(1) Find the volume bounded above the disc $x^2+y^2 \leq 4$ and under the cone $z = \sqrt{x^2+y^2}$

(2) Find the volume bounded above the cone $z = \sqrt{x^2+y^2}$ and below the sphere $x^2+y^2+z^2 = 1$

(3) A swimming pool is circular with a 40 foot diameter. The depth is constant along east-west lines and increases linearly from 2 feet at the south end to 7 feet at the north end. Find the volume of water in the pool

(4) Evaluate $\iiint_E 6xy\, dV$ where E lies under the plane $z = 1+x+y$ and above the region in the xy-plane bounded by the curves $y = \sqrt{x}$, $y = 0$, and $x = 1$.

(5) Evaluate $\iiint_E x^2\, dV$ where E is the solid that lies within the cylinder $x^2+y^2 = 1$, above the plane $z = 0$ and below the cone $z^2 = 4x^2+4y^2$

(6) Find the volume of the solid that lies within both the cylinder $x^2+y^2 = 1$ and the sphere $x^2+y^2+z^2 = 4$

(7) Evaluate $\iiint_E z\, dV$ where E lies between spheres of radius 1 and 2, centered at $(0,0,0)$, in the first octant

(8) Find the volume of the smaller wedge cut from a sphere of radius 2 by two planes that intersect along a diameter at angle $\pi/6$