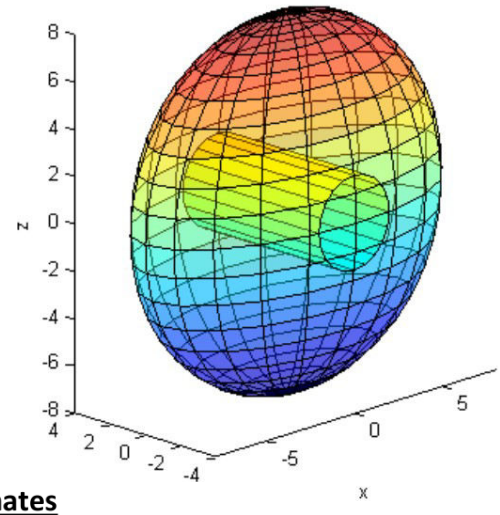
ME 201 TUTORIAL 6 – WINTER 2018

Problem 1: (Double Integral in Polar Coordinates)



Find the volume inside the ellipsoid

$$x^2 + 4y^2 + z^2 = 64,$$

and the cylinder

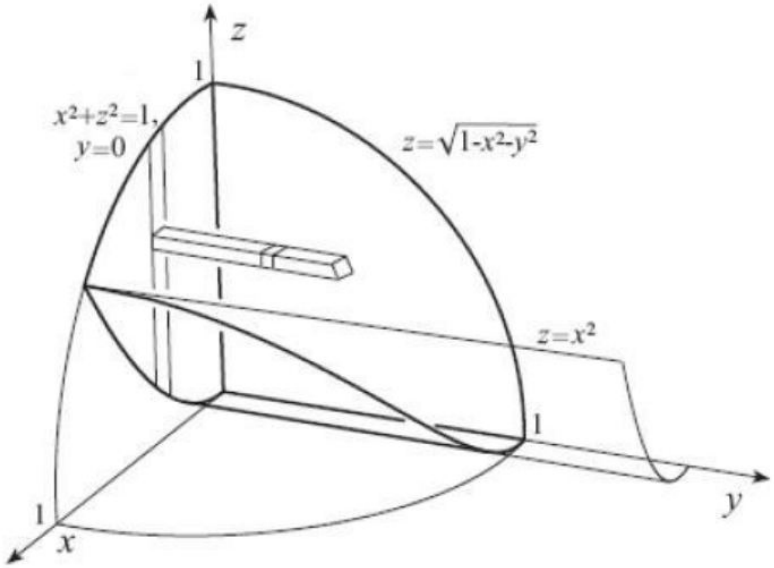
$$x^2 + z^2 = 4.$$

Problem 2: [S. 13.8, Prob. 14] Triple Integral in Cartesian Coordinates

Set up but do not evaluate the following integral

$$\iiint (x^2 + z^2 + y^2)dV$$

Where V is the volume bounded above by $z = (1 - x^2 - y^2)^{\frac{1}{2}}$, and below by $z = x^2$.



Problem 3: [S. 13.12, Prob. 18] Triple Integral in Spherical Coordinates

Evaluate the following triple iterated integral using spherical coordinates

$$\int_0^9 \int_0^{\sqrt{81-y^2}} \int_0^{\sqrt{81-x^2-y^2}} \frac{1}{x^2+y^2+z^2}\, dz\ dx\ dy$$