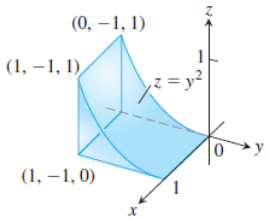
Math 2551 Worksheet Section 15.5

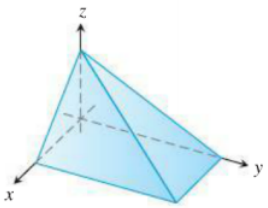
1. Evaluate $\iiint_E z dV$, where E is the solid tetrahedron bounded by the four planes $x = 0$, $y = 0$, $z = 0$, and $x + y + z = 1$. Include a sketch of the solid.

2. Set up integrals that would calculate the volume of the region below, using the specified orders of integration.



(a) $dy\ dz\ dx$ (b) $dy\ dx\ dz$ (c) $dx\ dy\ dz$ (d) $dx\ dz\ dy$ (e) $dz\ dx\ dy$

3. Find the volume of the region in the first octant bounded by the coordinate planes and the planes $x + z = 1$ and $y + 2z = 2$.



4. Evaluate the integral

$$\int_0^{\pi/2} \int_0^y \int_0^x \cos(x + y + z)\ dz\ dx\ dy$$