Math 411: Advanced Euclidean Geometry

Area and π

Due Tuesday April 29

The goal of this problem is two fold. Justify the formula $C = 2\pi r$ and compute the first few digits of π. There is a nice account of this at the web link: A history of Pi

The url is:

http://www-groups.dcs.st-and.ac.uk/ history/HistTopics/Pi _through_the_ages.html

I have also put it on the website.

But, there are many steps missing. Fill in the missing steps. For this, you will need some basic trig identities - the double angle formulas for $\sin, \cos$ and tan. Further, you will need to make an approximation to the $\sqrt{3}$ and $\sqrt{2}$. While you can get that from a calculator, you should explain why (using basic arithmetic) it is reasonable. Note that Archimedes must have a given a different explanation.

Regard this a preparing an extension lesson for a high school trig class. Be sure to explain why this procedure is in fact giving an approximation to the circumference of a circle. I will discuss the general setting on Tuesday April 22.

Contact Information

Office hours or T: 4-5 or Th at 3-5,after class if desired or by appointment in 327 SEO. (Subject to change)

Feel free to e-mail me at jbaldwin@uic.edu or phone to make an appointment to discuss any difficulties that arise.

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