Reflections

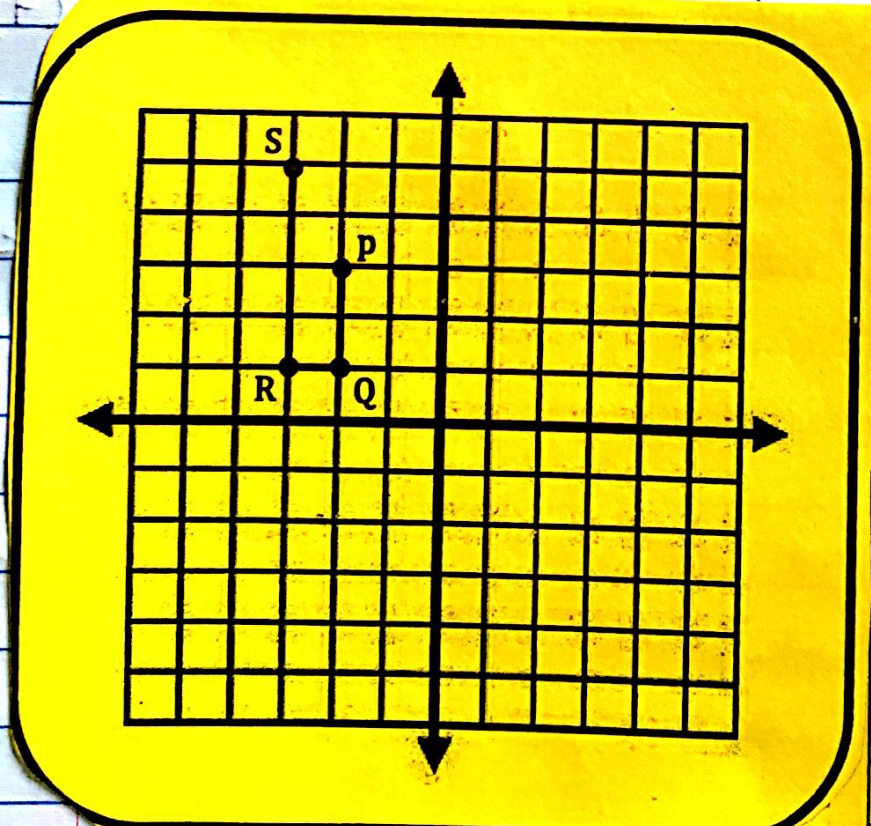
REFLECTIONS ARE CONGRUENT

Vocabulary

1. A **Reflection** is a transformation in which the image is a mirror of the preimage.

2. **Reflection Line** is the perpendicular bisector of the lines linking corresponding points in the preimage and image
   ⇒ The preimage and the image points are equidistant from the reflection line

- A point lying on the reflection line maps to itself (stays the same)



x-axis

$PQRS \rightarrow P'Q'R'S'$

$P(-2,3) \rightarrow P'(-2,-3)$

$Q(-2,1) \rightarrow Q'(-2,-1)$

$R(-3,1) \rightarrow R'(-3,-1)$

$S(-3,5) \rightarrow S'(-3,-5)$

y-axis

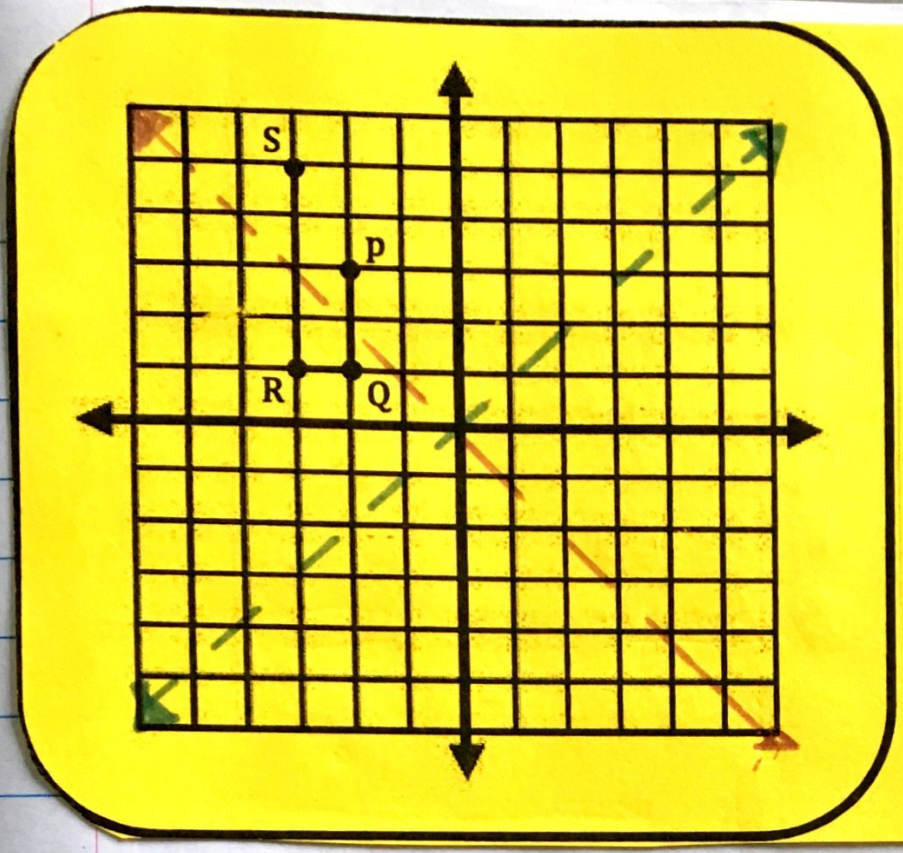
$PQRS \rightarrow P''Q''R''S''$

$P(-2,3) \rightarrow P''(2,3)$

$Q(-2,1) \rightarrow Q''(2,1)$

$R(-3,1) \rightarrow R''(3,1)$

$S(-3,5) \rightarrow S''(3,5)$



y = x

$PQRS \rightarrow P'Q'R'S'$

$P(-2,3) \rightarrow P'(3,-2)$

$Q(-2,1) \rightarrow Q'(1,-2)$

$R(-3,1) \rightarrow R'(1,-3)$

$S(-3,5) \rightarrow S'(5,-3)$

y = -x

$PQRS \rightarrow P''Q''R''S''$

$P(-2,3) \rightarrow P''(-3,2)$

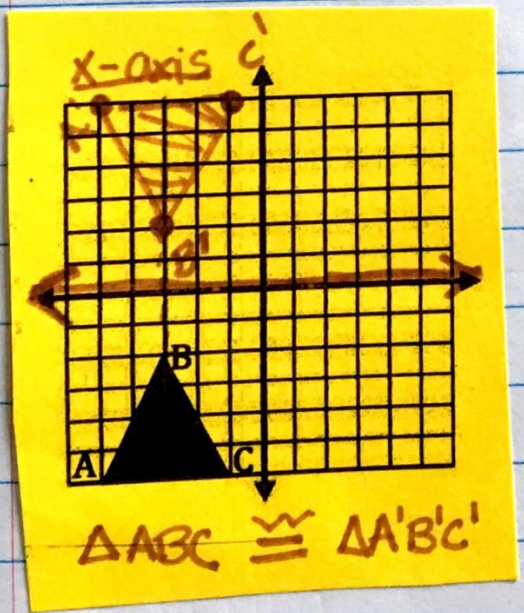
$Q(-2,1) \rightarrow Q''(-1,2)$

$R(-3,1) \rightarrow R''(-1,3)$

$S(-3,5) \rightarrow S''(-5,3)$

General Rules of Reflection:

	x-axis	y-axis	y = x	y = -x
(x, y)	(x, -y)	(-x, y)	(y, x)	(-y, -x)



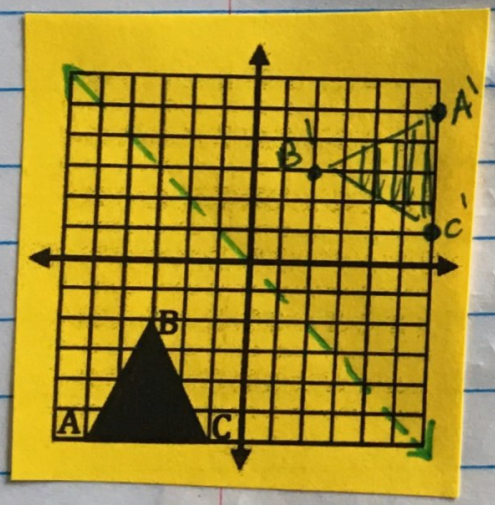
$\Delta ABC \cong \Delta A'B'C'$

$\Delta JLK \cong \Delta J'L'K'$

Reflected over $y=x$

Preimage	Image
Q (-5, 2)	Q' (2, -5)
R (-2, 5)	R' (5, -2)
S (-2, 1)	S' (1, -2)

$\Delta QRS \cong \Delta Q'R'S'$



Reflected over $y=-x$

Preimage	Image
A (-5, -6)	A' (6, 5)
B (-3, -2)	B' (2, 3)
C (-1, -6)	C' (6, 1)

$\Delta ABC \cong \Delta A'B'C'$