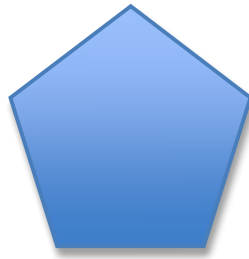


## Problem of the Week

January 24, 2012

### Three ways to view a Pentagon



If you stand very close to one side of the pentagon, you can only see that one side, what happens if you stand far away?

It is possible to stand so that you can see two sides, or even three (you might need binoculars for the latter). Draw the regions attached to each of these cases. That is, draw a picture in which, say, if you stand in a Red region you can only see one side, Yellow regions let you see two, and from the Green regions you can see three.

If that is too easy: What are the odds that a randomly placed tourist can see three sides? If you like, you can assume that your accidental viewer is far from the pentagon itself, though this doesn't really matter. Full disclosure: When I first wrote this problem, I imagined that if you stood far enough away you were sure to be able to see three sides but this turns out to be very, very wrong.

Harder still: how far away do you need to stand before you can see three sides? (assume each side of the pentagon has length 1).