Created by Mr. Lischwe

Warmup 2/(# of eggs in a baker's dozen)

*********Before starting the warmup, get:**

- A graphing sheet (either type)
- Marker & eraser

Put the values in order from least to greatest. Show at least a little work for each value

A: $\sqrt{50}$ B. $\sqrt[3]{50}$ C. $\sqrt[4]{50}$ D. $\frac{3000}{1000}$ E. $83 - 79$

Turn in Angle Challenge

ON THE BACK OF YOUR GRAPHING SHEET:

1. Draw a capital “R”.
2. Draw the “R” after a “slide”.
3. Draw the “R” after a “flip”.
4. Draw the “R” after a “turn”.
5. If you know them, write down the official mathematical vocab words for “slide”, “flip” and “turn”.

Next 2 Weeks: Transformations

- Today: Intro + Translations
- Friday: Reflections
- Monday/Tuesday: Rotations
- Wednesday: Transformations without a Graph
- 3-4 days of further review, then a Quiz

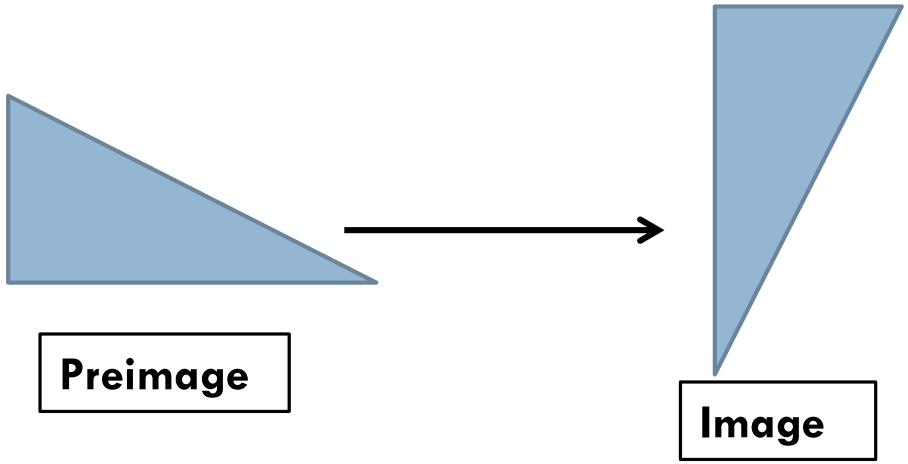
Table of Contents (2nd Semester)

Objectives:

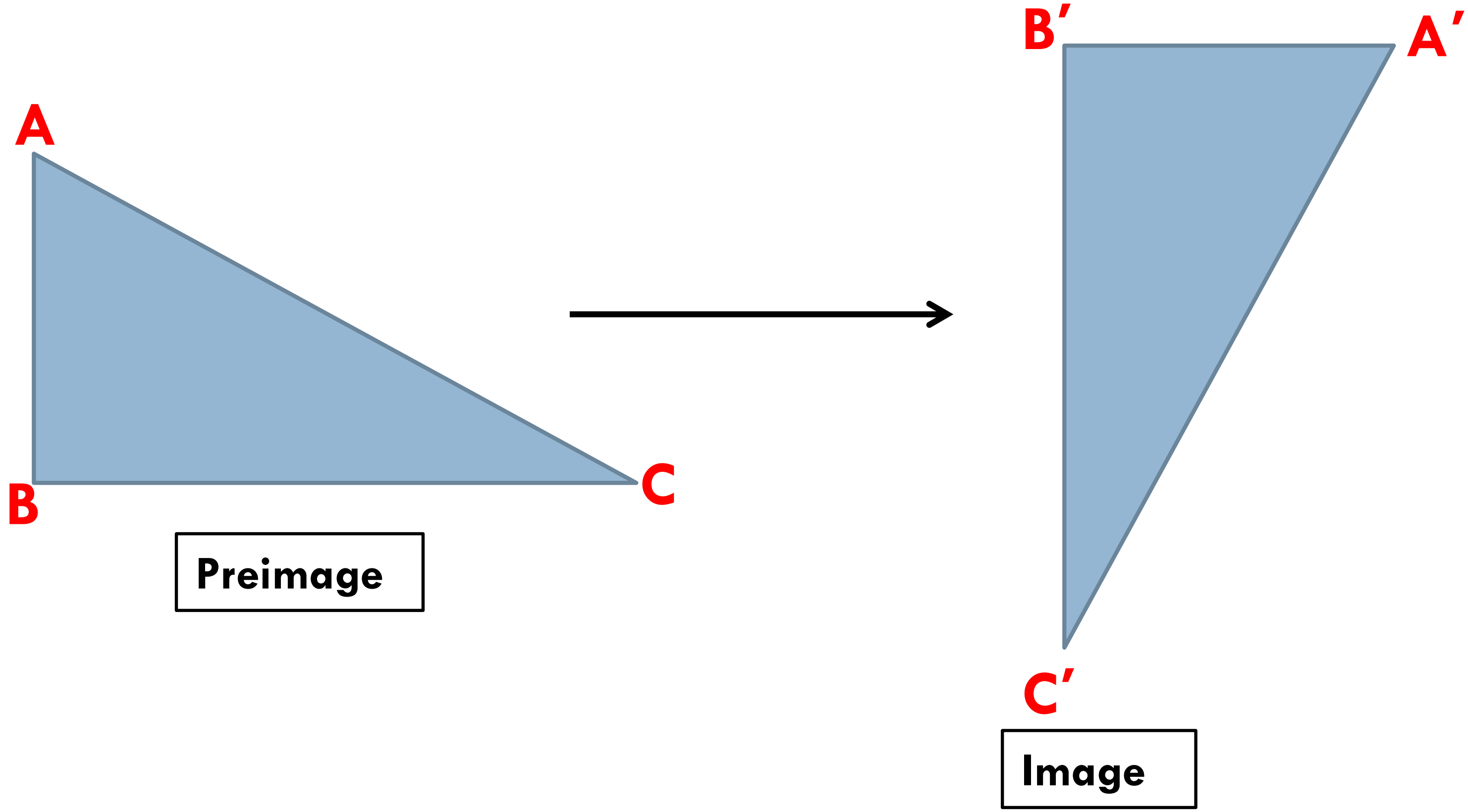
- Tell the difference between a translation, reflection, and rotation
- Perform a translation on the coordinate plane
- Understand coordinate notation of a translation

- **Transformation** – changes a geometric figure in some way

- **Preimage** – The original figure
- **Image** – The figure after the transformation

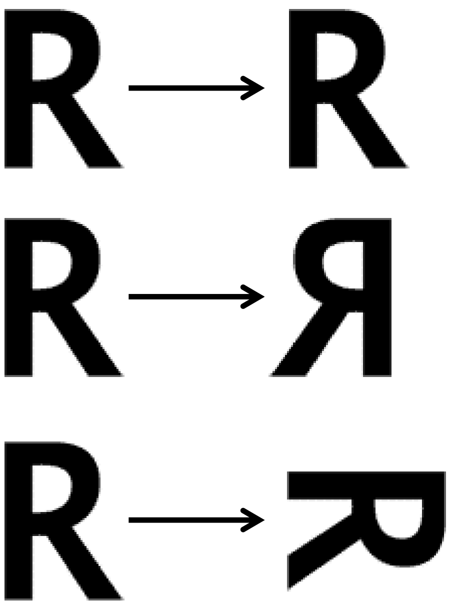


Prime notation is used to show a transformation.

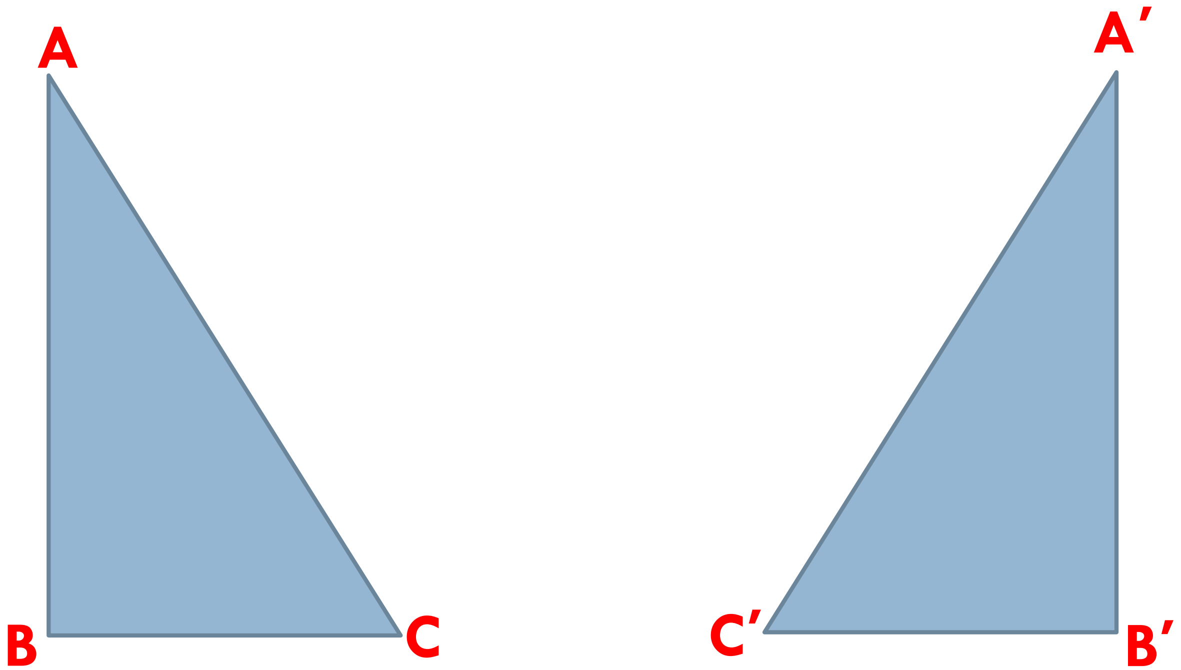


3 common types of transformations (copy the "R"s too)

- **Translation** – A "slide"
- **Reflection** – A "flip"
- **Rotation** – A "turn"

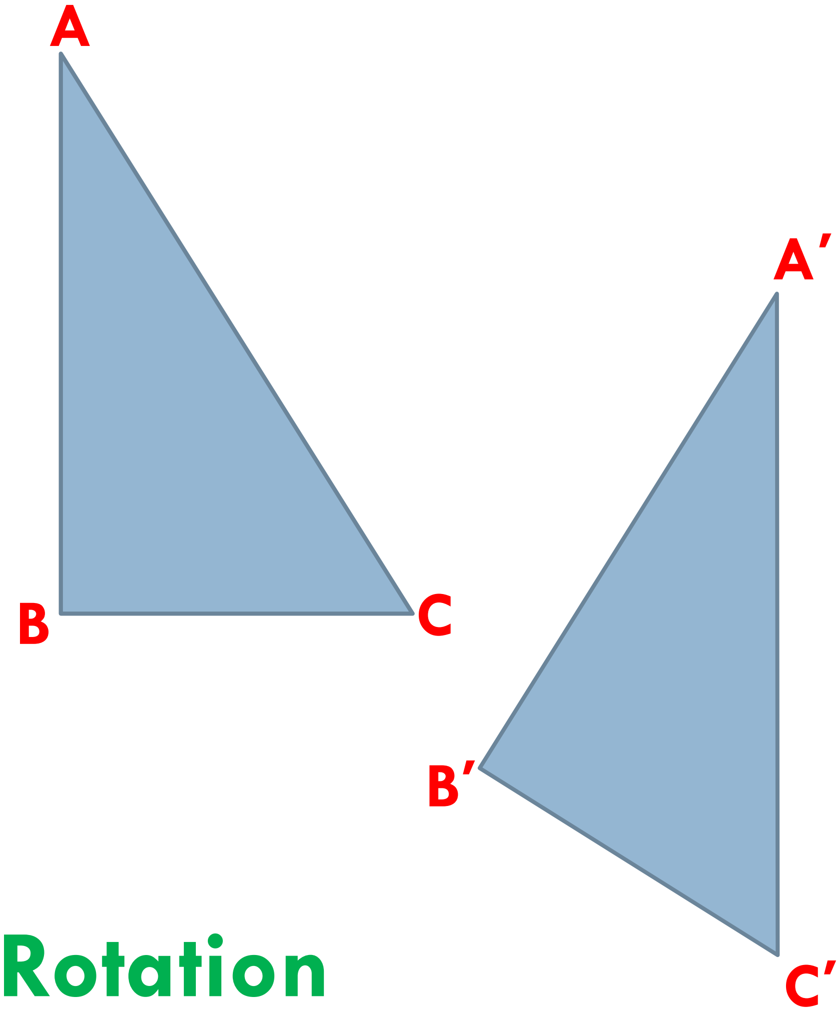


Which transformation is it?



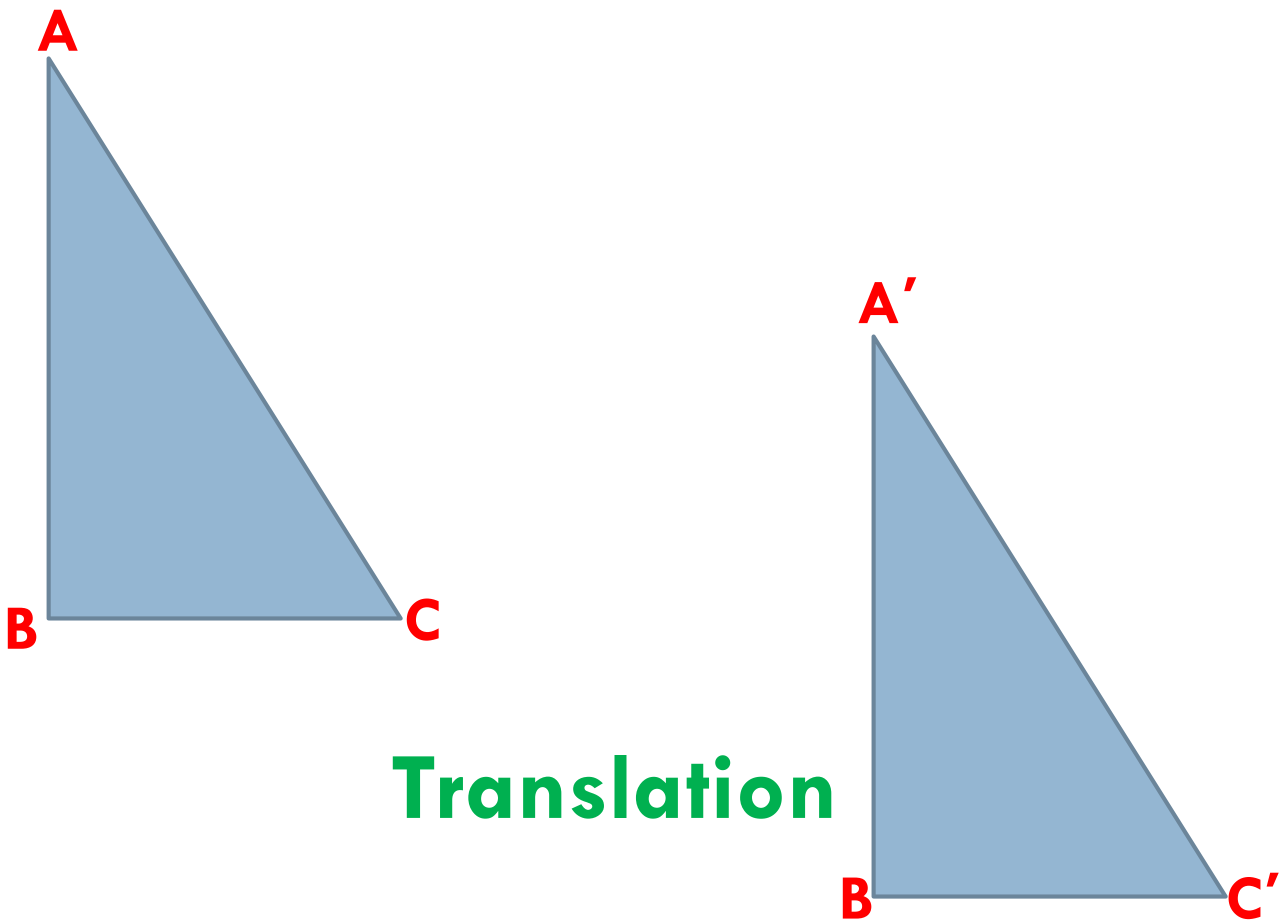
Reflection

Which transformation is it?



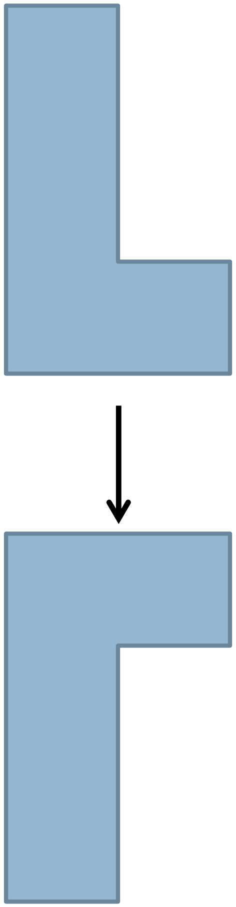
Rotation

Which transformation is it?



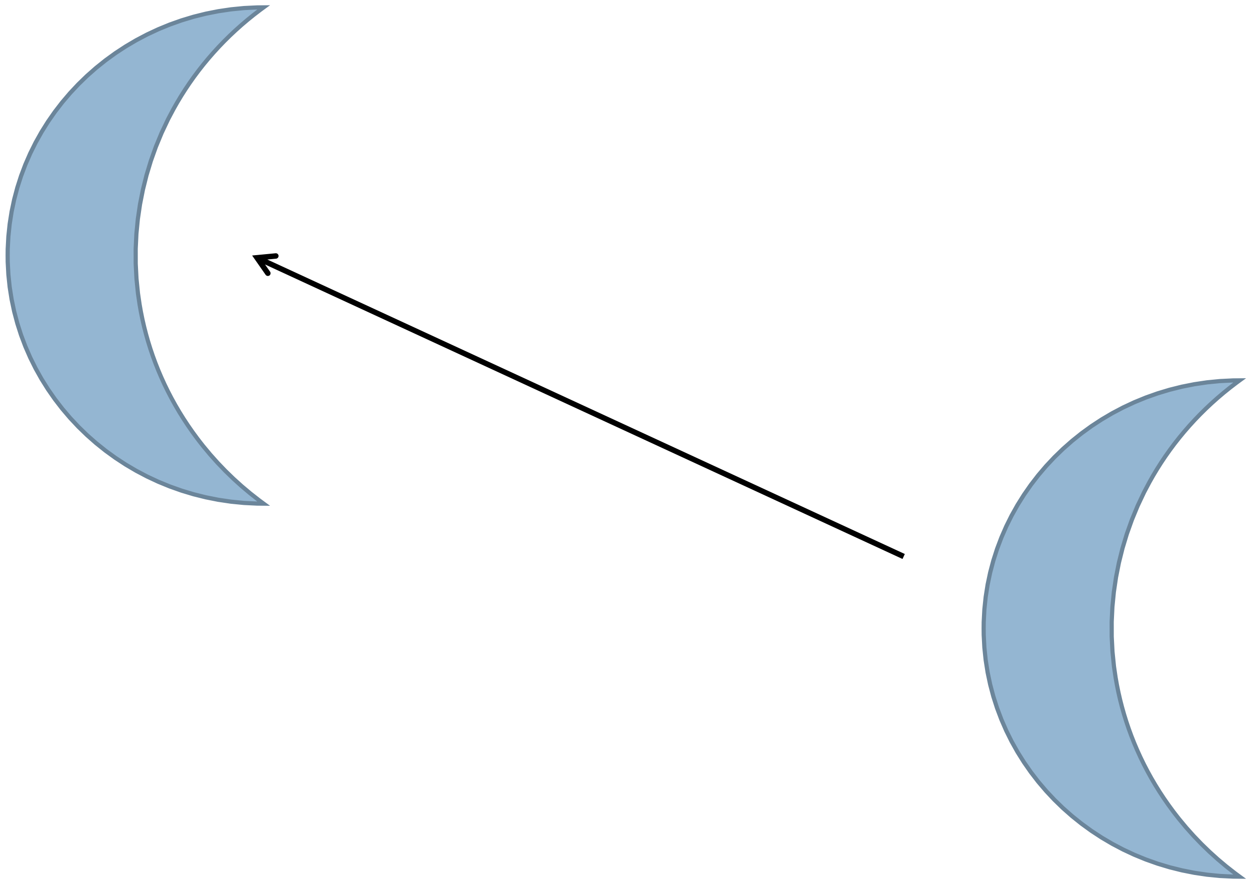
Translation

Which transformation is it?



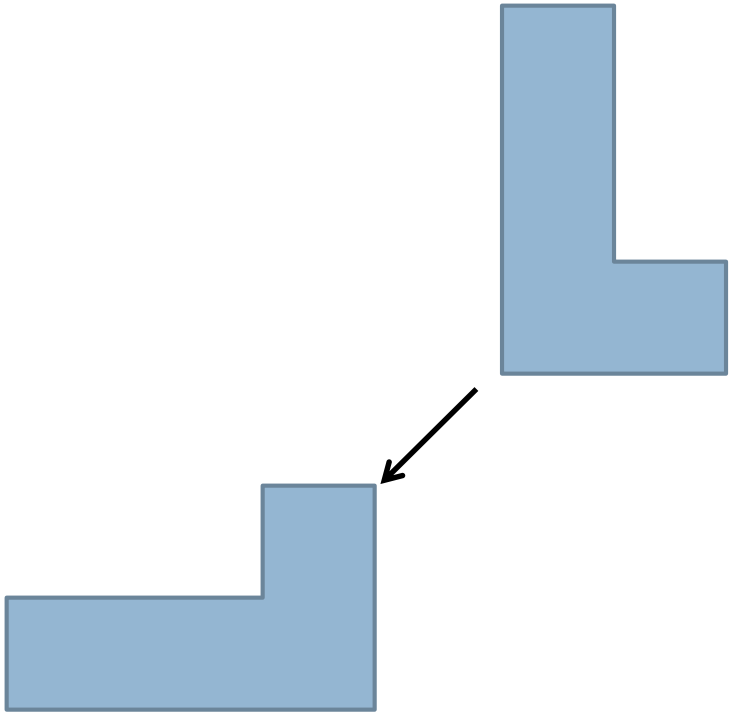
Reflection

Which transformation is it?



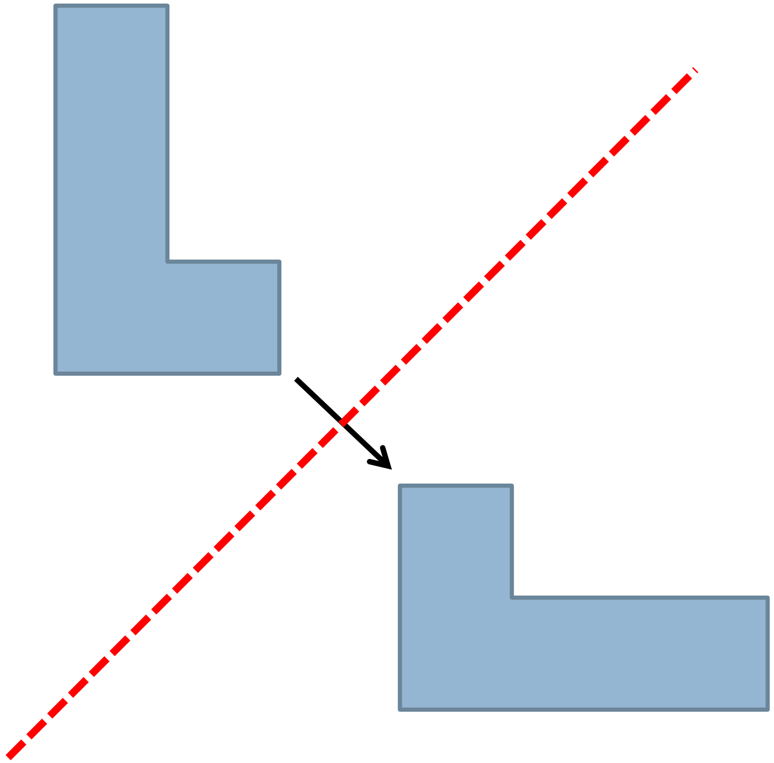
Translation

Which transformation is it?



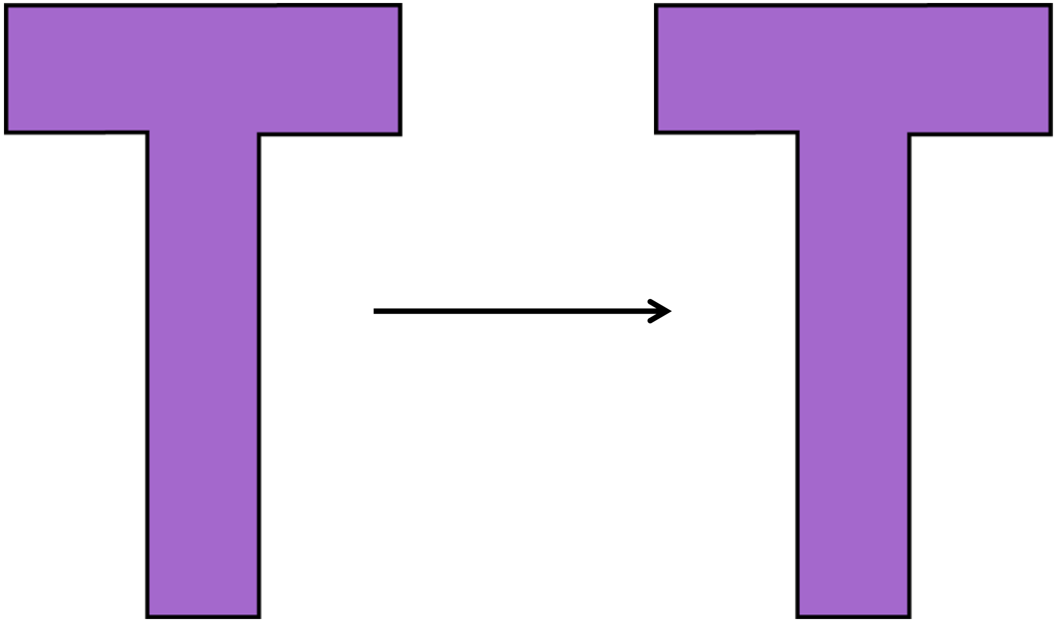
Rotation

Which transformation is it?



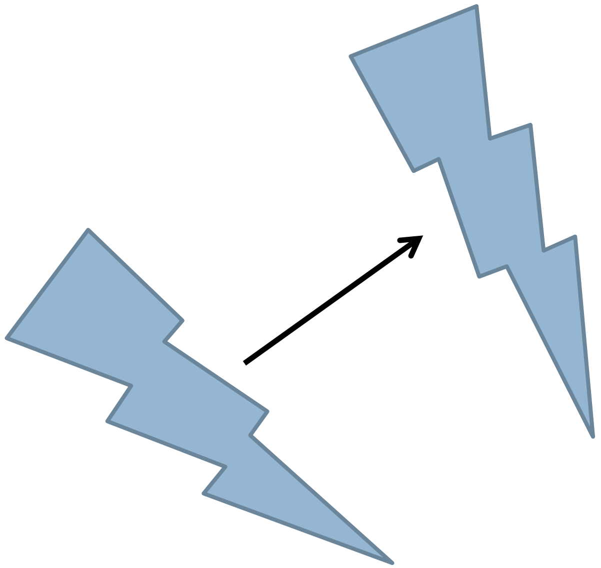
Reflection

Which transformation is it?



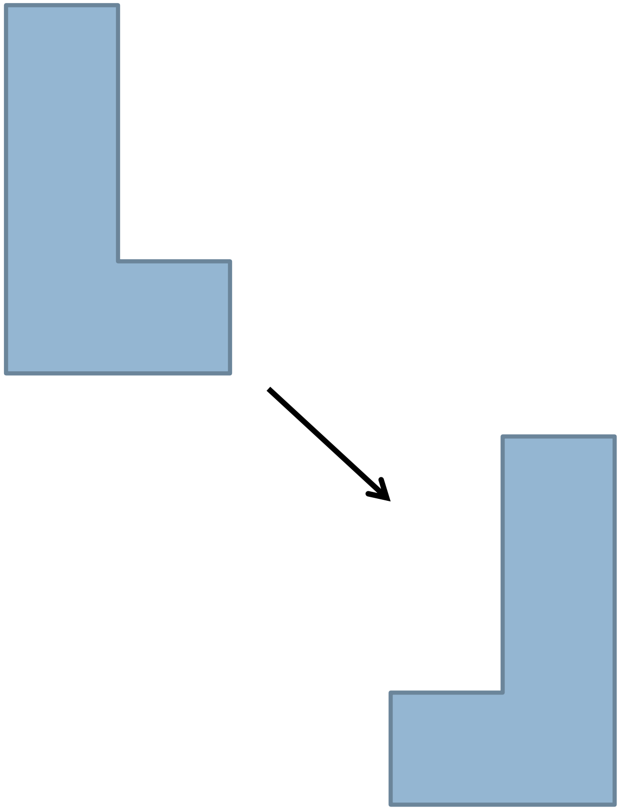
Could be translation OR reflection

Which transformation is it?



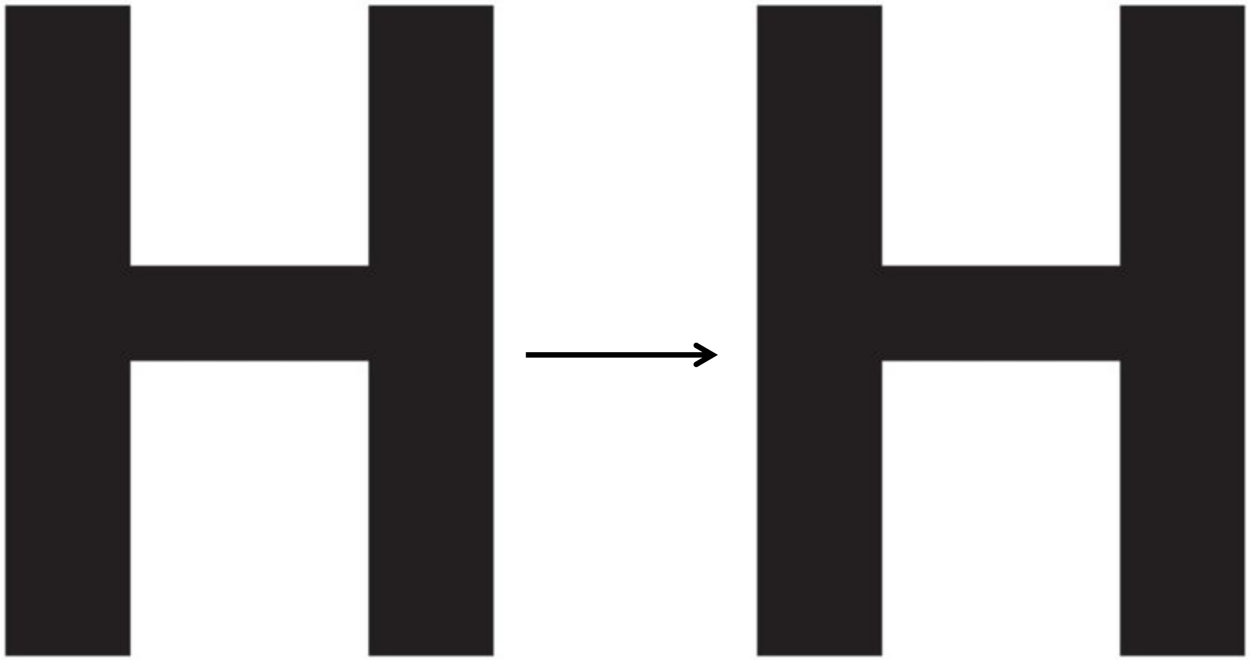
Reflection

Which transformation is it?



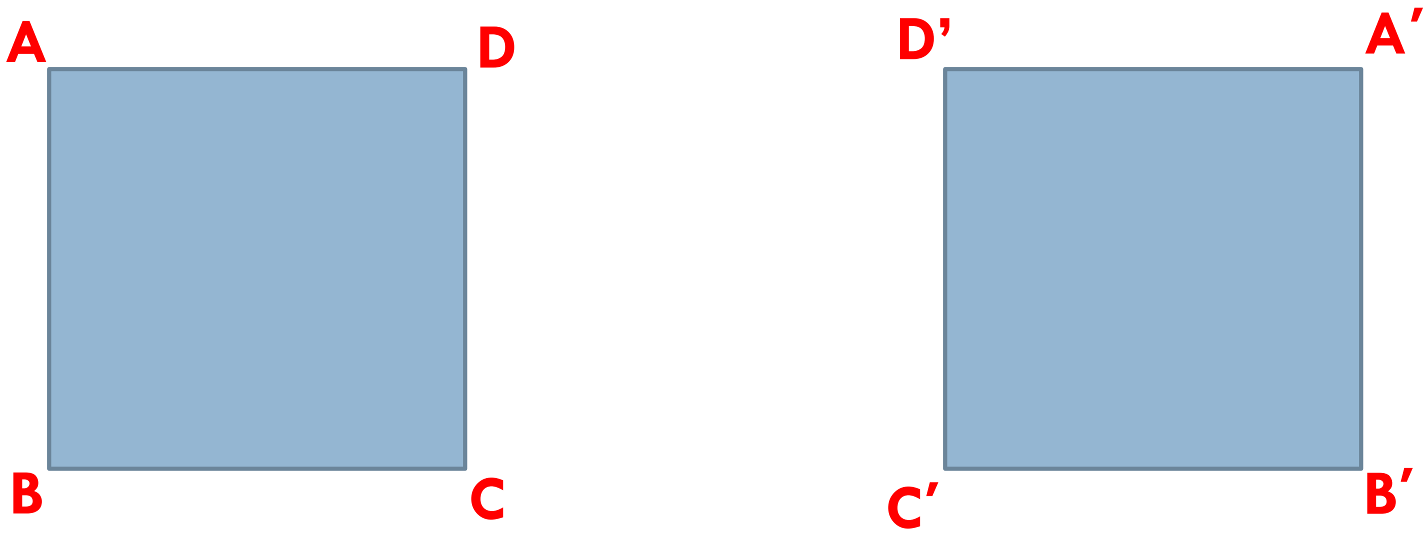
2 steps: Reflection AND translation

Which transformation is it?



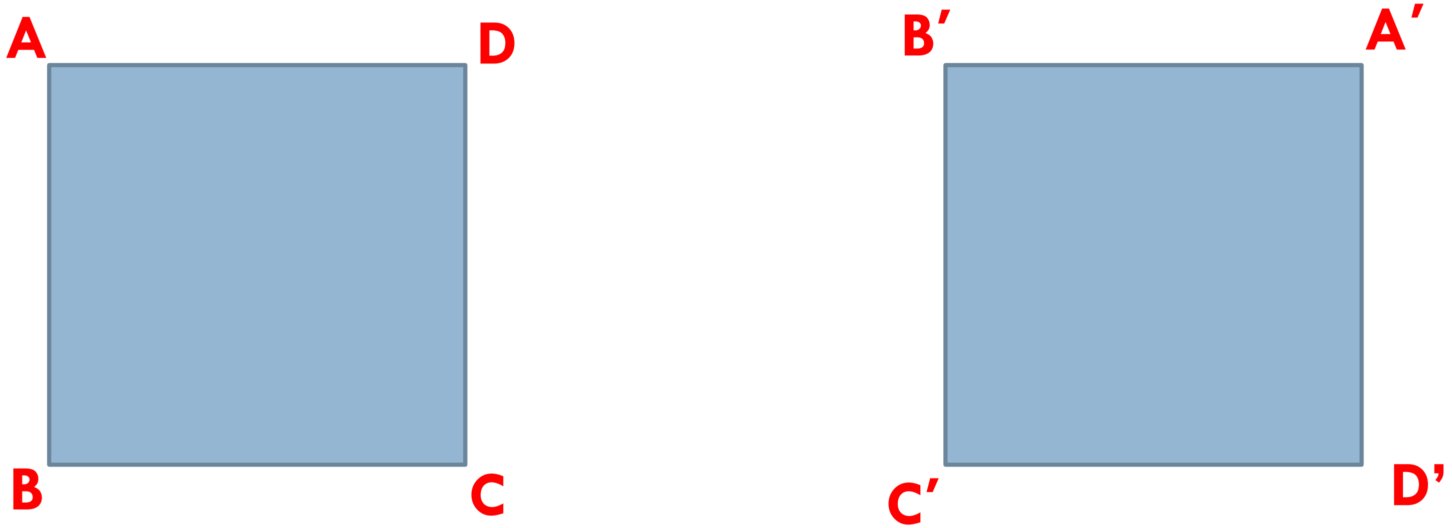
Could be translation, reflection, OR rotation!

Which transformation is it?



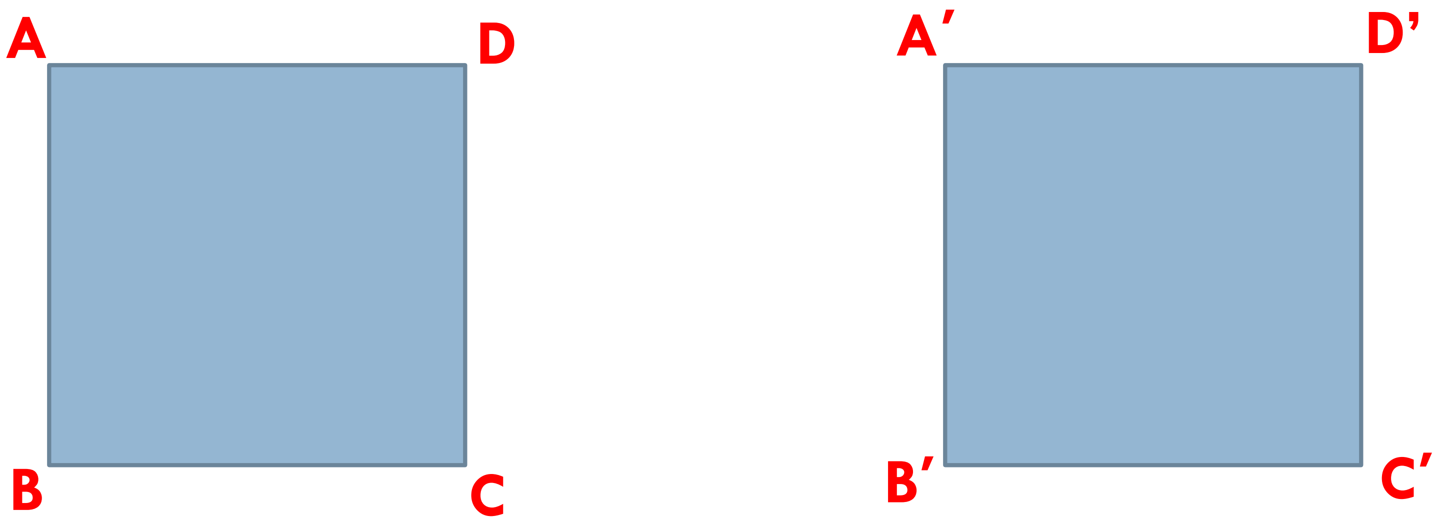
Reflection (look at the letters!)

Which transformation is it?



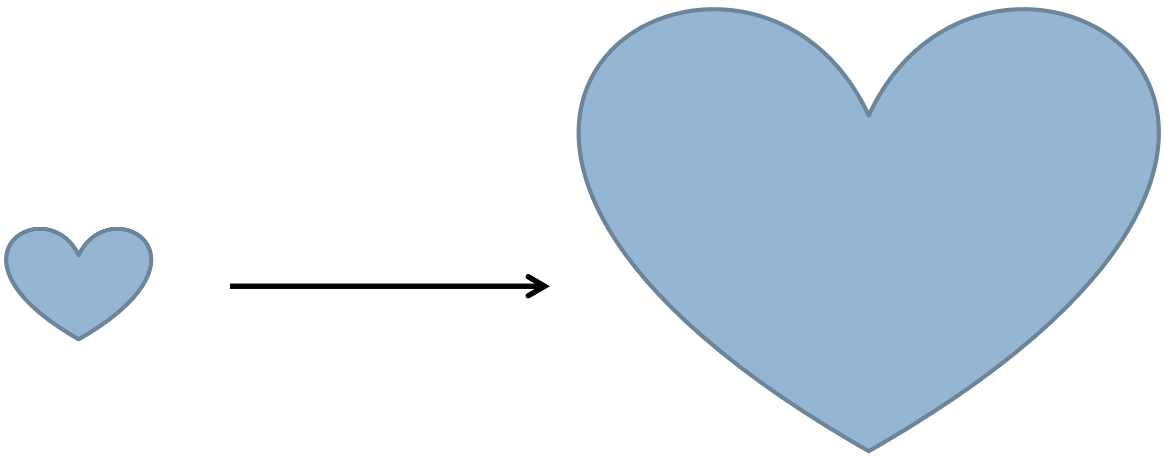
Rotation

Which transformation is it?



Translation

Which transformation is it?



Dilation (you won’t do these much until next year)

- The last transformation was the only one in which the **image** was a different size or shape from the original figure.
- In this section, we are going to focus **ONLY** on transformations that keep the figure the same size and shape.
- These are sometimes called **"rigid transformations"**

On your graphing sheet…

- Draw a Triangle with coordinates **T (-5, 5) R (-5, 7) and Y (-8, 5)**
- We are going to translate the triangle **six units to the right.** What do you think would be a good strategy for this?
- Your new coordinates should be: **T'(1, 5); R'(1, 7); Y'(-2, 5)**

Original Triangle:
A (1, 1), B (1, 5), C (3, 1)

- Draw a triangle with coordinates
  A (1, 1), B (1, 5), C (3, 1)
- Translate the triangle **three units left and seven units down.** Don't forget to label the vertices of your image!

- New coordinates should be: **A' (-2, -6); B' (-2, -2); C(0, -6)**

Translation Strategy

- Just **move every vertex** of the figure the correct number of spaces!

On your graphing sheet…

- Draw a trapezoid with vertices **L(2, -7); I(3, -5); S(6, -5); C(7, -7)**
- Translate the trapezoid **four units left and one unit up.** Label your new coordinates.
- Your new coordinates should be:

L'(-2, -6); I'(-1, -4); S'(2, -4); C'(3, -6)

Coordinate Notation

- Translations are sometimes described using **coordinate notation.** (The textbook calls it "translation notation")

- **<u>EXAMPLE:</u> (x + 4, y – 2)** means to add four to all the x-coordinates and subtract two to all the y-coordinates.
- Talk to your trio: what do you think would happen???

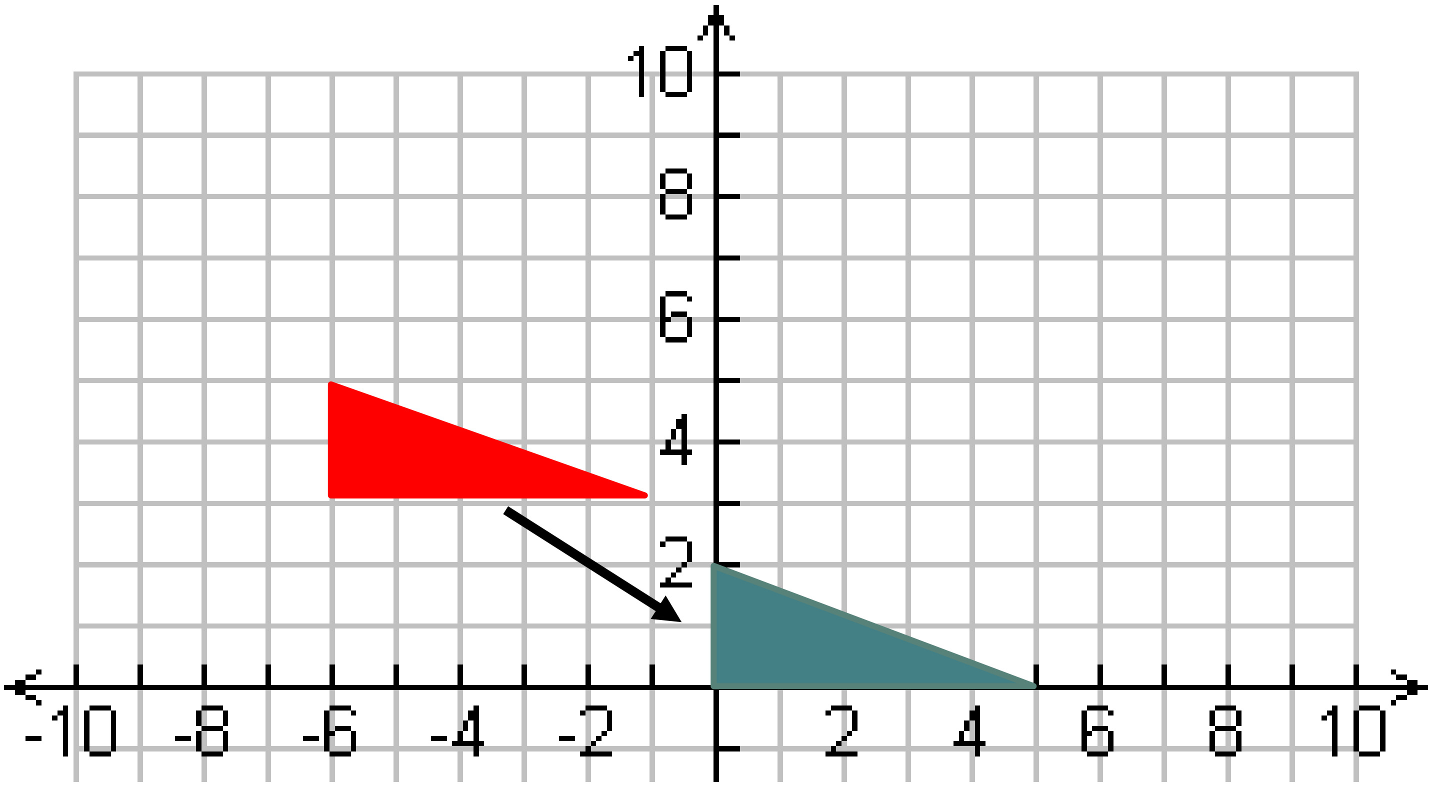
- Graph a point **A(5, 3).**
- Add four to the x-coordinate and subtract two from the y-coordinate. What are your new coordinates?
- Graph this new point. Where did it end up? Which direction did it move?

Coordiante Notation

- (x + number): moves right
- (x – number): moves left
- (y + number): moves up
- (y – number): moves down

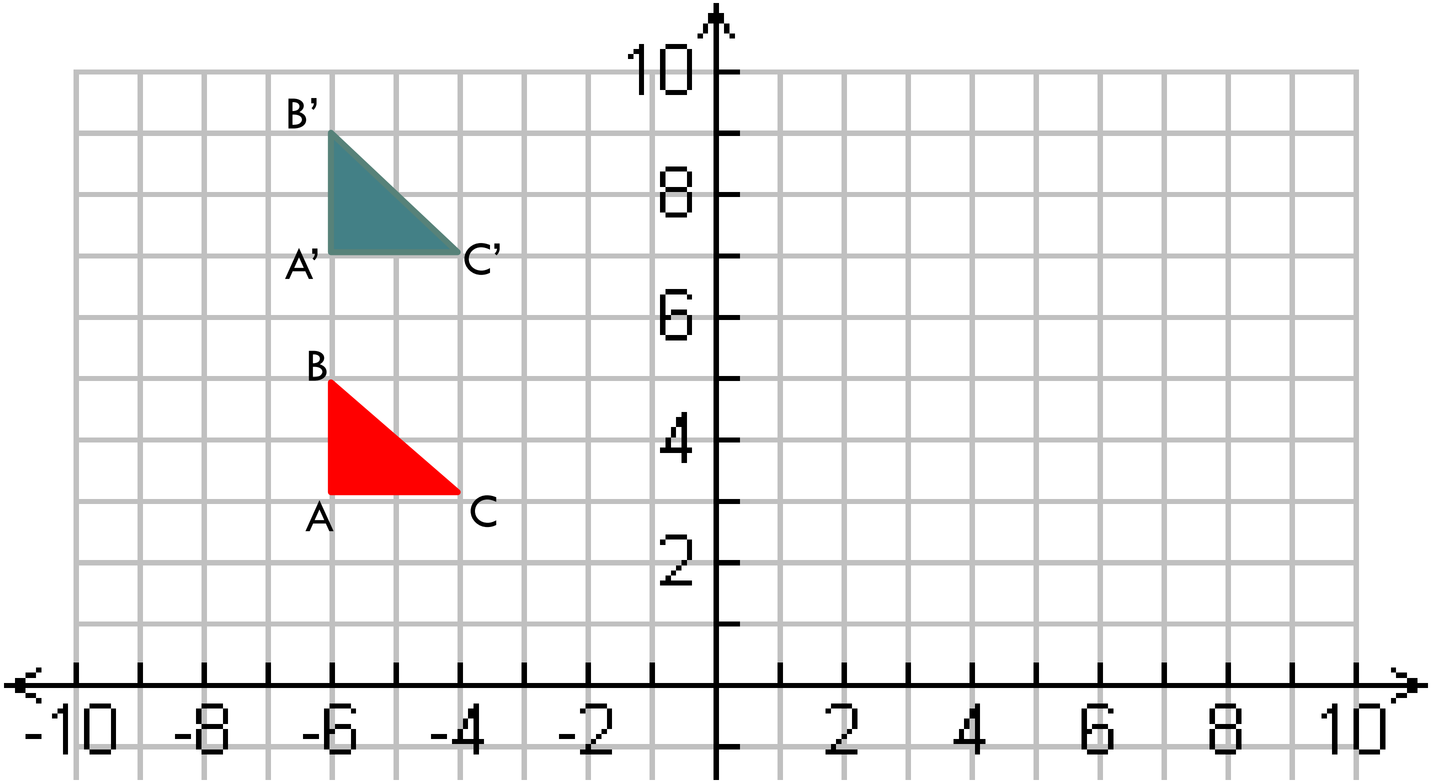
- **<u>Coordinate (Translation) Notation Examples:</u>**
- **(x – 3, y + 8)** would move a figure 3 units left and 8 units up.
- **(x + 7, y)** would move a figure 7 units right, but not up or down.

What was the translation?



- What was the translation? **Write it in coordinate notation.**
- **(x + 6, y – 3)**

What was the translation?



- What was the translation? **Write it in coordinate notation.**
- **(x, y + 4)**

Homework

- p. 457 (1 – 7, 9) **(This is from volume 2!!!)**