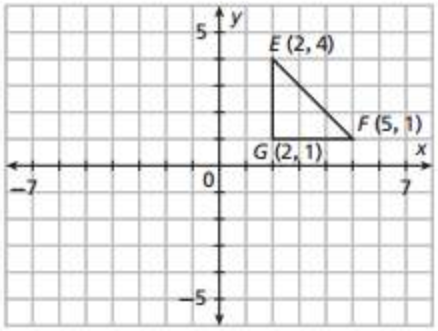
Warm Up 7th grade

Solve.

1. $72 + 18 + x = 180$ — $x = 90$
2. $80 + 70 + x = 180$ — $x = 30$
3. $x + 42 + 90 = 180$ — $x = 48$
4. $120 + x + 32 = 180$ — $x = 28$

Warm UP 8^{th} grade
Workbook Pg. 30 Explore #2

The triangle is the preimage. You will use the x- or y-axis as the line of reflection.



Reflection across the x-axis:

A Trace the triangle and the x- and y-axes on a piece of paper. Fold your paper along the x-axis and trace the image of the triangle on the opposite side of the x-axis.

B Sketch the image of the reflection. Label each vertex of the image. (The image of point E is point E'.)

C Complete the table.

Preimage	(2, 4)	(2, 1)	(5, 1)
Image			

D How does reflecting the figure across the x-axis change the x-coordinates? How does it change the y-coordinates?

E Complete the ordered pair to write a general rule for reflection across the x-axis. $(x, y) \rightarrow (x, y \times \quad)$

Reflection across the y-axis:

F Fold your traced image along the y-axis and trace the image of the triangle on the opposite side of the y-axis.

G Sketch the image of the reflection. Label each vertex of the image. (For clarity, label the image of point E as point E''.)

H Complete the table.

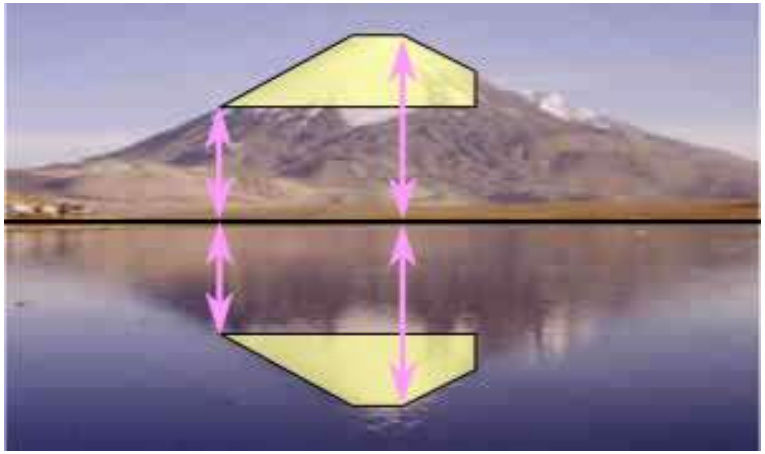
Preimage	(2, 4)	(2, 1)	(5, 1)

Geometric Reflections

Introduction Video

Reflection

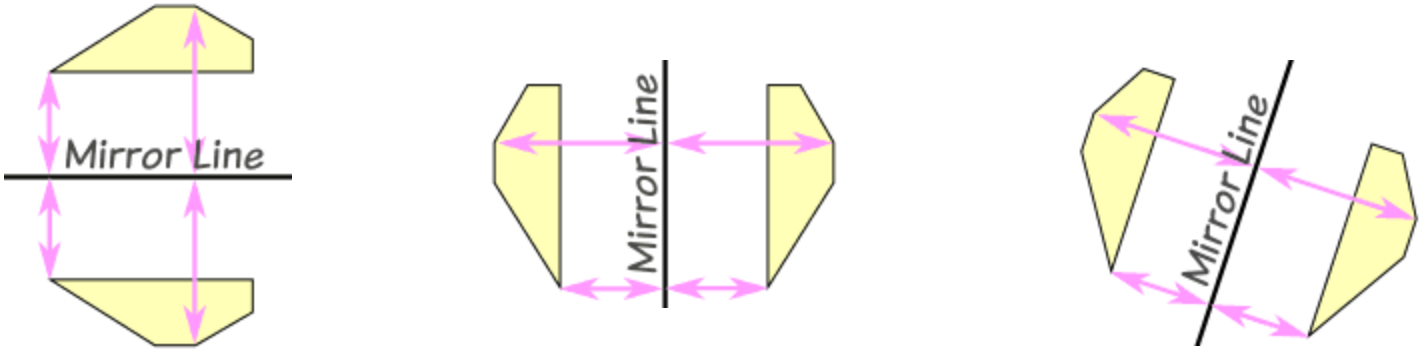
- Reflections are everywhere ... in mirrors, glass, and here in a lake.



. what do you notice ? Every point is the same distance from the central line ! *... and ...* The reflection has the same size as the original image

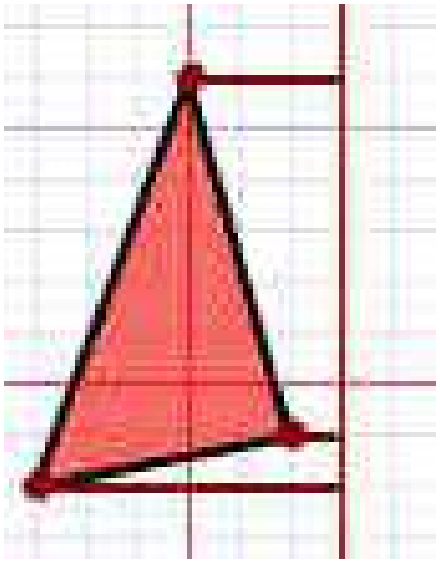
A reflection is a flip over a line.

- The central line is called the **Mirror Line** ... ... and it doesn't matter what direction the mirror line goes, the **reflected image** is always the same size, it just **faces the other way**:



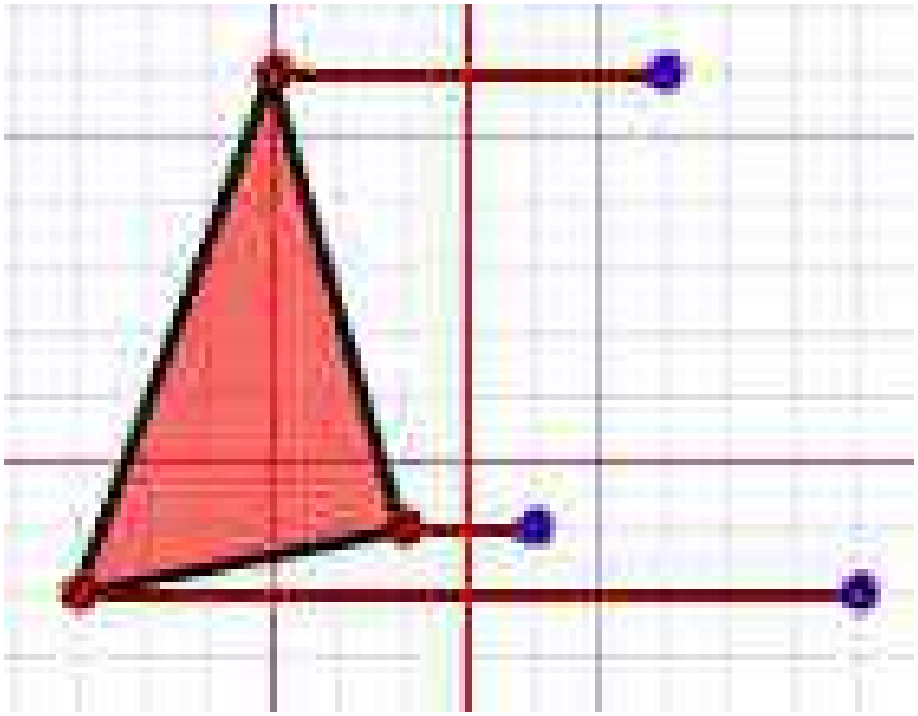
Step 1

- 1. Measure from the point to the mirror line (must hit the mirror line at a right angle)



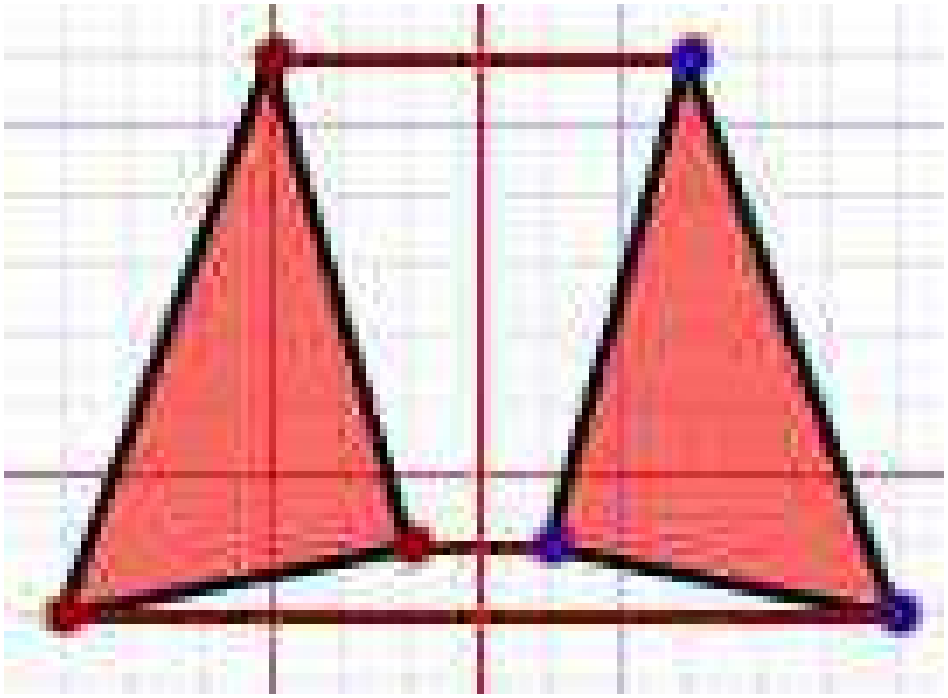
Step 2

- 2. Measure the same distance again on the other side and place a dot.



Step 3

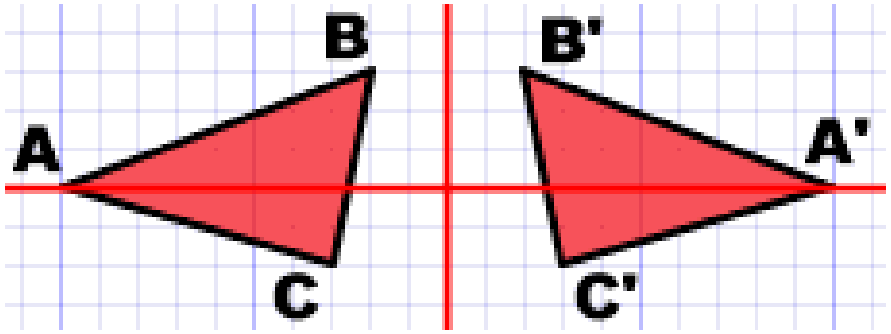
- 3. Then connect the new dots up!



Labels

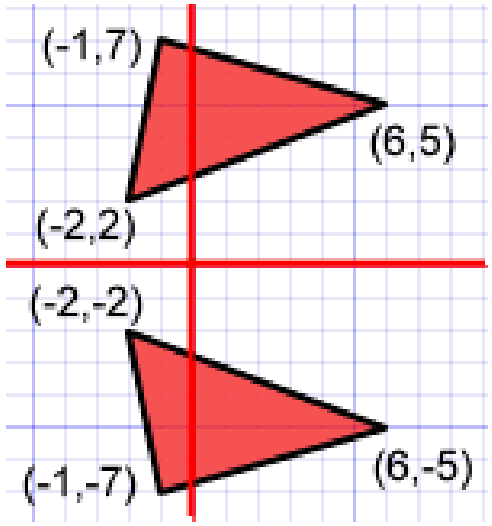
It is common to label each corner with letters, and to use a little dash (called a **Prime**) to mark each corner of the reflected image.

- Here the *original* is **ABC** and the reflected *image* is **A'B'C'**

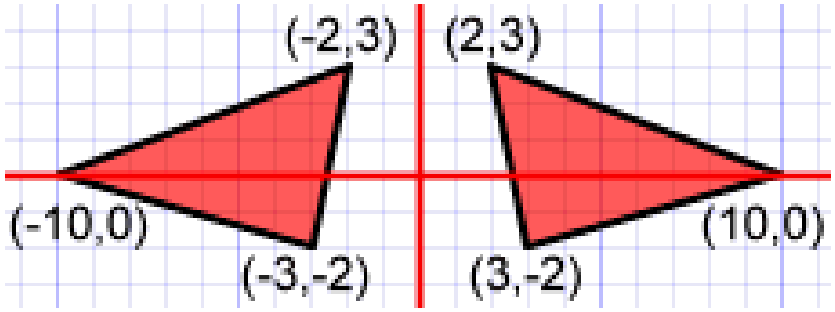


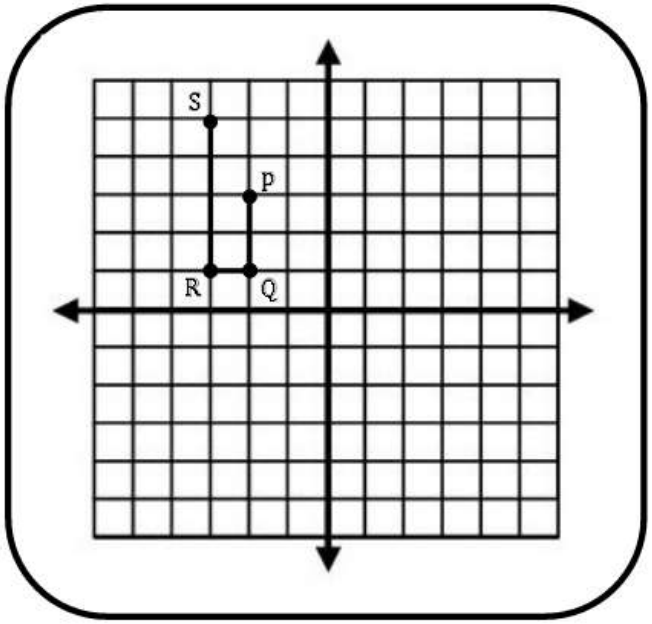
Tips

- **X-Axis**
- If the mirror line is the x-axis, just change each (x,y) into (x,-y)



- **Y-Axis**
- If the mirror line is the y-axis, just change each (x,y) into (-x,y)





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

$P(\quad) \rightarrow P'(\quad)$

$Q(\quad) \rightarrow Q'(\quad)$

$R(\quad) \rightarrow R'(\quad)$

$S(\quad) \rightarrow S'(\quad)$

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

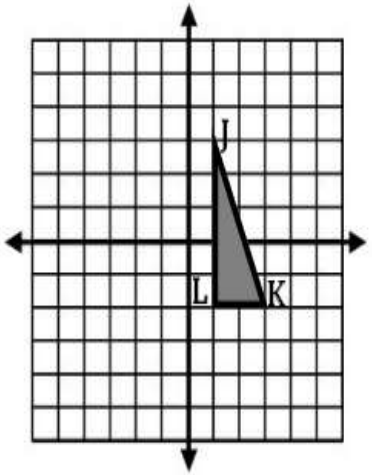
$P(\quad) \rightarrow P''(\quad)$

$Q(\quad) \rightarrow Q''(\quad)$

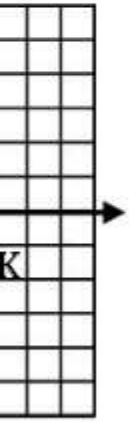
$R(\quad) \rightarrow R''(\quad)$

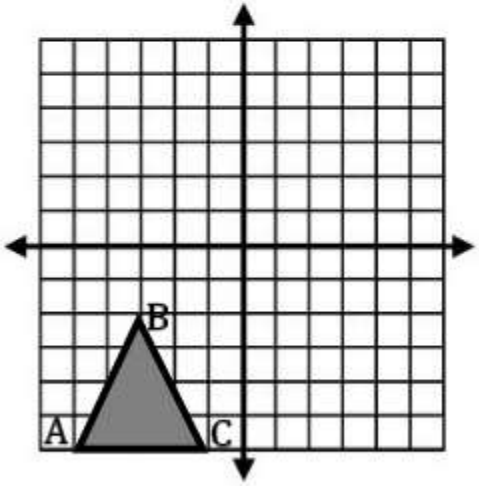
$S(\quad) \rightarrow S''(\quad)$

	x-axis	y-axis	Both at once!
(x,y)			



Reflect across the x-axis





Reflect across the y-axis

Video