

Bug Zapper

Right Triangle Trigonometry

Trigonometric Functions

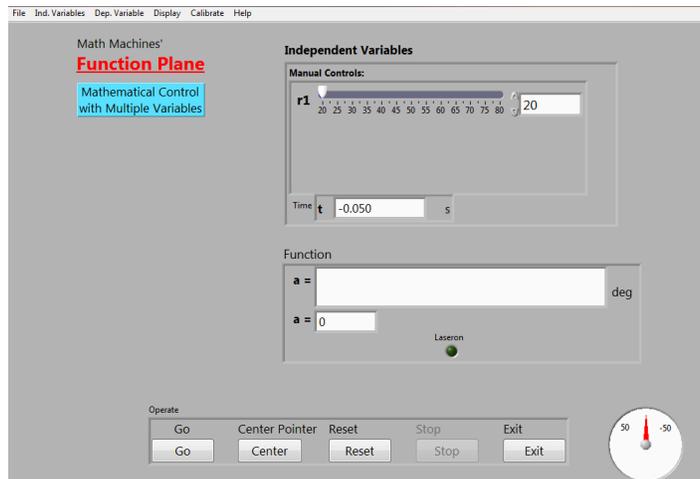
How steep is this hillside and will it fail? How high is that mountain? These sorts of questions pop up a lot in the geosciences - from plate tectonics to maps to ocean waves, and they require you to find either an angle or a distance. To do this, we often use trigonometry. Algebra and trigonometry make up a large number of the most commonly used land survey formulas (functions). Trigonometry formulas are typically used when measuring the height and angle of the land. Basic algebra is also incredibly useful for establishing length, area, volume and more. Other commonly used formulas/functions include quadratic, spherical trigonometry and spherical coordinates. Land surveyors must have a strong and thorough understanding of all of these land survey formulas and they form a huge part of any land surveying college courses.



Surveyor Using Geodetic Equipment
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Task: In this activity you will construct a function to control the Function Plane's servo to "zap bugs" with the laser. The diagram below illustrates the setup. Once the attack begins, you must enter only the location of the bug. Your function should then automatically output the correct angle for the servo to turn to hit the bug.

Additional Materials: Measuring stick or tape, pictures of bugs (or whatever you want to target).



Math Machines Program:

Function Plane

Activity File: Bugz001

Load Activity File: Bugz001



3. What would you give as practical domain and range for your function?

Domain: _____ Explain how you arrived at this.

Range: _____ Explain how you arrived at this.