

**Undergraduate Math Club  
Fall 2007  
2<sup>nd</sup> floor Nesbitt Common Room  
October 25, 4:10-5:00pm  
(free pizza and pop, as always)**

# **Angle trisection**

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## **Abstract**

Given a compass, straightedge, and an arbitrary angle, thanks to the Greeks it is known how to bisect the angle. The Greeks went on to ask many questions, including: is it possible to divide the angle into three equal parts? The answer is: no, it is not possible to trisect an arbitrary angle given only a straightedge and compass. This was first proved by Pierre Wantzel in 1837, and his proof represents one of the cool achievements of elementary field theory. Ask your 412 or 512 instructor for guidance on proving it.

Drop the requirement that we use only a straight edge and compass. Is there an elementary way to trisect an arbitrary angle? The answer is: yes. In fact, if you are rather generous with your interpretation of the word "elementary," then many, many elementary methods for trisecting angles have been found. We shall discuss constructions found by Archimedes, Hippias, Maclaurin, and some found during the last one hundred years.