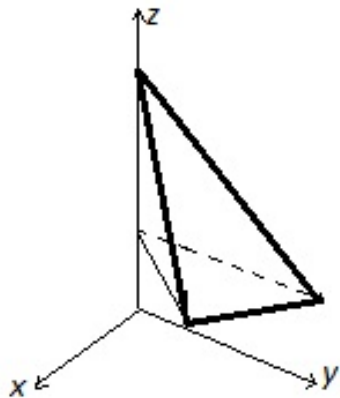1. Set up up the integral $\iiint\limits_{E} dV$ over the region E in six different ways. The region is bounded by $y = x$, $x + y = 4$, $z = 2$, $x = 0$ and $x + y + z = 6$.

2. Sketch the region bounded by $x = z^2$, $x = 8 - z^2$, $y = -2$, $y = 4$. Find the volume of this region.