

# Fall 2018 Welcome

Steven F. Bellenot

Department of Mathematics  
Florida State University

Fall 2018  
Florida State University, Tallahassee, FL  
Aug 24, 2018

Eligibility/ALEKS – Classic Greek questions

Email – Archimedes spiral

Accommodations – Turning a needle

Grade Distributions – Make it  $\epsilon$

# Classic Greek Unsolved Problems

Can you using only a compass and an unmarked straight edge:

- Trisecting an angle (impossible Wantzel 1837)
- Doubling a cube (impossible Wantzel 1837)
- Square a circle (impossible Lindemann 1880,  $\pi$  transcendental)

There are crazy "circle-squarers" and "angle-trisectors" to this day. Apparently "cube-doublers" were more popular in ancient Greek times.

“First Time in College” students in mac1114, mac1140, mac2233 and mac2311 are required to take aleks. And they must use the FSU Summer 18 – Spring 19 cohort.

Students with dual enrolled credit, even with AAs are considered FTC.

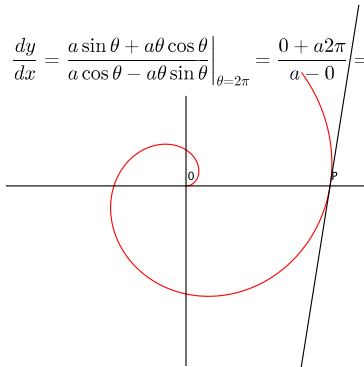
Not all college courses are equivalent. They need ALEKS for its *inventory of math skills*. And because it provides a *way to improve any weakness* it finds.

NOT a way to jump, avoid repeating, avoid trig

# Archimedes Spiral

$$r = a\theta; \quad x = r \cos \theta; \quad y = r \sin \theta$$

$$\frac{dy}{dx} = \frac{a \sin \theta + a\theta \cos \theta}{a \cos \theta - a\theta \sin \theta} \Big|_{\theta=2\pi} = \frac{0 + a2\pi}{a - 0} = 2\pi$$

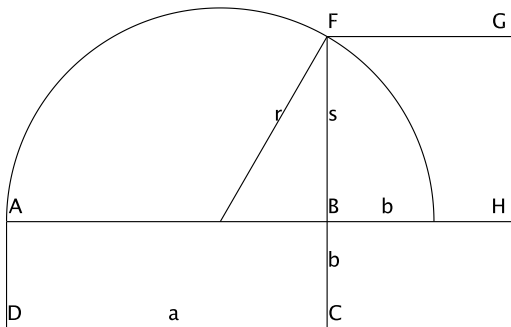


Advisors (other than Jennifer or Elizabeth) are not your friend

- Do not reply to email from students wanting to add your class, just forward them to [advisor@math.fsu.edu](mailto:advisor@math.fsu.edu)

# Triangle-squaring

$$r = (a + b)/2; s^2 = r^2 - (r - b)^2 = (a + b)^2/4 - (a - b)^2/4 = 4ab/4$$



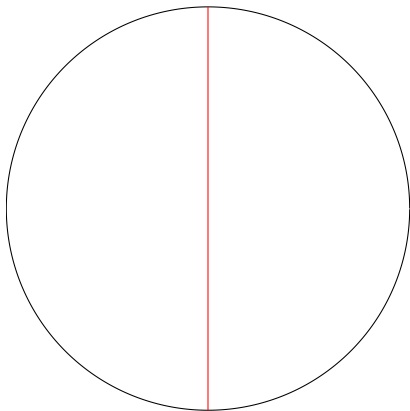
# Accommodations

- The letter isn't the request. It is a basis for discussion.
- Extra time, only at the SDRC
- Notetaker, send email to class, asking them to directly contact the SCRC.
- Anything else for TAs, should be run through either Kirby or Bellenot.



# U Turns

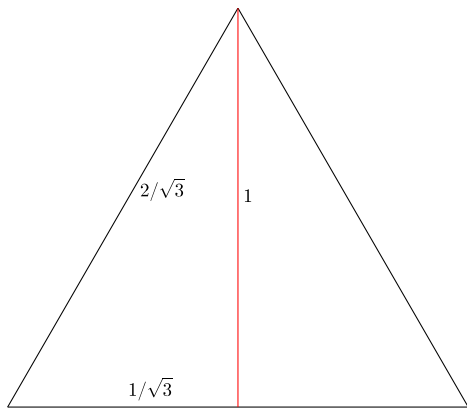
circle has area  $= \pi/4 \approx 0.7853982$



A disk of radius  $1/2$  has the property that a needle of unit length

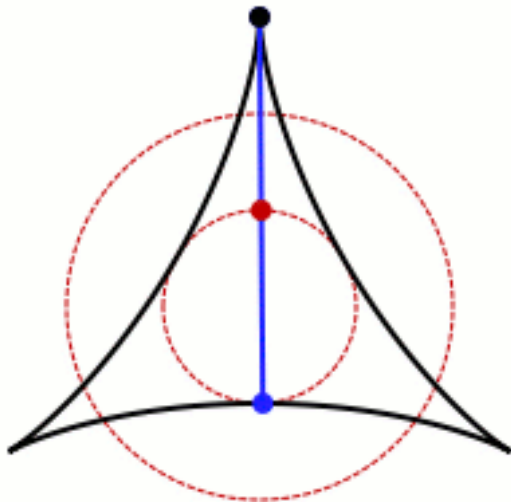
# Convex U Turns

triangle has area =  $1/\sqrt{3} \approx 0.5773503$



Has the smallest area among convex figures.

# Smaller non-convex I



Area = 0.3853

# Grade Distributions

<http://www.maa.org/CSPCC>

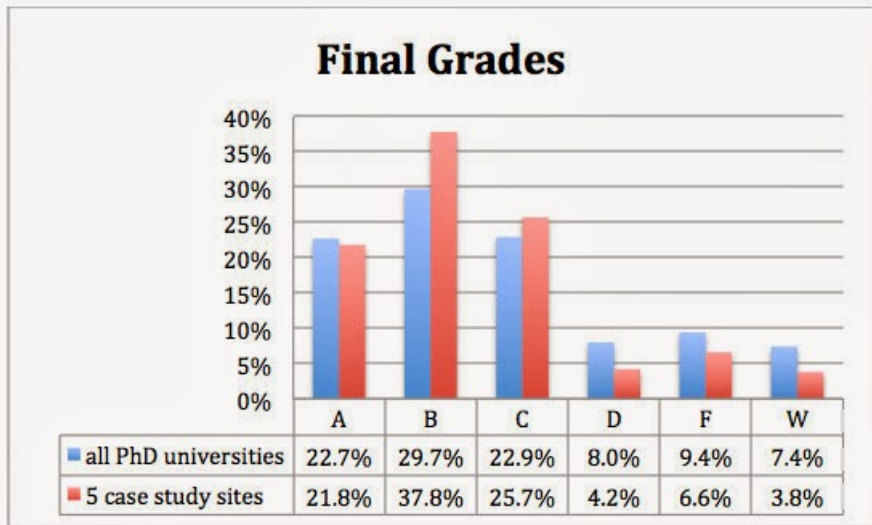
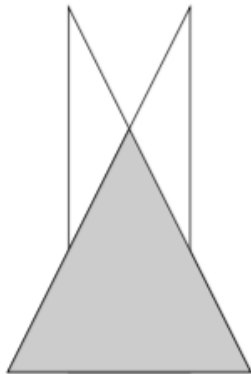
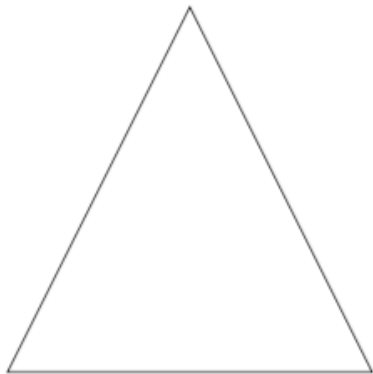
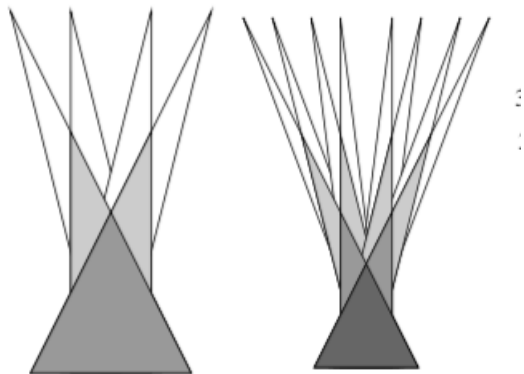


Figure 1: Instructor reported final grades.

# Keakeya (or Besicovitch) Set



# Dot dot dot



You have a lot of support, if you need help, ask.  
You are the math department.