Name _____

Homework 17
Section 16.4

1. (2ea) Sketch the region of integration of the following.

   (a) $\int_3^5 \int_{\pi/4}^{\pi} (r+1)r \; d\theta dr$

   (b) $\int_0^{\pi/4} \int_0^{1/\cos\theta} \sin\theta \; r dr d\theta$

2. (5) A disk of radius 5 cm has density 12 gm/cm^2 at its center, and density 2 gm/cm^2 at its edge. If its density is a linear function of the distance from the center, find the mass of the disk.

3. (5) Evaluate the integral $\int_R \sqrt{9x^2 + 9y^2}\, dA$ where R is the region $4 \leq x^2 + y^2 \leq 9$.

4. (6) Evaluate $\int_{-a}^{a}\int_{0}^{\sqrt{a^2-x^2}} e^{1-x^2-y^2}dydx$.