

Problem of the Month

October 2009

Here is the problem for October 2009. You will have until the last date of the month to solve the problem. Solutions can be either

1. written neatly on a sheet of paper and turned in to me or Dr. Oscar Vega at my (PB 347) or his (PB 352) office (simply slide through the door or put it in the white mailbox outside Dr. Vega's office), or
2. typed up using your favorite text editing software (LaTeX preferred) and then turned in to me or him via email at asabuwala@csufresno.edu or ovega@csufresno.edu.

At the end of the month, we will review all the turned in solutions and post the names of the individuals who have turned in complete correct solutions.

Problem for October 2009

A person on the summit of a mountain observes that the angles of depression of a car moving on a straight road (which does not pass through the foot of the mountain) at three consecutive mile markers are α, β and γ respectively. Prove that the height of the mountain is

$$\left[\frac{2}{\cot^2 \alpha - 2 \cot^2 \beta + \cot^2 \gamma} \right]^{1/2}$$

Definition: The angle of depression is defined to be the angle made between the horizontal and the straight line of sight of an observer looking at an object that is at a lower height than the observer.

For example, β is the angle of depression in the picture below.

