Math 173 - Quiz 11

Name _____

Cinco de Mayo, 2016

Score _____

Show all work to receive full credit. Supply explanations when necessary. Once you set up your integrals, you may use a CAS to evaluate them.

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1. (5 points) Let E be the space region bounded by the paraboloids $z = 2x^2 + 2y^2$ and $z = 6 - x^2 - y^2$. Evaluate the following triple integral. (Hint: Use cylindrical coordinates.)

$$\iiint_E (x^2 + y^2)\, dV$$

Over $\longrightarrow$

2. (5 points) Let U be the "ice cream cone" bounded below by $z = \sqrt{3(x^2 + y^2)}$ and above by $x^2 + y^2 + z^2 = 4$. Find the vloume of U. (Hint: Use spherical coordinates.)