

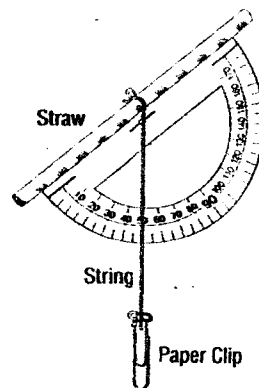
Algebra 1 Hypsometer Homework Project

Name: _____ Per. ____ Date: _____



Make a Hypsometer

- Tie one end of a piece of string to the middle of a straw. Tie the other end of string to a paper clip.
- Tape a protractor to the side of the straw. Make sure that the string hangs freely to create a vertical or plumb line.
- Find an object outside that is too tall to measure directly, such as a basketball hoop, a flagpole, or the school building.
- Look through the straw to the top of the object you are measuring. Find the angle measure where the string and protractor intersect. Determine the angle of elevation by subtracting this measurement from 90°.
- Measure the distance from your eye level to the ground and from your foot to the base of the object you are measuring.



Analyze

1. Make a sketch of your measurements. Use the equation $\tan(\text{angle of elevation}) = \frac{\text{height of object} - x}{\text{distance of object}}$, where x represents distance from the ground to your eye level, to find the height of the object.
2. Why do you have to subtract the angle measurement on the hypsometer from 90° to find the angle of elevation?
3. Compare your answer with someone who measured the same object. Did your heights agree? Why or why not?
4. What are sources of errors in your measurements?

Read all of the instructions carefully. This project is on Page 626 of your textbook in Ch. 11-7. Answer questions #1-4, #3 is optional if you can't get together with someone from the class to measure the same object(s).

Your drawing should be neat and well labelled including all measurements. Describe how you took your measurements.

The entire project should fit on one page, it may be typed or neatly handwritten. If you measure more than one object each object should be on its own page. If you have a digital camera and printer some additional small pictures of your hypsometer and object would be interesting additions to your write-up, say next to the drawing (just a suggestion).

Neatness, organization, clarity, accuracy, and completeness will all count.

Mn.C.