

Trisecting

We arrive now at our third of three problems of antiquity, the angle trisection problem. Again, we will look at the origin of this problem in history, some ways the ancient Greeks solved it, some modern ways of solving it, and the eventual solution to the problem.

If you are interested in one proof that an arbitrary angle cannot be trisected, you can see Proof of the Impossibility of Trisecting an Angle with Euclidean Tools. The proof we'll look at in class is essentially that of the third reading.

Readings

First Reading: Trisecting an Angle

Second Reading: The Quadratrix, a Simple but Remarkable Curve

Third Reading: Proof that one can not Trisect an angle of 60 degrees with Straight Edge and Compass

Fourth Reading: An Iterative Angle Trisection

Questions

Question 1 *In what year were both the cube duplication and angle trisection problems solved by Wantzel?*

1837

given

Question 2 *Which of the following is not possible with only straightedge and compass?*

Multiple Choice:

- (a) *Trisecting an angle of 90° .*
- (b) *Trisecting any line segment.*
- (c) *Trisecting an angle of 45° .*
- (d) *Trisecting an angle of 60° . ✓*

Question 3 *What are the most important points of this reading?*

Learning outcomes:

Author(s):

See Proof of the Impossibility of Trisecting an Angle with Euclidean Tools at <http://www.jstor.org.proxy.lib.ohio-state.edu/stable/2688093>

See Trisecting an Angle at http://www-history.mcs.st-and.ac.uk/HistTopics/Trisecting_an_angle.html

See The Quadratrix, a Simple but Remarkable Curve at <http://onlinelibrary.wiley.com.proxy.lib.ohio-state.edu/doi/10.1111/j.1949-8594.1952.tb06937.x/abstract>

See Proof that one can not Trisect an angle of 60 degrees with Straight Edge and Compass at <http://www.math.toronto.edu/rosent/Mat246Y/OLDPDF/week19.pdf>

See An Iterative Angle Trisection at <http://www.jstor.org.proxy.lib.ohio-state.edu/stable/27646441>

Free Response:
