

Name \_\_\_\_\_

Exam III Math. 2673

Spring, 2007, 4/12/2007

1.) Graph the region and find the volume of the solid in the first octant bounded by the plane  $x + 2y + z = 4$ .

2.) Graph the region and find the volume bounded by the sphere centered at the origin of radius 3 and lying in the first octant.

3.) Graph the region and find the volume bounded by a cylinder whose center axis is the  $z$  - *axis* with radius 1 and height 2

4.) Graph the region and find the volume inside both the sphere  $x^2 + y^2 + z^2 = 9$  and exterior to the sphere  $x^2 + y^2 + z^2 = 1$ .

5.) Graph the region and find the volume bounded by the cone whose angle in spherical coordinates is given by  $\phi = \frac{\pi}{3}$  and a sphere of radius 2.

6.) Find the volume inside the sphere  $\rho = \cos(\phi)$ .