Name: March 24, 2016 MAC 2313.8443 Cyr

Quiz 10 You must show all work to receive full credit!!

Problem 1. (4 pts) Use cylindrical coordinates to set up the triple integral that would be used to calculate the volume of the region between the paraboloids $z = x^2 + y^2$ and $z = 32 - x^2 - y^2$ with $y \le 0$.

Problem 2. (6 pts) Rewrite but do NOT evaluate the integral $\iiint_{\mathcal{W}} z^{-1} dV$ using spherical coordinates, where $\mathcal{W} = \{(x, y, z) \mid x^2 + y^2 + z^2 \leq 4, z \geq \sqrt{2}, y \leq 0, x \leq 0\}.$