

Warm Up

Find the image of $(2, 3)$ under each transformation.

1. translation: $(x, y) \rightarrow (x - 6, y - 2)$



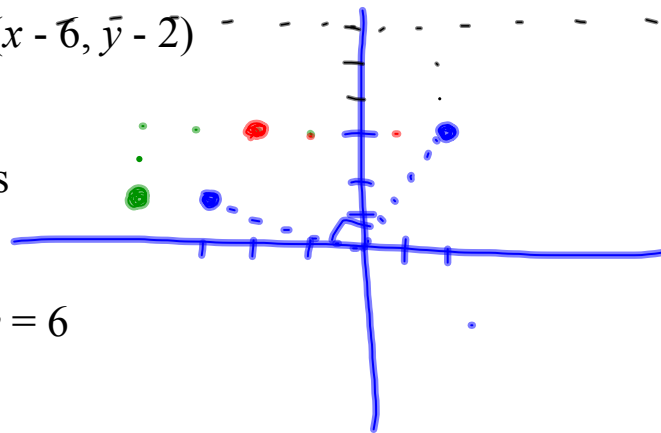
2. reflection in the y -axis



3. reflection in the line $y = 6$



4. rotation 90° about the origin

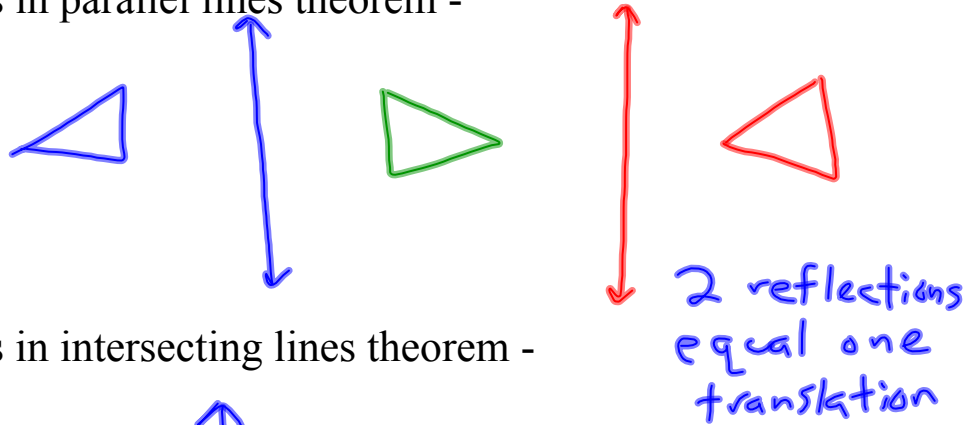


9-5 Apply Compositions of Transformations

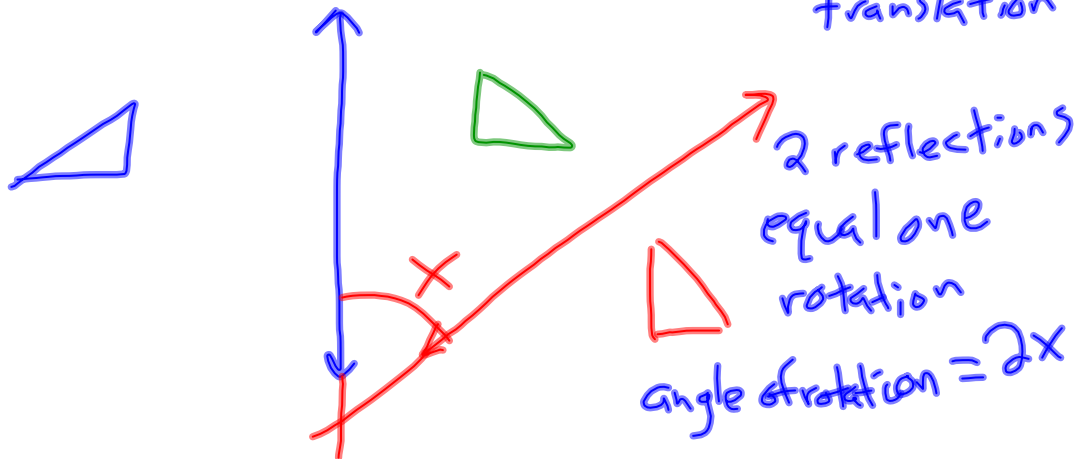
Composition - a combination of transformations

Glide reflection - translation then a reflection

Reflections in parallel lines theorem -



Reflections in intersecting lines theorem -



Ex 1 Find the image of triangle PQR after the glide reflection

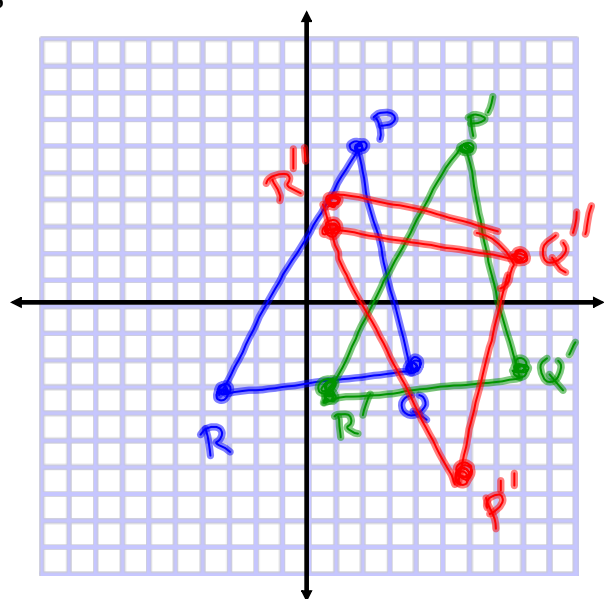
Translation: $(x, y) \rightarrow (x + 4, y)$

Reflection: in the x -axis

$P(2, 6)$

$Q(4, -2)$

$R(-3, -3)$



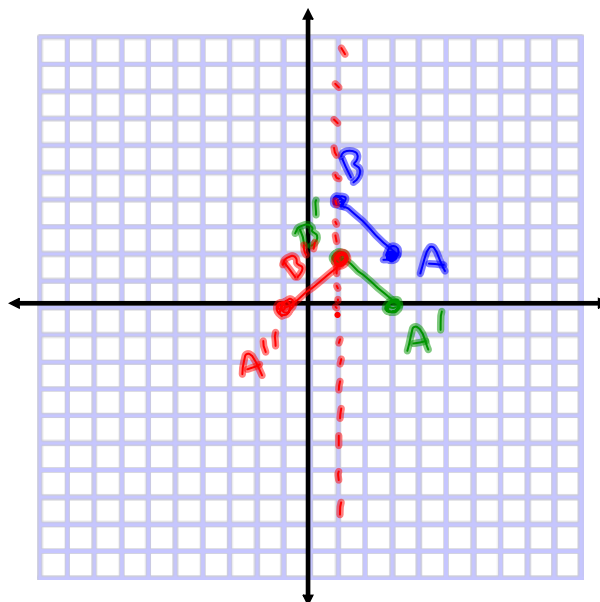
Ex 2 Graph the image of segment AB after the composition.

Translation: $(x, y) \rightarrow (x, y - 2)$ — green arrow

Reflection: in the line $x = 1$ — red dashed line

$A(3, 2)$

$B(1, 4)$



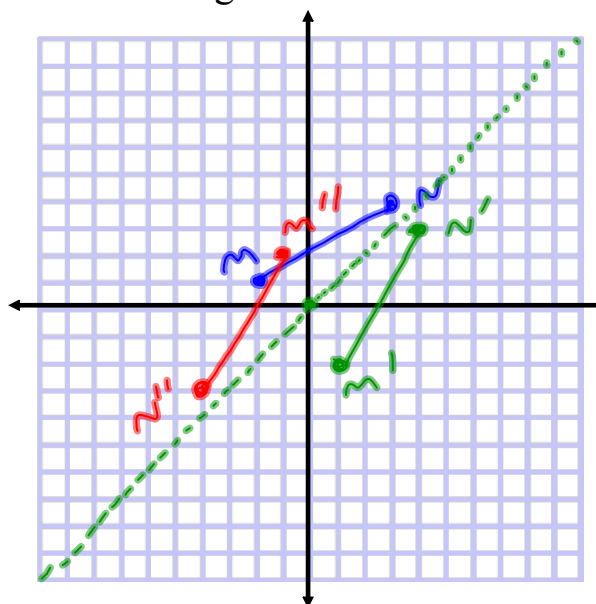
Ex 3 Graph the image of segment MN after the composition.

Reflection: in the line $y = x$

Rotation: 180 degrees about the origin

$M(-2, 1)$

$N(3, 4)$



Ex 4 Graph the image of the triangle MNK after the composition.

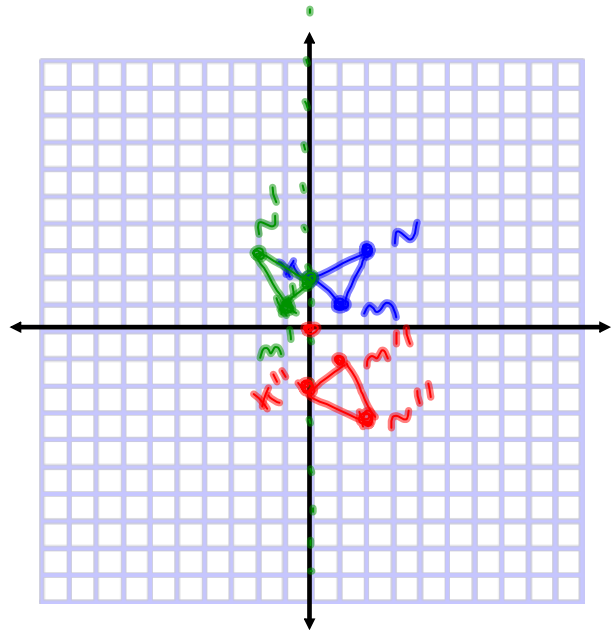
Reflection: in the y -axis —

Rotation: 180° about the origin —

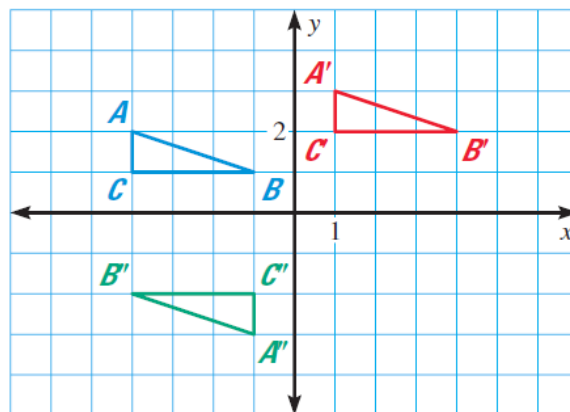
$M(1, 1)$

$N(2, 3)$

$K(0, 2)$



Ex. 5 Describe the composition of transformations.



$(x, y) \rightarrow (x+5, y+1)$
 rotation 180° about the origin

Ex. 6 Describe the composition of transformations.

