241 Fall 1999 Exam 1

PRINT Your Name:_____

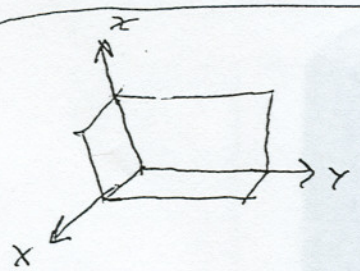
There are 10 problems on 4 pages. Each problem is worth 10 points. SHOW your work. [CIRCLE] your answer.

NO CALCULATORS!

1. Describe the graph of $xyz = 0$ in 3– space.

Either $x=0$ or $y=0$ or $z=0$

The graph is the union of the yz plane, the xz plane, and the xy plane.

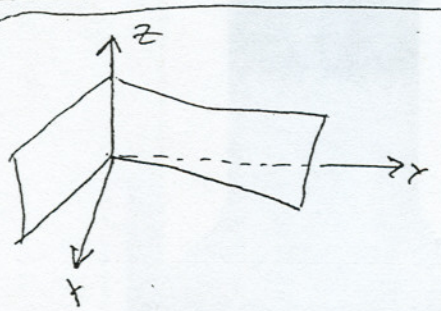


2. Describe the graph of $x^2 = y^2$ in 3– space.

$x^2 - y^2 = 0$

$(x-y)(x+y) = 0$ Either $x-y=0$ or $x+y=0$

The graph is the union of the two planes $x=y$ and $x=-y$



3. Find the work done by the force $\vec{F} = 2\vec{i} + 5\vec{j}$ pounds in moving an object from $(2,1)$ to $(5,9)$, distance is measured in feet.

Work $= \vec{F} \cdot \vec{D} = (2\vec{i}+5\vec{j}) \cdot (3\vec{i}+8\vec{j}) = 6+40 =$ 46 ft-lbs