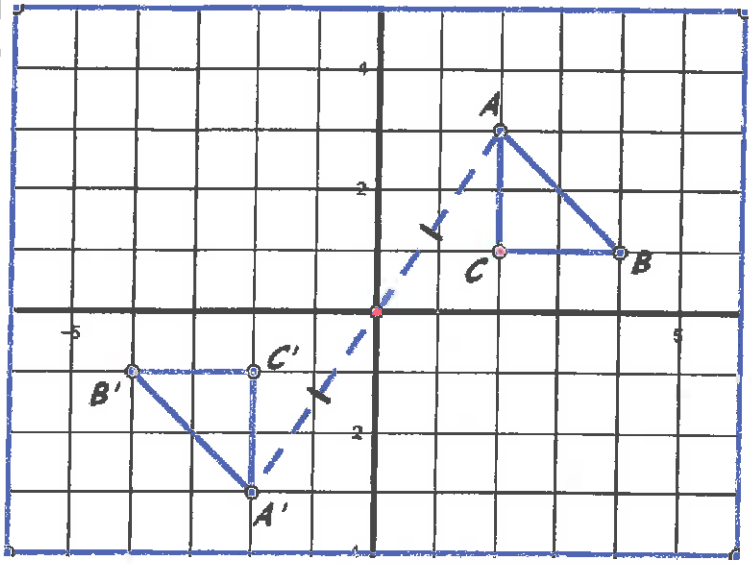
Geometry
Unit 9 – Day 3

Name_____

Point Reflection, Composition of Transformations & Glide Reflection

Point Reflection: Reflect through a point.



$\Delta A'B'C'$ is the image of ΔABC under a Point Reflection through the origin.

$A(2,3) \rightarrow A'(-2,-3)$
$B(4,1) \rightarrow B'(-4,-1)$
$C(2,1) \rightarrow C'(-2,-1)$

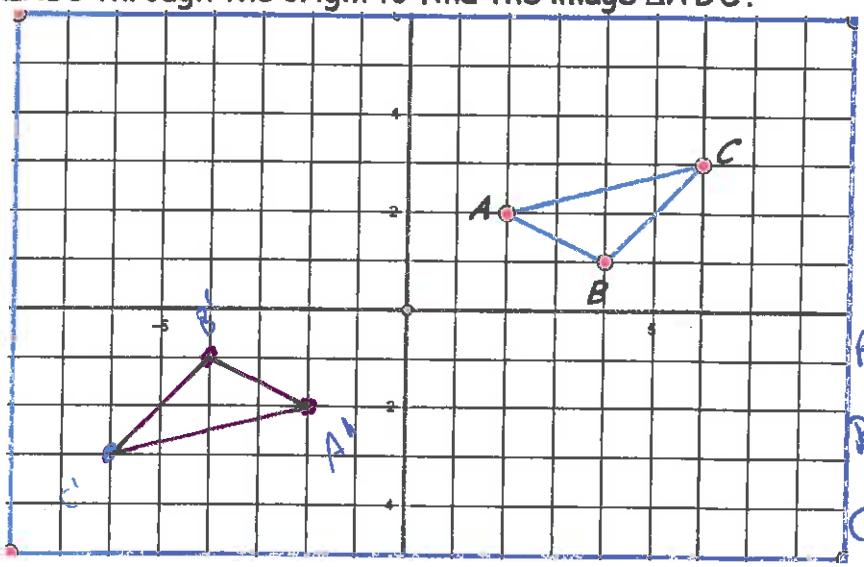
Describe the Point Reflection:

Notation: R_P

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

Same as a 180° Rotation.

Example 1: Reflect ΔABC through the origin to find the image $\Delta A'B'C'$.



$A'(-2,-2)$
$B'(-4,-1)$
$C'(-6,-3)$

Example 2: Which of the following transformations will also produce $\Delta A'B'C'$ in example 1?

a) $r_{y=x}$ b) $R_{180°}$ c) $D_{(-1)}$ d) $T_{(-2,-8)}$

Example 3: Which phrase best describes a Point Reflection?

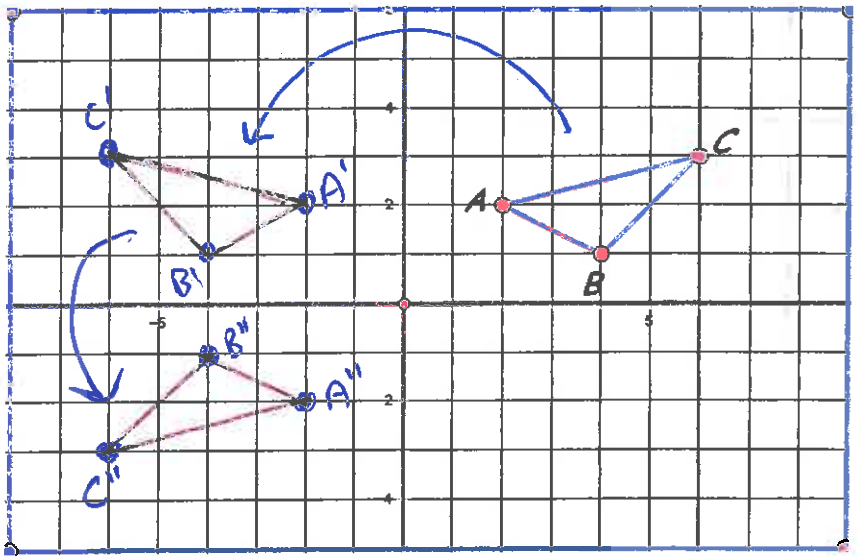
a) Direct Isometry b) Opposite Isometry c) Not an Isometry

Composition: perform 2 or more transformations

$r_{x\text{-axis}} \circ r_{y\text{-axis}}$

Last — First

Example 1: Find the image of ΔABC after the composition of transformations $r_{x\text{-axis}} \circ r_{y\text{-axis}}$.



Example 2: Which phrase best describes the composition in Example 1?

a) Direct Isometry b) Opposite Isometry c) Not an Isometry

Example 3: Which single transformation would give the same result as in Example 1?

a) $T_{(-9,0)}$ b) r_{y-axis} c) D_2 d) R_{180°

Example 4: Give an example of a composition of 2 transformations that is:

a) a Direct Isometry: $T_{(1,2)} \circ R_{90^\circ}$

b) an Opposite Isometry: $T_{(1,2)} \circ r_{y=x}$

c) not an Isometry: $T_{(1,2)} \circ D_3$

Glide Reflection: Slide + Reflect.

Glider reflection = Trans. ∘ Reflection.

Remember... *the translation is always* parallel. *to the line of reflection.*

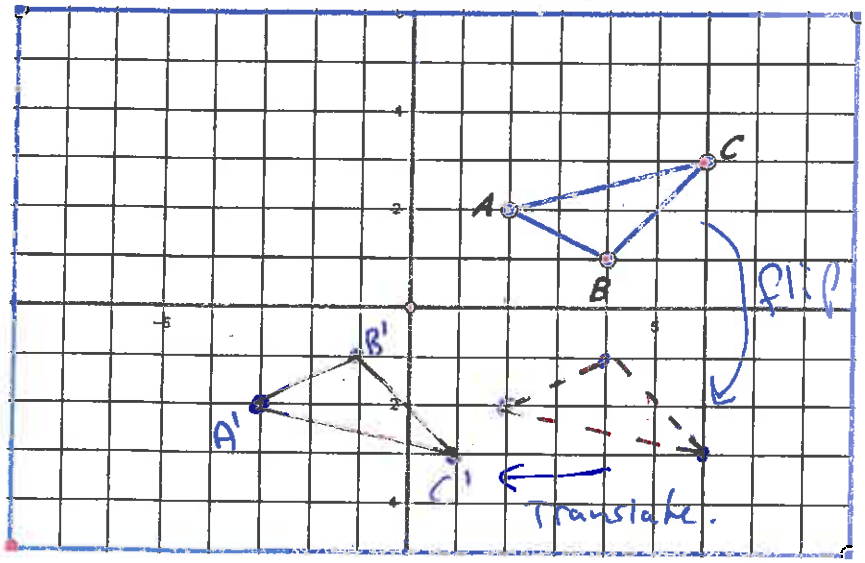
Example 1: Which picture represents a Glide reflection?

a)

b)

c)

Example 2: Graph the glide reflection image of ΔABC using $r_{x\text{-axis}}$ and $\langle -5,0 \rangle$. translation vector



Example 3: Which phrase best describes a Glide Reflection?

a) Direct Isometry

b) Opposite Isometry

c) Not an Isometry