

Name: \_\_\_\_\_

**Problem 1** (10 points) Use cylindrical coordinates to find the volume of the solid  $E =$ 

$$\left\{ (x, y, z) \mid 1 \leq \sqrt{x^2 + y^2} \leq 2, 0 \leq z \leq \frac{1}{\sqrt{x^2 + y^2}} \right\}.$$

**Problem 2** (10 points) The point  $(\rho, \theta, \phi) = (2, \pi/2, \pi/2)$  is given in spherical coordinates. Plot the point and find its rectangular coordinates.