

Week 5 Lesson Logic

Action

- Distribute computers
 - Have each person fill out paperwork
 - Have them open GC
 - Quick tutorial
 - $y=x^2+n$ (how to escape from superscript)
 - $f(x)=x^2+n$, $y=f(x)$
 - $g(x)=(x-n)^.5$, $y=g(x)$
 - $y=g(f(x))$
 - $y=f(g(x))$
 - Close lids (put computers to sleep)
- Discuss homework
 - Points to emphasize: (a) Measuring an angle is measuring an arc length of a portion of a circle that the angle cuts. (b) The circle's diameter is arbitrary. Pick ANY circle centered at the angle's vertex. (c) You can measure it any way you please, as long as the method uses a unit of length that is proportional to the circle's circumference.
 - Connections among trig applications and thinking of angle measures, circles, arc lengths, and trig functions.
- Next week's homework as in-class activity
 - Have them join groups (1-4). One computer per group
 - Question 1 (10 minutes; report orally from groups where they are)
 - Question 2 (10 minutes; report orally from groups where they are)
 - Question 3 (20 minutes work separately; write individually; discuss publicly)
 - Question 4 (30 minutes discussed as whole class; extend to non-linear arguments)
- Assign Questions 5, 6 and 7.
 - Show how zoom in using icons, modifier keys, and drag-boxes in Question 5.
 - Show how to use sliders in Question 6.
 - Discuss how to use GC to investigate #7.

Reason

Use ctrl-9 to define a function

Surprise! Inverses

We want them to give utmost priority to ensuring that angle, arc length, circle, and proportionality are all part of the idea of an angle's measure.

Students frequently will forget about basic definitions and focus instead on answering questions. You want them to practice *applying* definitions in the context of interpreting a situation. This will increase the probability that they develop coherent knowledge, as opposed to compartmentalized knowledge.

Again, stress that "x" is an arc length etc.

Build to Juan's generalization

Ditto

Demonstrate the power of covariational reasoning