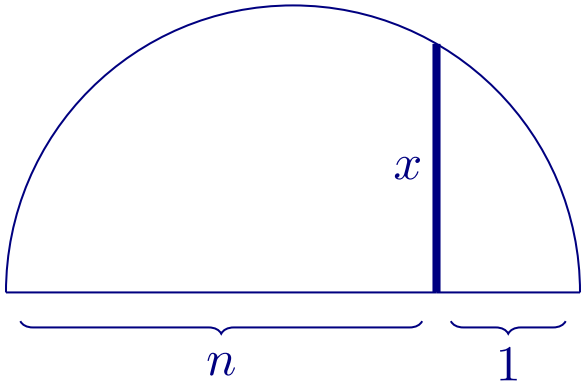
Computing quadratures

In this activity we will compute some basic quadratures.

When computing a quadrature of a shape in the method of the ancient Greeks, one needs to produce a line segment whose length gives the side of a square of equal area to the original shape.

Question 1 *Consider the figure below. Explain how one could construct it and what segment x represents.*



Question 2 *Construct a rectangle whose side lengths are 8 units and 5 units. Then construct its quadrature. Explain your construction step-by-step, and tell why it works!*

Question 3 *Construct a triangle whose base has length 8 units and whose height has length 5 units. Then construct its quadrature. Explain your construction step-by-step, and tell why it works!*

Question 4 *Suppose you have a square whose side length is 8 units and another square whose side length is 15 units. How would you construct the quadrature of the two areas together? Explain how you know.*

Question 5 *How do you compute the quadrature of a polygon?*

Learning outcomes:
Author(s):