Math 3298 Worksheet 33

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 are feeling feisty.

(2) Convert the following integral to spherical coordinates and evaluate it:

$$\int_0^1 \int_0^{\sqrt{1-y^2}} \int_{-\sqrt{1-x^2-y^2}}^{\sqrt{1-x^2-y^2}} \cos(z) \; dz \; dx \; dy$$

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