

Name: _____

- No electronic devices are allowed. You must show your work to obtain credit.
- You may use the back if necessary. Please indicate clearly if you do so.

1. (5 points) Evaluate

$$\iiint_E z \, dV,$$

where E is the region inside the sphere $x^2 + y^2 + z^2 = 1$, above the plane $z = 0$, and contained in the half-space $x + y \geq 0$

2. (5 points) Convert the equation written in spherical coordinates into an equation in Cartesian coordinates, AND identify the surface it represents.

$$\rho^2 = 2\rho \sin \phi \cos \theta$$