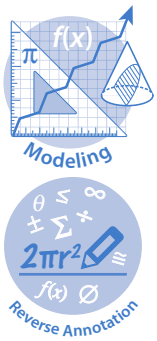
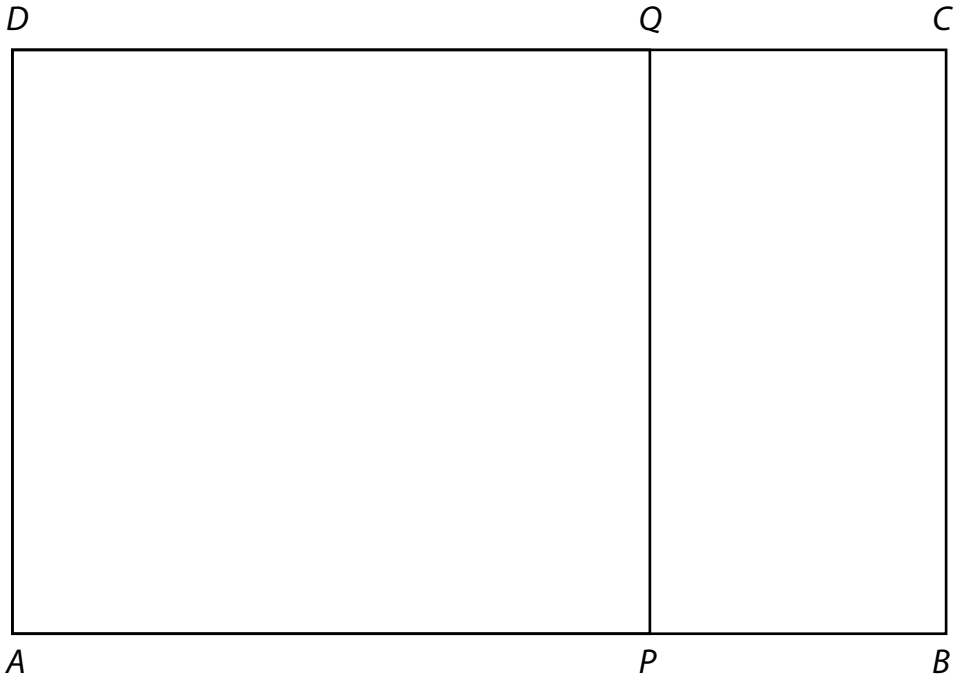
Name: **Date:**

Problem-Based Task: Golden Rectangles and the Golden Ratio



SMP	
1	2 ✓
3	4 ✓
5	6
7 ✓	8

Golden rectangles have been used by artists, architects, and other creative individuals for hundreds of years because of a unique property they all share. A golden rectangle is a rectangle that can be divided into a square and a smaller rectangle that is similar to the original rectangle. In the diagram below, quadrilateral *ABCD* is a golden rectangle, and $\overline{PQ}$ divides it into square *APQD* and rectangle *BCQP*, which is similar to quadrilateral *ABCD*. (Using the similarity symbol, *BCQP* ~ *ABCD*.)



The ratio of length to width in a golden rectangle is called the golden ratio. To find the golden ratio, you can let the width be 1, let the length be *x*, and then find the value of *x* (because $\frac{\text{length}}{\text{width}} = \frac{x}{1} = x$). Let *AD* = 1 and *AB* = *x*. Find the golden ratio.

Find the golden ratio.