

Math 2210-4

Fri 1/28

6/14.6

Quadratic surfaces, cylinders, surfaces of revolution

HW will be posted late today
for next week

1

- We can visualize surfaces by understanding their intersections (called traces) in various planes; the 3 most important planes to use are the coord planes: x - y plane $z=0$ x - z plane $y=0$ y - z plane $x=0$.

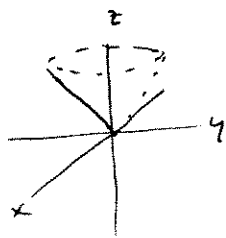
Example 1

sketch $\frac{x^2}{4} + \frac{y^2}{9} + \frac{z^2}{1} = 1$

Example 2

sketch the "vertical" $y = \cos x$

Example 3



take the line $z=x$ in $x-z$ plane ($x>0$)
& rotate about the z -axis to make a cone.
Find an eqn for the cone.

Example 4

$$z = x^2 + y^2$$

Example 5 $z = x^2 - y^2$

Example 6 $x^2 + y^2 - z^2 = 1$

then try
 $x^2 + y^2 - z^2 = -1$
if you have time.