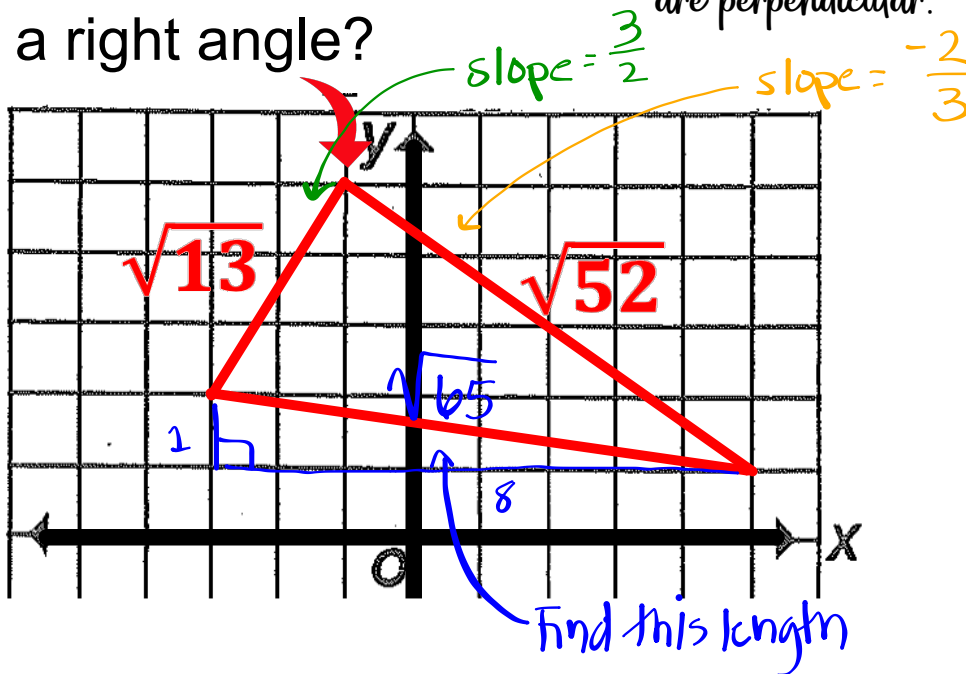


Warm Up

Slopes that are
negative reciprocals
are perpendicular.

4/8

Is this a right angle?



Is the red triangle
a right triangle?

$$\sqrt{13}^2 + \sqrt{52}^2 \stackrel{?}{=} \sqrt{65}^2$$

$$13 + 52 \stackrel{?}{=} 65$$

$$65 = 65 \checkmark$$

It IS a right triangle!

$$a^2 + b^2 = c^2$$

$$1^2 + 8^2 = c^2$$

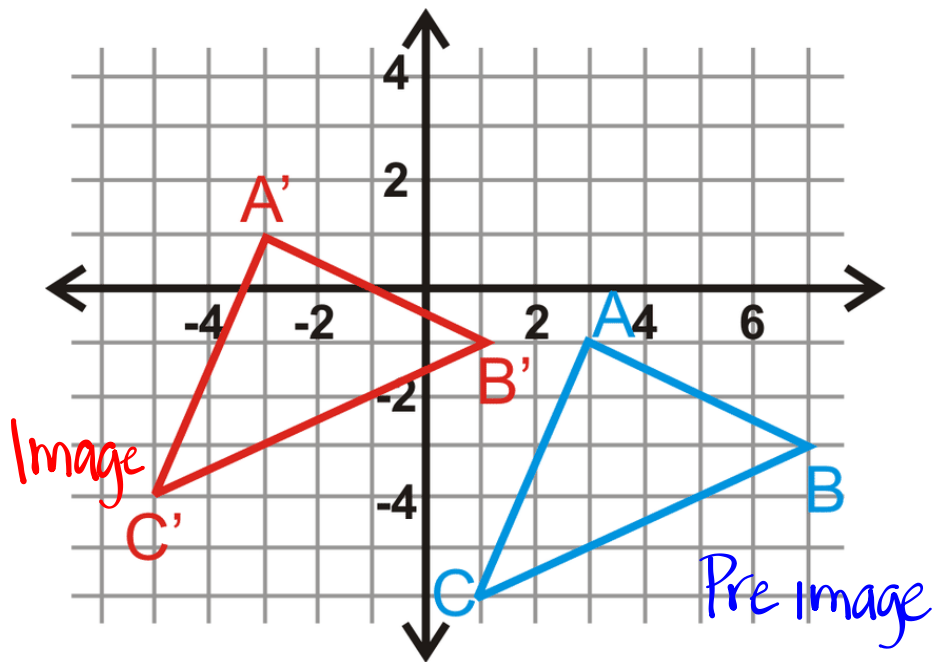
$$65 = c^2$$

$$\sqrt{65} = c$$

Transformations

Transformations move or change a figure.

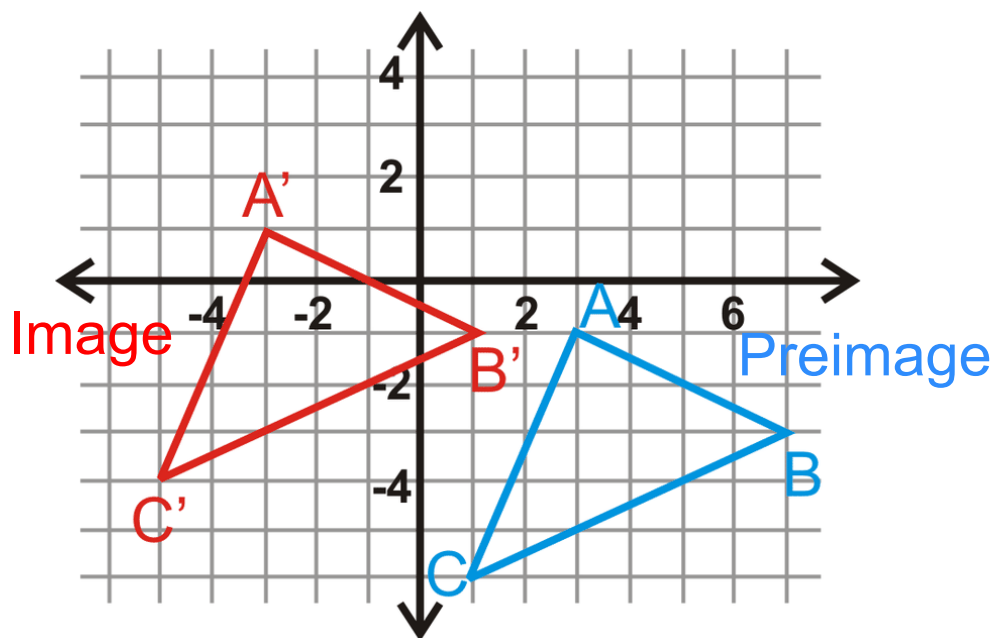
What do we call the figures we transform?



- The **original** figure is called the Pre Image
- The **transformed** figure is called the Image

- Every point in the Preimage follows the same rule to get to the image.

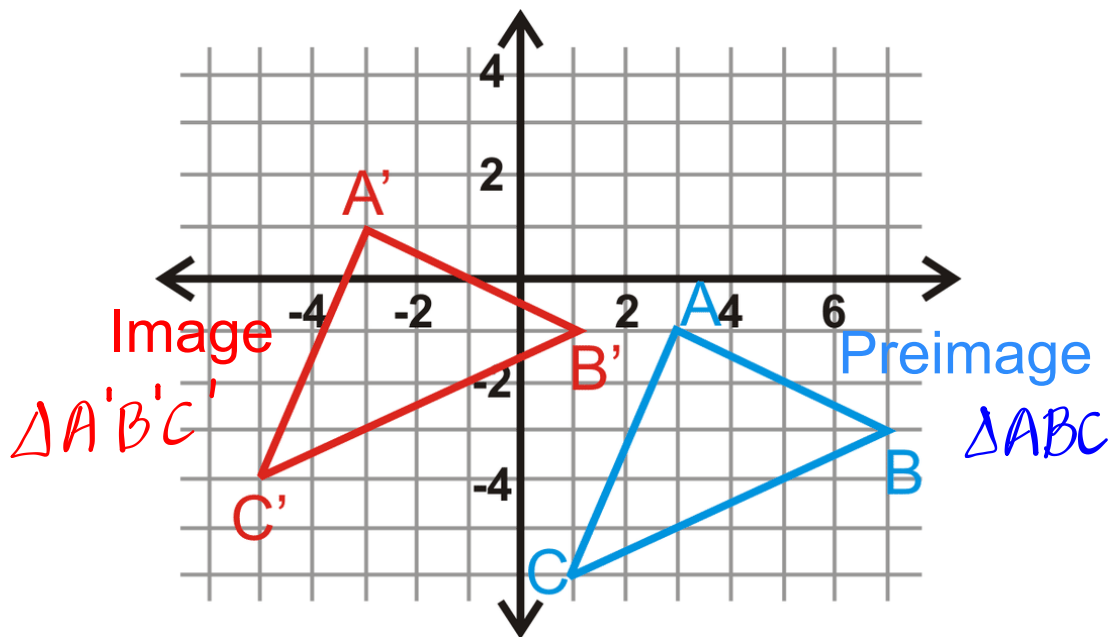
Preimage $\xrightarrow{\text{Rule}}$ image



- Point A of the Preimage is transformed to Point A', ← prime sign

we call this point A prime.

$\triangle ABC$ $\xrightarrow{\text{Rule}}$ $\triangle A'B'C'$



- If Point A' is transformed again, the new point is Point A'' ,

we call this point A double prime.

We will also be talking about if figures are congruent or similar.

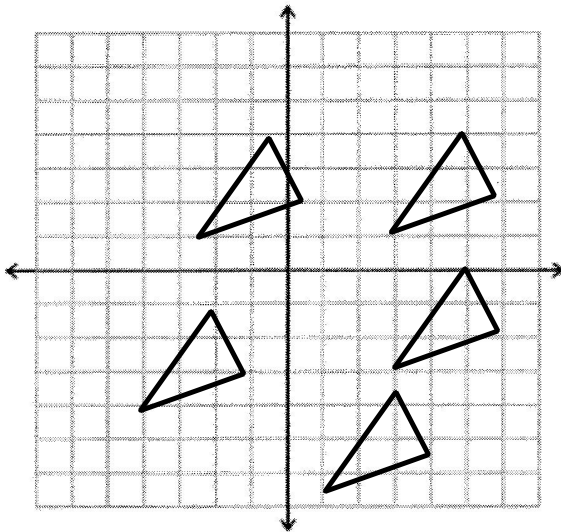
Congruent: Same size, lengths, area and angle measures

Similar: Different size, lengths and area changed by a factor, angle measures the same.

Result of Stretching i Shrinking

Translation

- A transformation that moves the image along a straight line.



Often called a
Slide

Rules for Translations:

Every point of the shape moves:

The same distance

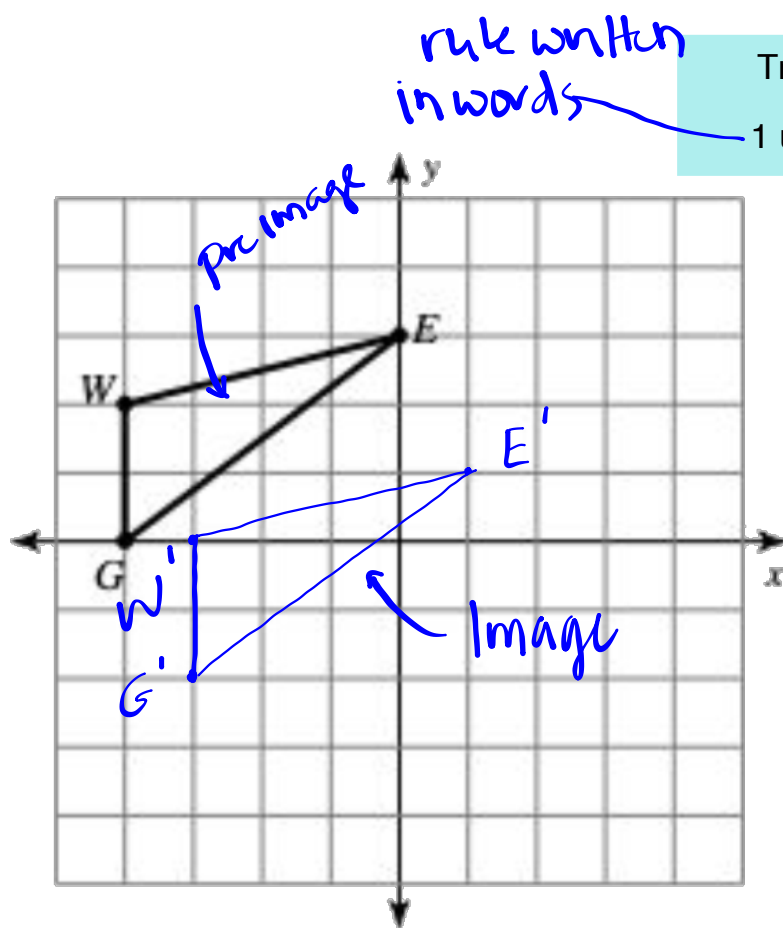
In the same direction

Soooooooo.....

The Image must
be **congruent**.

Example #1

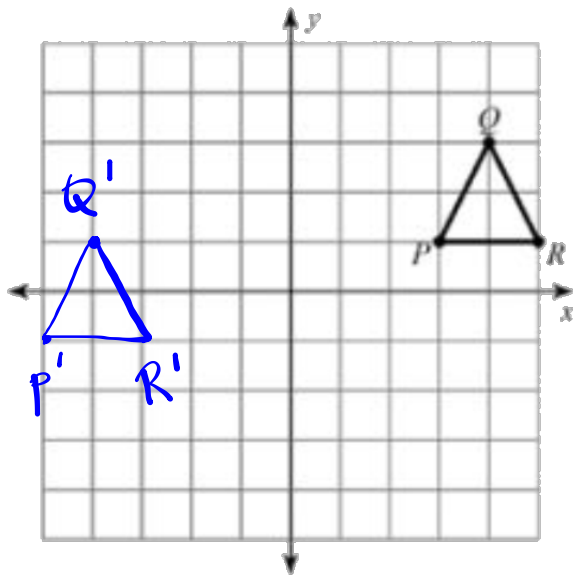
Translation



Slide

Example #2

Translation



Preimage

$$(x, y) \rightarrow (x - 8, y - 2)$$

another way to write a rule

Slide

Image

The **rule** describes how you will move each point of the figure.

Positive values translate a figure

up ^(y) or to the right ^(x).

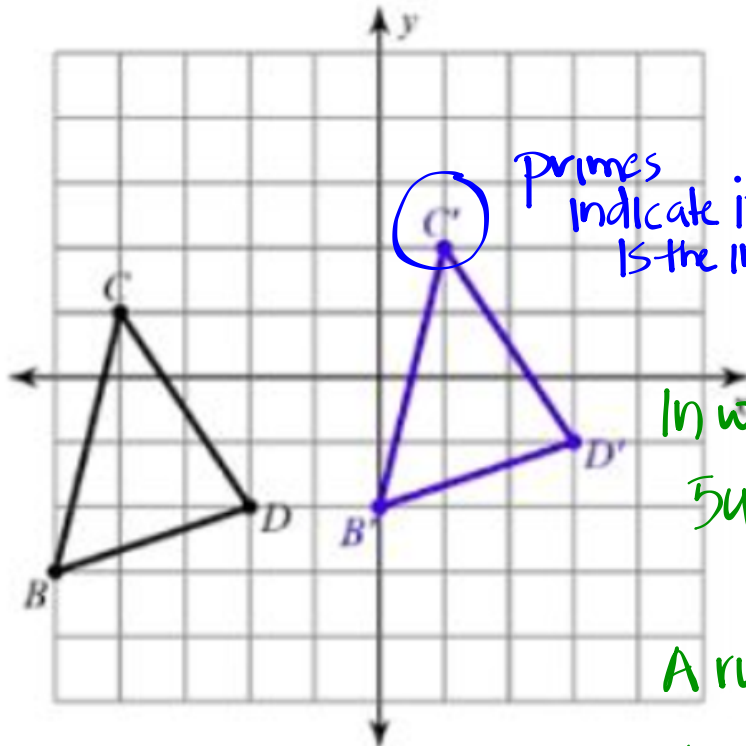
Negative values

translate a figure down or to the

left.

Example #3

Write the translation that must have occurred.



primes
indicate it
is the image (now)

In words:

5 units right, one
unit up

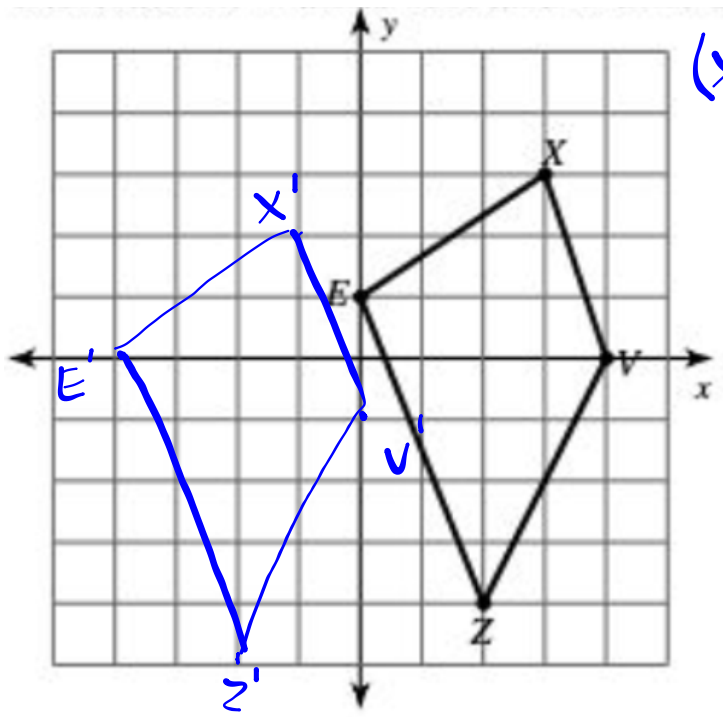
A rule:

$$(x, y) \rightarrow (x+5, y+1)$$

Example #4

Perform the translation and write the rule in arrow notation.

Translate 4 units left and 1 unit down.



$$(x, y) \rightarrow (x-4, y-1)$$

Translations

$ABC \xrightarrow{\text{rule}} A'B'C'$

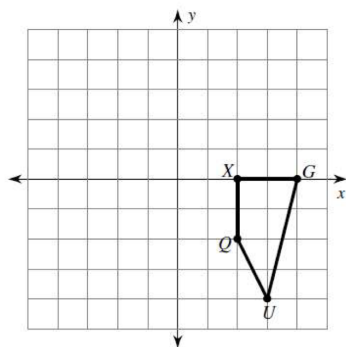
$\text{Preimage} \xrightarrow{\text{rule}} \text{Image}$

Translations of Shapes

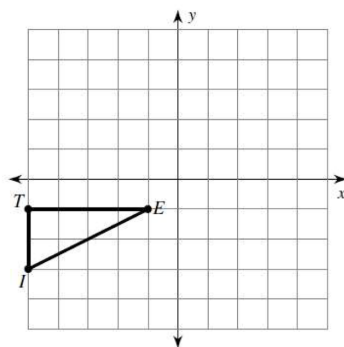
Date _____ Period _____

Graph the image of the figure using the transformation given.

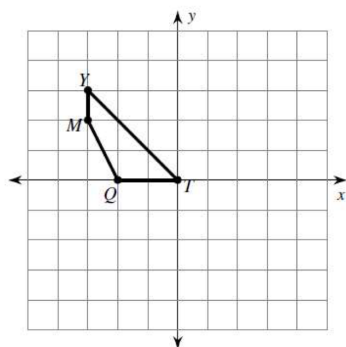
- 1) translation: 1 unit left



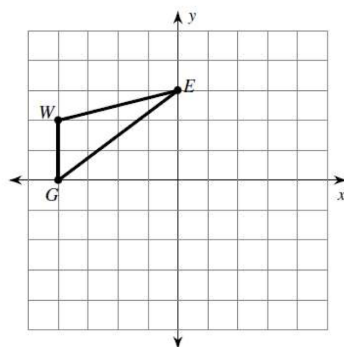
- 2) translation: 1 unit right and 2 units down



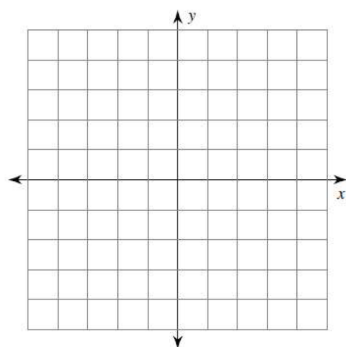
- 3) translation: 3 units right



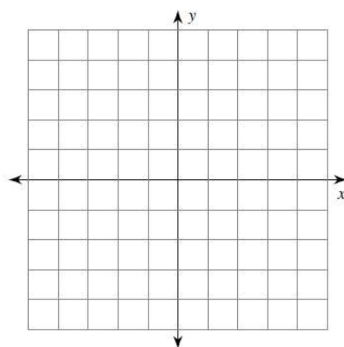
- 4) translation: 1 unit right and 2 units down



- 5) translation: 5 units up
-
- $U(-3, -4)$
- ,
- $M(-1, -1)$
- ,
- $L(-2, -5)$



- 6) translation: 3 units up
-
- $R(-4, -3)$
- ,
- $D(-4, 0)$
- ,
- $L(0, 0)$
- ,
- $F(0, -3)$



Find the coordinates of the vertices of each figure after the given transformation.

- 7) translation: 2 units left and 1 unit down
 $Q(0, -1)$, $D(-2, 2)$, $V(2, 4)$, $J(3, 0)$

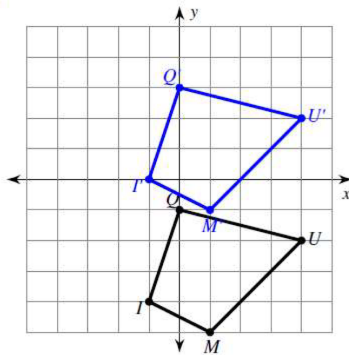
- 8) translation: 2 units down
 $D(-4, 1)$, $A(-2, 5)$, $S(-1, 4)$, $N(-1, 2)$

- 9) translation: 4 units left and 4 units up
 $J(-1, -2)$, $A(-1, 0)$, $N(3, -3)$

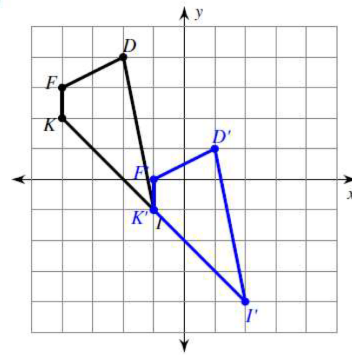
- 10) translation: 3 units right and 4 units up
 $Z(-4, -3)$, $I(-2, -2)$, $V(-2, -4)$

Write a rule to describe each transformation.

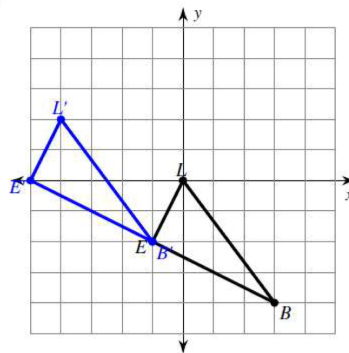
11)



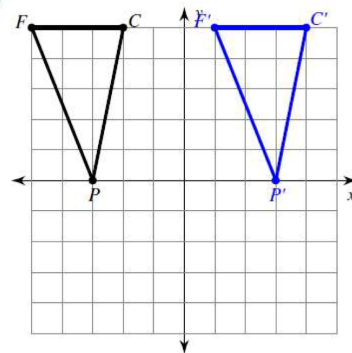
12)



13)



14)



Homework

Finish classwork