

**Math 13 Worksheet #6: Cylindrical and spherical coordinates**

- (1) (last problem from Worksheet #5) Find the volume of the solid that lies between the paraboloid  $z = x^2 + y^2$  and the sphere  $x^2 + y^2 + z^2 = 4$

- (2) Use spherical coordinates to find the volume of the solid that lies above the cone  $z = \sqrt{x^2 + y^2}$  and below the sphere  $x^2 + y^2 + z^2 = z$ .