Math 491, Problem Set #9
(due 10/9/03; postponed to 10/14/03)

1. (a) How many different polygonal paths of length n are there that start at the point $(0, 0)$ and then take n steps of length 1, such that each step is either rightward, leftward, or upward, and such that no point gets visited more than once? Give an explicit formula.

   (b) If one chooses at random one of the paths of length n described in part (a) (so that each of the length-n paths has an equal chance of being chosen), what is the expected value of the y-coordinate of the last point on the path? Find a constant c so that this expected value is asymptotic to cn.