

M153 - Reasoning and Proof Through Congruence

Badge Specific Essential Concepts

- ❖ Showing that two figures are similar involves finding a similarity transformation (dilation or composite of a dilation with a rigid motion) or, equivalently, a sequence of similarity transformations that maps one figure to the other. [NCTM Essential Concept EC.GM.T.3]
- ❖ Recognizing congruence, similarity, symmetry, measurement opportunities, and other geometric ideas, including right triangle trigonometry in real-world contexts, provides a means of building understanding of these concepts and is a powerful tool for solving problems related to the physical world in which we live. [NCTM Essential Concept EC.GM.SAPM.2]

Administration Notes

This Pre-Post Task is to be used as a tool for students to understand their learning. When administering this task, it is important to highlight a few things for students:

- Students will have the opportunity to complete the task at the beginning and the end of this badge. This is because we want students to be able to see how much they've learned and reflect on that learning in ways that matter to them.
- The work on the task will not be graded. The task is not a quiz or a test - it is designed to support students in understanding how much they have learned from the beginning of the badge to the end.
- Students can have access to any technology that they typically use during classroom instruction to complete this task.
- Students should work individually on the task.

Please share these things with students, reinforcing the idea that this task has been designed to support them in reflecting on the mathematics they have learned. In some tasks, students may create work in different places. It is helpful for them to have their own online folders to store their pre-post tasks as well as any supporting artifacts, such as screenshots from online tools that they use.

Task Analysis

The purpose of the task analysis section is to report on student performance at two points in time -- before and after badge instruction. Complete a table for each student based on an analysis of their responses. You can create summary data for yourself if you choose to understand more globally how students are doing on the concepts measured by the task.

PRE

Were there any interesting or instructionally useful responses or insights from students? Please record those here:

Question/Look For	Blank or similar	Emerging	Approaching	Meeting	Other Notes
(1) Student is able to determine the golden ratio and find multiple instances in the real world.					
(2) Student is able to create an image of the XQ logo using a scale factor of 1.618.					
(3) [drawing] Student is able to generate a design that uses the golden ratio as a dilation factor and that uses at least two additional transformations.					
(3) [description] Student is able to use mathematical language to describe the transformations they used to create their design.					

POST

Were there any interesting or instructionally useful responses or insights from students? Please record those here:

Question/Look For	Blank or similar	Emerging	Approaching	Meeting	Other Notes
(1) Student is able to determine the golden ratio and find multiple instances in the real world.					
(2) Student is able to create an image of the XQ logo using a scale factor of 1.618.					
(3) [drawing] Student is able to generate a design that uses the golden ratio as a dilation factor and that uses at least two additional transformations.					
(3) [description] Student is able to use mathematical language to describe the transformations they used to create their design.					