Name:
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MAC 2313.8326
Cyr

Quiz 9
You must show all work to receive full credit!!

Problem 1. (3 pts) Rewrite the following integral in cylindrical coordinates (DO NOT EVALUATE):

$$\int_{-1}^{1}\int_{0}^{\sqrt{1-x^2}}\int_{0}^{x^2+y^2} ydzdydx$$

Problem 2. (4 pts) Set up the triple integral in spherical coordinates used to calculate the volume of the region $\mathcal{W} = \{(x, y, z) \mid x^2 + y^2 + z^2 \leq 4, z \geq 1, x \geq 0\}$. DO NOT EVALUATE.

Problem 3. (3 pts) Let $T(u, v) = (u^2 - v, u + v)$, let $R = \{(u, v) \,|\, 0 \leq u \leq 2, 0 \leq v \leq 3\}$ and let S be the image of R under T. Evaluate $\int\int_S ydxdy$.