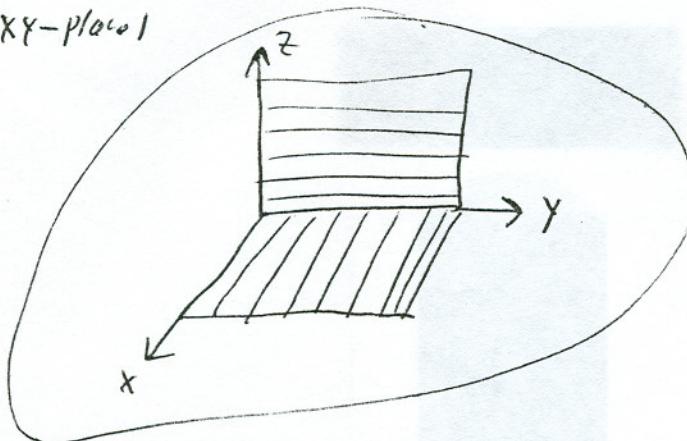


PRINT Your Name: _____

There are 10 problems on 5 pages. Each problem is worth 10 points. SHOW your work. **CIRCLE** your answer. **NO CALCULATORS!**

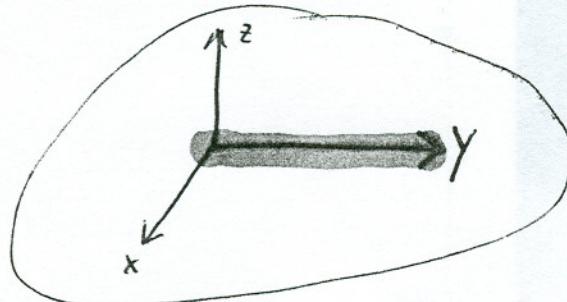
1. Graph and describe the graph of $xz = 0$ in 3-space.

The graph is the union of the planes $x=0$ (this is the yz -plane) and $z=0$ (this is the xy -plane)



2. Graph and describe the graph of $x^2 + z^2 = 0$ in 3-space.

In this graph x must be zero, z must be zero, and y can be anything. This is the y -axis



3. Graph and describe the graph of $x^2 + z^2 = 1$ in 3-space.

In the xz -plane, this is a circle with center $(0,0)$ and radius 1. In 3-space it is a cylinder.

