

Intro to Calculus

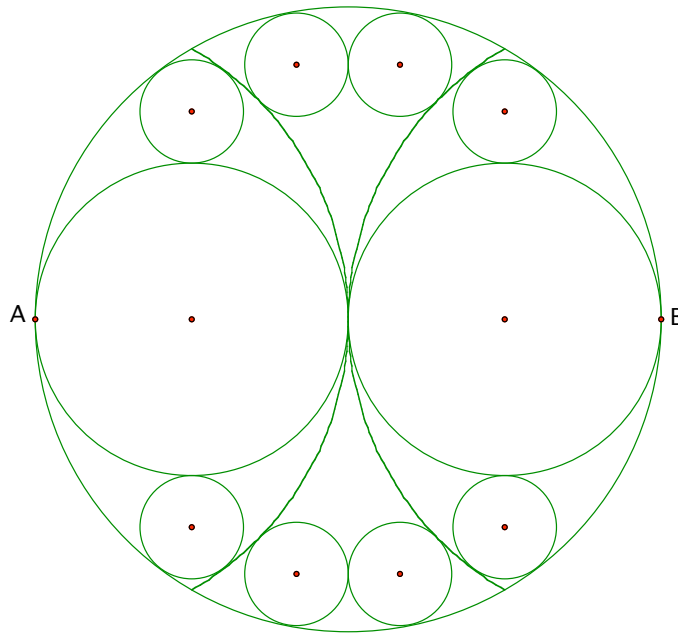
Sangaku 14¹

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Here we have a rare example of a problem proposed by a woman, Okuda Tsume. Hung in 1865 at the Meiseirinji temple in Ogaki city, Gifu.

In a circle of diameter $AB = 2R$, draw two arcs of radius R with centers A and B , respectively, and ten inscribed circles. Show that the eight

small circles all have equal radii, t , and show that $t = \frac{R}{6}$.



Goals

Appreciate mathematics as a human activity with a deep and complex history.

Improve ability to formulate and solve problems.

Extra Challenge

Use Geogebra to make this sangaku so that all of the objects move correctly as the result of changing AB .

¹ Adapted from the work of F. Hidetoshi and T. Rothman in Japanese Temple Geometry

Scoring Guide

Define variables and label drawing. (4 pt.s)

Clearly and convincingly guide through your reasoning. (12 pt.s)

Correctly answer the question. (4 pt.s)

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