

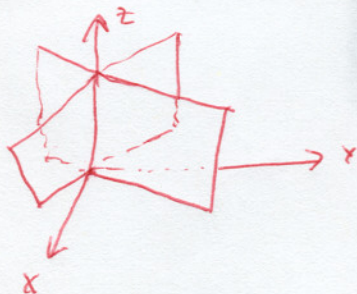
241 Exam 1 Summer 2002

PRINT Your Name: _____

There are 10 problems on 4 pages. Each problem is worth 5 points. SHOW your work. **CIRCLE** your answer. **NO CALCULATORS!**

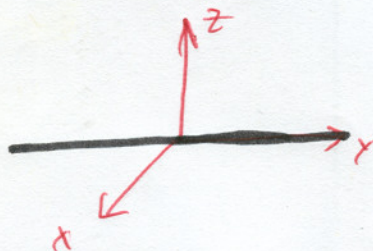
1. Graph and describe the graph of $x^2 = y^2$ in 3-space.

Either factor or take $\pm$ of both sides. A point satisfies $x^2 = y^2$ if $x = y$ or if $x = -y$.
So the graph is the Union of 2 planes



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

The only way for 2 non-negative numbers to add to zero is if each of the numbers is zero. A point satisfies this equation if $x=0$ and $z=0$.
The graph is the y-axis



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

This is the sphere of radius 1 with center $(0,0,0)$.

