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Geo Wksp Notes #4 12/1/12

Intro: Motivation: If given two different methods of measuring the same quantity, how hard is it to show that they are equivalent?

Common Core motivation: G-SRT-Prove theorems involving Similarity

-Deliberately vague statement since there are multiple ways to set up similarity

Recap: Activity of N-secting a line.

Recap Activity: Varignon's Theorem

Side-Splitter Exploration

-Question: What we're allowed to use?
        -Write down list of things you think we are allowed to use.
        -Brief discussion of what we've seen so far in the wksp.

-Discussion of equivalent statements of the parallel postulate
        -Anthony's proof

-But using similarity, proportional sides, is excessively strong. Find another way.
        -Discussion of various methods.

-Discussion of how CME textbooks do this

Why do we worry about this?
-As long as we have rational numbers, what's the problem?
        -Interlude about irrational numbers.
        -Motivation for irrational proportions

Golden Ratio Activity

[pickup lunch]

Recap: Segment Arithmetic
        -Building up a basis for considering equivalence classes and operations on them

[post-lunch]

Discussion of how to multiply segments, using right triangle diagrams

Circles in the Common Core: G.C2-3

Determining a Circle Activity
      -Use of intersection of perpendicular bisectors to determine the circle among 3 pts.
      -Point about difference between "industry of terms" to memorize(e.g.,
      circumcenter,orthocenter) vs. the question of why it a given method works.

Central/Inscribed angles Activity

-Prove inscribed angle is half the central angle.

Cyclic Quadrilateral theorem

Philosophical discussion about diagrams

-Late 19th century insistence upon independence of geometry from diagrams.

-Discussion of repeated addition as insufficient to capture full meaning of multiplication.