

M153: Reasoning and Proof Through Similarity

Pre-Badge Task

New Badge Alert!

This task will provide a preview of what we will be learning during the M153 - Reasoning and Proof Through Similarity Badge. You already know so much math, so use this task to share any understanding that you have before we start our learning. You will have a chance to do the same task at the end of the badge to see how your thinking has evolved.

The Task

In this task, you will use the “golden ratio” to create a design.

QUESTION 1 The “golden ratio” is sometimes referred to as “the perfect proportion.” Use an internet search to

- (a) Determine what the golden ratio is.
- (b) Identify 3-5 real world instances of the golden ratio. List or draw some examples of what you discover.



QUESTION 2 The value of the golden ratio is approximately 1.618. Recreate the XQ Institute logo shown at a scale that is 1.618 times larger than the one shown here.



QUESTION 3

Apply the golden ratio (scale of 1.618:1) to create a design starting with the given trapezoid. You can do this by hand using the grid on the next page OR you can do it digitally using the [Logo Design Golden Ratio](#) file in Desmos.

- Use the golden ratio to create a design that has at least three different-sized trapezoids (including the original trapezoid).
- Include at least two other transformations (translation, rotation, reflection) in the creation of your design.
- Create a summary of the transformations that you used in the notebook below. For each of the transformations, be sure to include:
 - The location of the center of the dilation and the scale used.
 - The distance and direction of any translations.
 - The center, number of degrees and direction (clockwise, counterclockwise) for any rotations you used.
 - The line of reflection for any reflections you used.



My "Reflections"

