Homework 6

Math 1166, Spring 2013

1. Prove that the altitudes are concurrent for a triangle with vertices at $(0, 0)$, (a, b), and $(c, 0)$. Does your proof work for any triangle? Explain.

2. Find an expression for the distance from a point (p, q) to the line $ax + by = c$. Explain your reasoning, and be sure to organize your solution so that a reader can see the major steps.

3. Using the picture below, prove that if two non-vertical lines are perpendicular, the product of their slopes is -1. You may assume that x and y are horizontal and vertical axes, respectively; that lines j and k are perpendicular and that j has positive slope; that the segments of length a and c are vertical and collinear; and that the segment of length b is horizontal.