**Math 226 – Quiz**

**Name** _____

- **Write as neatly as you can!**
- **No calculators are allowed.**
- **You must show your work to obtain full credit.**

1. (*7 points*) Let $E$ be the region of the cone $x^2 + y^2 = z^2$ that is between the $xy$-plane and the plane $z = 1$. The density of the solid is given by $f(x, y, z) = x^2 + y^2 + z^2$.

   (a) Set up **but do not evaluate** the integral to find the mass of $E$ using cylindrical coordinates.

   (b) Set up **but do not evaluate** the integral to find the mass of $E$ using spherical coordinates.

2. (*3 points*) Find the tangent plane to the surface parameterized by

$$\begin{aligned} x &= u + v \\ y &= 2u \\ z &= uv - 1 \end{aligned}$$

at the point $(1, 2, -1)$.