Math 3298 Worksheet 15

Group members (1 to 3): _____

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

(2) Find the area of the region bounded by the curves $y = x$, $y = 2x$, $xy = 1$, and $xy = 2$ by changing coordinates to $u = xy$, $v = y/x$.