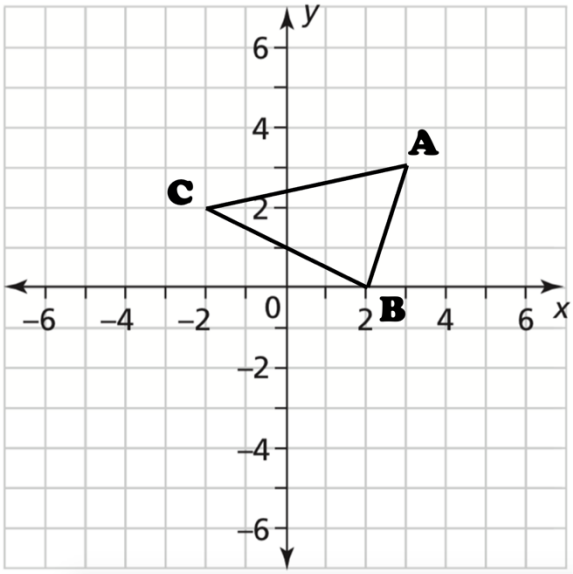
Name _____ Block _____ Date _____

Transformations and Congruence

We will be using Δ ABC as our Preimage for all of the following problems.

1. Using the Pythagorean Theorem, calculate the lengths of each side of Δ ABC. Round your answers to the nearest tenth.
   Show work below.



AB =

BC =

AC =

AB = BC = AC =

2. Calculate the slope for each side of Δ ABC.

Slope AB =

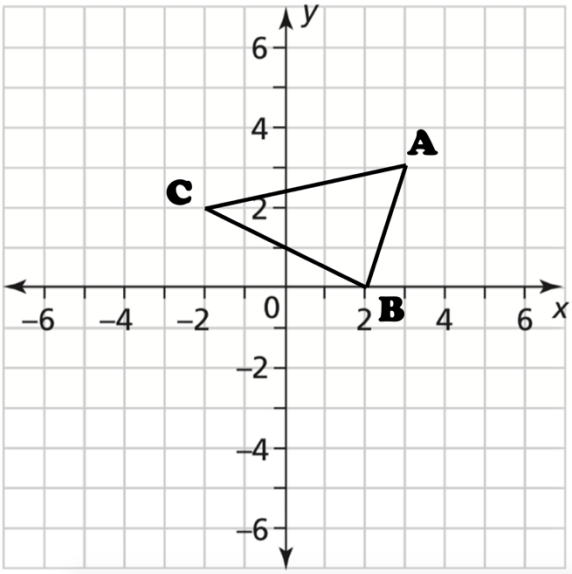
Slope BC =

Slope AC =

For each of the following questions, graph the transformation and then answer the questions.

3. **Translate** Δ ABC following the rule $(x, y) \rightarrow (x - 2, y - 3)$

Using the Pythagorean Theorem, calculate the length of side A'B'. Round your answer to the nearest tenth.



Calculate the slope for each side of Δ A'B'C'.

Slope A'B'=

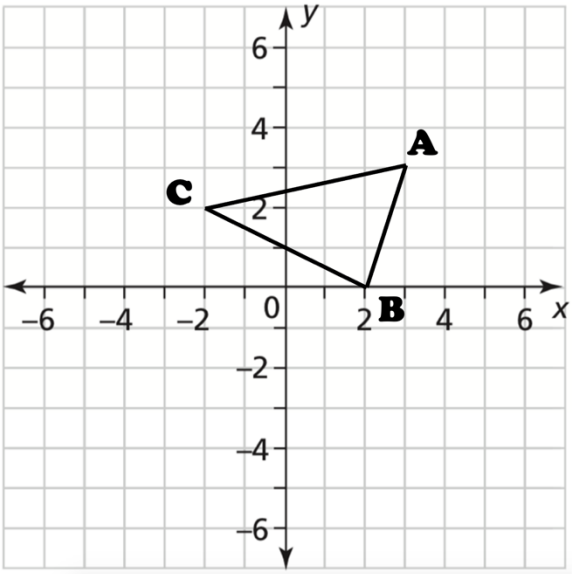
Slope B'C' =

Slope A'C' =

How do the length of A'B' and the slopes of the sides compare to those of Δ ABC'?

4. **Reflect** Δ ABC across the line y = –1.

Using the Pythagorean Theorem, calculate the length of side A'B'. Round your answer to the nearest tenth.



Calculate the slope for each side of Δ A'B'C'.

Slope A'B'=

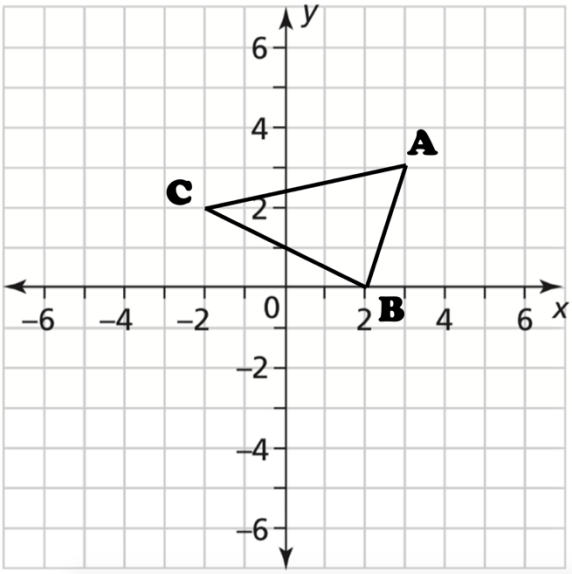
Slope B'C' =

Slope A'C' =

How do the length of A'B' and the slopes of the sides compare to those of Δ ABC'?

5. **Rotate** Δ ABC 90° clockwise around the point (0, 0).

Using the Pythagorean Theorem, calculate the length of side A'B'. Round your answer to the nearest tenth.



Calculate the slope for each side of Δ A'B'C'.

Slope A'B'=

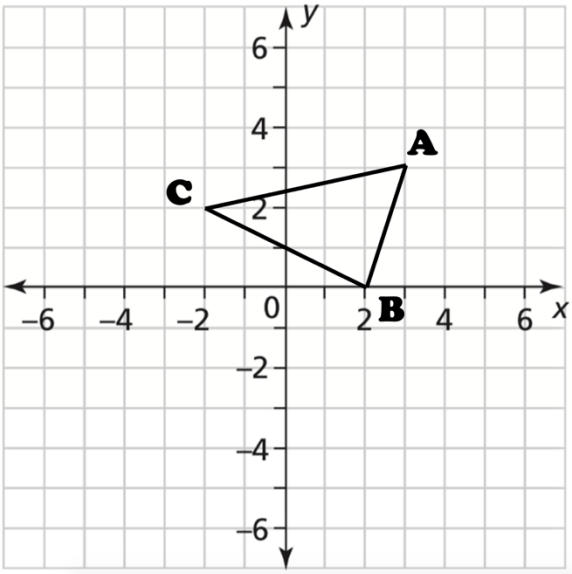
Slope B'C' =

Slope A'C' =

How do the length of A'B' and the slopes of the sides compare to those of Δ ABC'?

6. **Dilate** Δ ABC by a factor of two from the origin (0, 0).

Using the Pythagorean Theorem, calculate the length of side A'B'. Round your answer to the nearest tenth.



Calculate the slope for each side of Δ A'B'C'.

Slope A'B'=

Slope B'C' =

Slope A'C' =

How do the length of A'B' and the slopes of the sides compare to those of Δ ABC'?

7. For which transformations are the following statements true? Check the appropriate boxes.

	Translation	Reflection	Rotation	Dilation
Corresponding **sides** of the Preimage and Image are **parallel**.				
Corresponding **sides** of the Preimage and Image are the **same size**.				
Corresponding **angle measures** of the Preimage and Image are the **same size**.				
The image and preimage are **congruent**.				

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