Math 165: Honors Calculus I   Name:_____

Quiz 5   *Oct. 5, 1995*

1. A rod of length L is placed on the x-axis with one end on the origin. Suppose the rod has a mass density function given by $\rho(x) = L^2 - x^2$. Compute the center of mass of the rod.

2. Prove that $\sin^2(x) = \dfrac{1 - \cos(2x)}{2}$ and $\cos^2(x) = \dfrac{1 + \cos(2x)}{2}$. (Use the addition formulas).

3. Sketch the graph of the function $F(x) = \int_0^x |t|\, dt$ for $-2 \le x \le 2$.