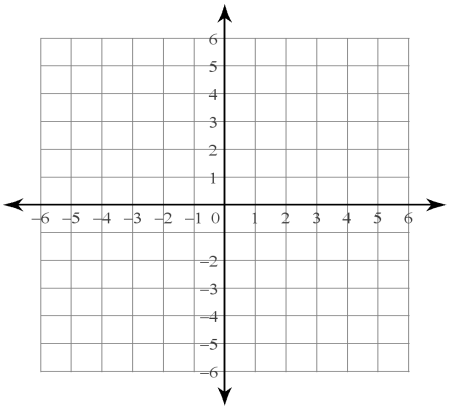
a) $y = |x - 2| - 1$



Transformation? _____

What do you need to know to do the transformation?

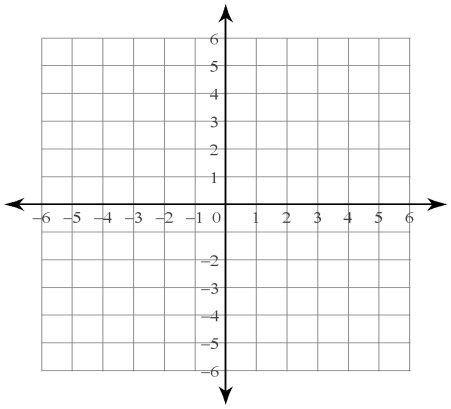
b) $y = |x - 2| - 1$



Transformation? _____

What do you need to know to do the transformation?

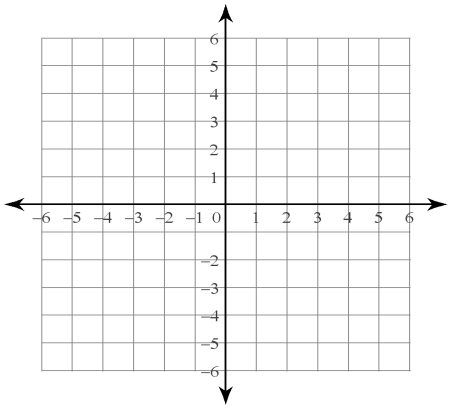
c) $y = |x - 2| - 1$



Transformation? _____

What do you need to know to do the transformation?

d) $y = |x - 2| - 1$



Transformation? _____

What do you need to know to do the transformation?