

## M152: Reasoning and Proof Through Congruence Post Badge Task

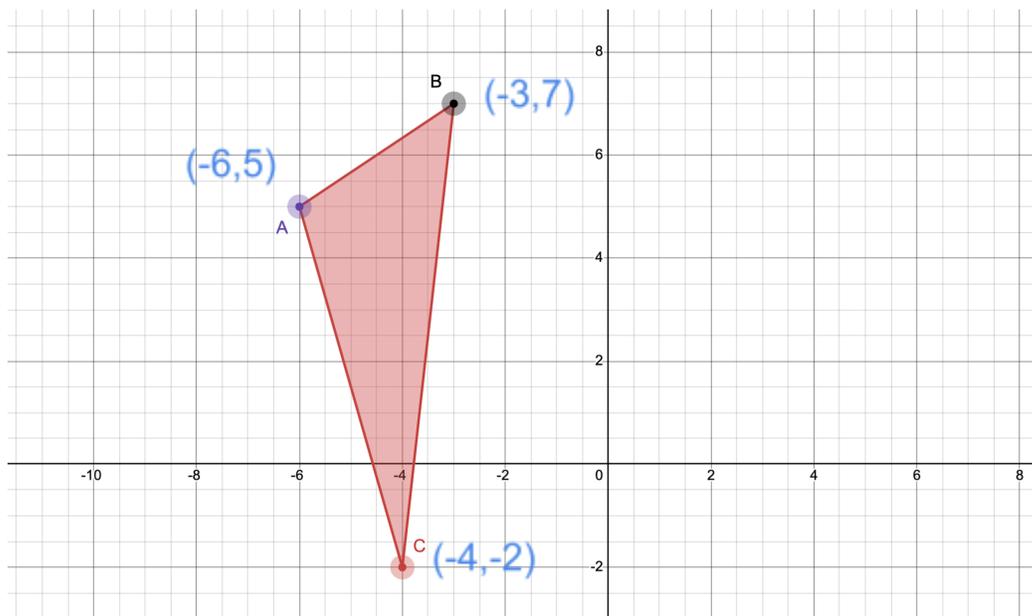
### Reflecting on Badge Learning

Now that you have learned more about congruence, respond to the questions that follow. These are the same questions you responded to before the start of this badge.

### The Task

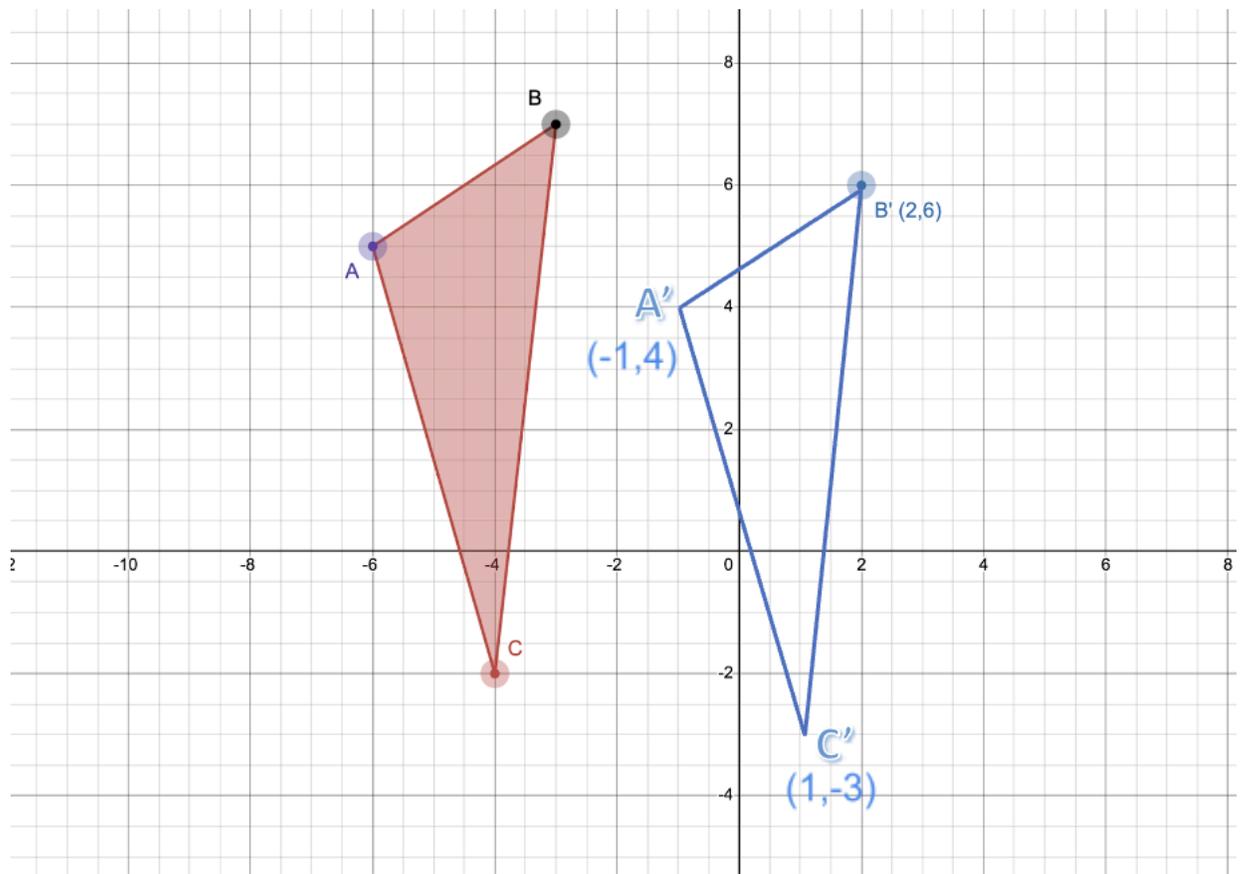
Respond to the four questions in this task about Triangle ABC.

**QUESTION 1** What are the coordinates of Point A, Point B and Point C? Label the coordinates next to each point on the graph.



# Teacher Scoring Guide

**QUESTION 2** Draw Triangle A'B'C' congruent to Triangle ABC such that Point B' is the image of Point B. Label the coordinates of A' and C'.



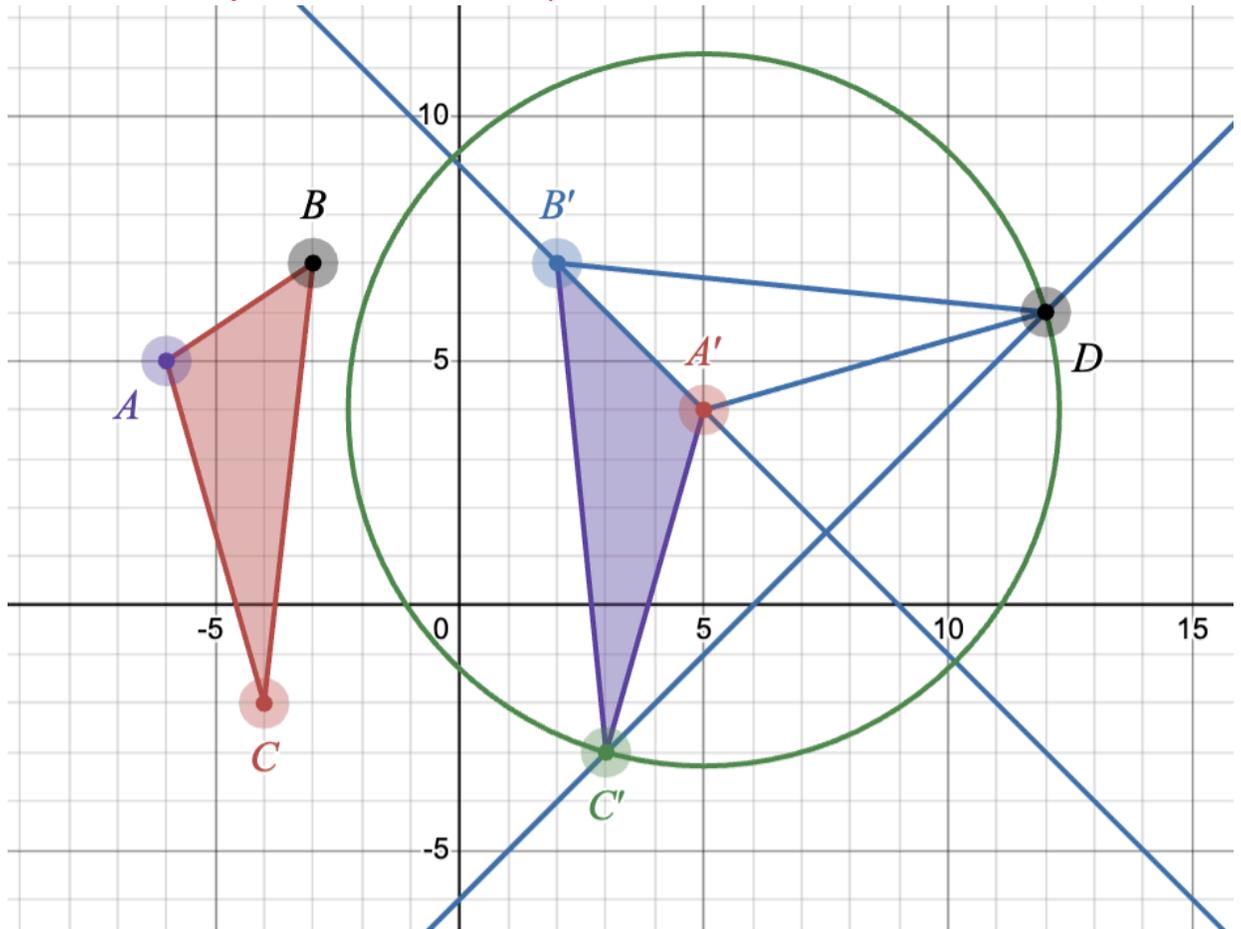
# Teacher Scoring Guide

## QUESTION 3

- (a) Draw a point  $C'$  such that Triangle  $ABC$  is congruent to Triangle  $A'B'C'$ .
- (b) If possible, draw Point  $D$  in a different location such that Triangle  $ABC$  is congruent to Triangle  $A'B'D$ . Otherwise, write below the grid "There is no location for Point  $D$ ."

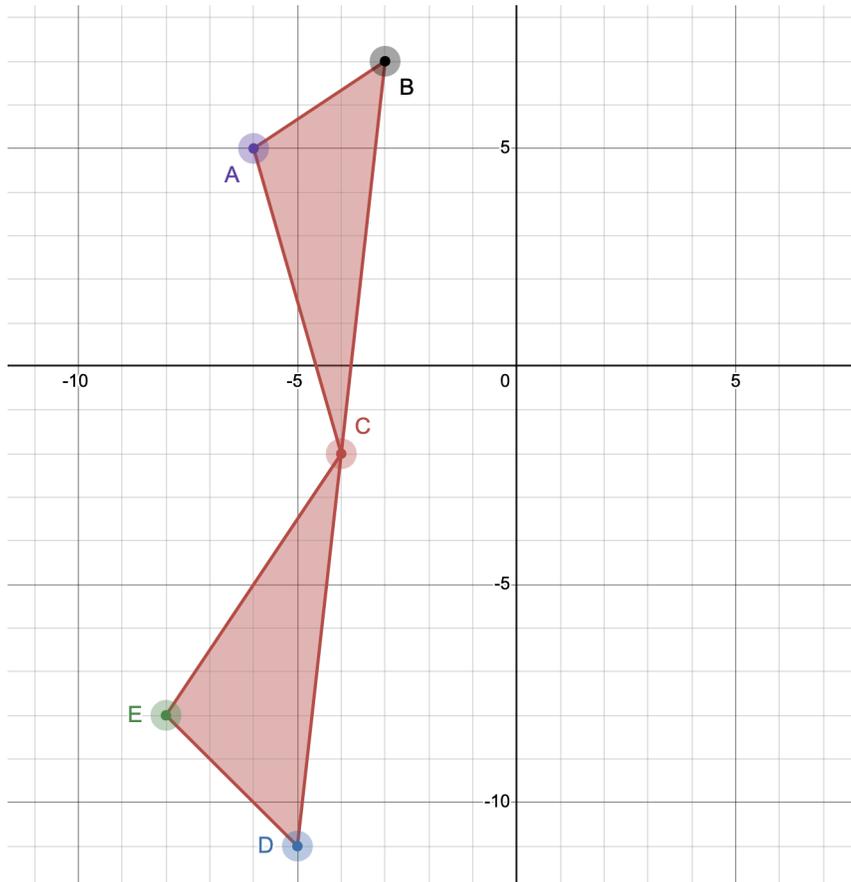


*Answers will vary. Possible student response:*



## Teacher Scoring Guide

**QUESTION 4** Nolan claims that he created Triangle EDC congruent to Triangle ABC. Amber does not believe the two triangles are congruent. Choose whether you will take the perspective of Nolan or Amber. If you choose to be Nolan, you will explain to Amber why you are certain that the two triangles are congruent. If you choose to be Amber, you will help Nolan understand what changes need to be made to ensure that the two triangles are congruent. Have fun!



*Answers will vary. Possible student responses:*

- Hi. My name is Amber and I'm here to tell you why these triangles are not congruent. Congruent triangles need to have corresponding sides congruent. And side ED is NOT congruent to side AB. As you can see, AB is the hypotenuse of a triangle with side lengths 2 and 3, so it has a length of  $\sqrt{3^2 + 2^2}$ , or approximately 3.6 units. Side ED, on the other hand has a length of  $\sqrt{3^2 + 3^2}$ , or approximately 4.2 units. Therefore, since the triangles do not have all three pairs of congruent sides, they are not congruent. Nolan needs to move point E to (-8, -9) to have the triangles be congruent.
- Other responses may include transparencies and/or reflection lines to justify Amber's position.

## Teacher Scoring Guide

**QUESTION 5** What else did you learn that was not reflected in Questions 1-4?



*Answers will vary. Possible student response:*

- I also learned how to use combinations of sides and angles to prove that triangles are congruent. But in this one, I just used the three sides or reflections, rotations and translations.

**QUESTION 6** Compare your answers to these questions now to your answers from the earlier attempt. What do you notice about your progress?



*Answers will vary. Look for students to explain what they know now compared to what they knew when responding to the pre-test.*