Geogebra and the Standards for Mathematical Practice

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Overview

• Geogebra Profile

• Standards for Mathematical Practice

• Geogebra Worksheets

• Sample Worksheets
Standards for Mathematical Practices

1. Make sense of problems & persevere in solving them
2. Reason abstractly & quantitatively
3. Construct viable arguments & critique the reasoning of others
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for & make use of structure
8. Look for & express regularity in repeated reasoning
Standards for Mathematical Practices

- **NCTM Look Fors**
  - Student and Teacher perspective
  - Practices are grouped into pairs

- **Park City Mathematics Institute**
  - Task and Teacher perspective
  - Needs Improvement, Emerging, Proficient, Exemplary classifications

- **Math Leadership**
  - Student perspective
  - Initial, Intermediate, Advanced
Using questions to foster SMP

For each SMP, there is a set of questions.

Who is asking these questions?

What is the purpose of these questions?

How do we modify these questions for use in Geogebra Worksheets?
Geogebra

- GeoGebra is free mathematics software for learning and teaching
- GeoGebra includes interactive graphics, algebra and spreadsheet features
- GeoGebra is for all learners and teachers, from elementary school to university level
- GeoGebra creators and users provide free learning and teaching materials and tools to create your own
- GeoGebra is open platform (will run on Mac, Windows, Unix, online from browser, tablet, iPad)
Geogebra Worksheet

- Sign-in
  - https://www.geogebra.org/

- Tutorial
Examples

• Examine the worksheet.
  • Which SMP are fostered by the worksheet?
  • What modifications would you make to the worksheet?
  • What other questions could you add? Why?

• Special Angle Pairs
  • https://www.geogebra.org/m/WUrVRz3j

• Discriminant
  • https://www.geogebra.org/m/fbXdQDjb
Examples

Three Part (Book)

• Vertical Angles: Quick (Numberless) Investigation
  • https://www.geogebra.org/m/TY7ex9B9

• Vertical Angles: Quick Investigation
  • https://www.geogebra.org/m/bjq4jesh

• Vertical Angles: Quick Discovery
  • https://www.geogebra.org/m/n2g9WDPh

Which SMP are fostered by the task? How?
Questions, Comments, Concerns...
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