Math 241 X8 **Name:**

Quiz # 7

November 14, 2013 No electronic devices or interpersonal communication allowed. Show work to get credit.

(1) [10pts] Find the volume of the region R inside (above) the cone $z = \sqrt{x^2 + y^2}$ and inside the sphere $x^2 + y^2 + z^2 = 9$.

(2) [10pts] Let S be the region inside the parallelepiped bounded by the planes

$$\begin{aligned} x + 2y + 3z &= 1, & x + 2y + 3z &= 4, \\ 2x - 4y - 6z &= -3, & 2x - 4y - 6z &= 2, \\ 2x + 4y - 6z &= 0, & 2x + 4y - 6z &= 7. \end{aligned}$$

A solid in the shape of S has density at each point given by $(3x - 2y - 3z)$ kg/m^3. Find the mass of this solid.