Name:

Homework # 19

1. Find the mass and center of mass of the thin rods with the density function $\rho = 1 + x^3$ for $0 \leq x \leq 1$

2. Find the coordinates of the center of mass of the plane region $R = \{(x, y)|0 \leq x \leq 1, 0 \leq y \leq 5\}$ and variable density $\rho = 2e^{-y/2}$

3. Find the center of mass of the region bounded by the paraboloid $z = x^2 + y^2$ and the plane $z = 25$. Assume a constant density of 1.

4. Find the center of mass of the sliced solid cylinder bounded by $x^2+y^2 = 1, z = 0$ and $y + z = 1$. Assume a constant density of 1.