This is a take-home quiz. It is due completed at the beginning of class on Wednesday 12/6/17.
This quiz will be graded with partial credit. Feel free to use the back of this page if you need extra room. Please indicate if you do so.

1. (3 points) Give a parametrization, including the appropriate u- and v-bounds, for the portion of the sphere $x^2 + y^2 + z^2 = 16$ where $x \geq 0$ and $z \geq 0$.

2. (7 points) Let S be the surface given by the cone $z = \sqrt{4x^2 + 4y^2}$ below $z = 6$ including its top, oriented outward.

   (a) (1 point) Sketch S including it's orientation.

   (b) (6 points) Let $\mathbf{F} = \langle 2x, 2y, xyz \rangle$. Compute $\displaystyle\iint_S \mathbf{F} \bullet d\mathbf{S}$.