Math 3298 Worksheet 35

Group members (2 to 4): _____

(1) Write down the integral for the area of the region which is inside the circle $x^2 + y^2 = 1$ and outside the region $(x - \frac{1}{2})^2 + y^2 = \frac{5}{4}$. Do not actually compute the value of the integral unless you want a challenge.

(2) Find the mass of the ball $x^2 + y^2 + z^2 \leq 9$ if its density is $(x^2 + y^2 + z^2)^{n/2}$, where n is an integer. For which values of n is the mass defined? For which value of n is the mass minimized?