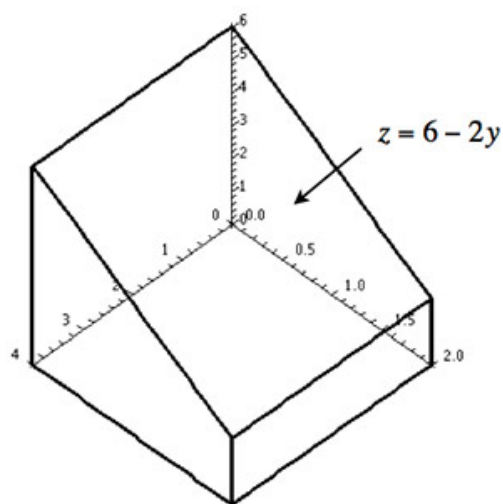
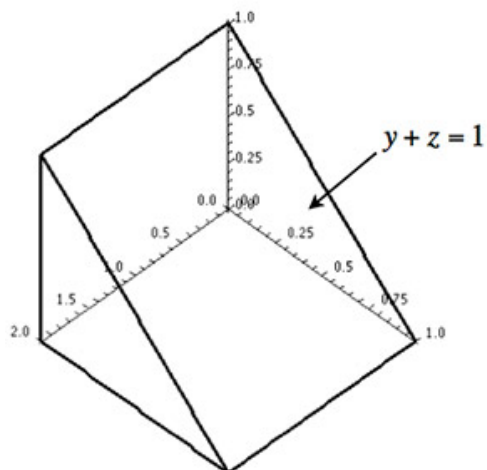


## [12.7] - Triple integrals / Volume

1. Find the volume of the figures shown below, using both a triple integral, and geometry.

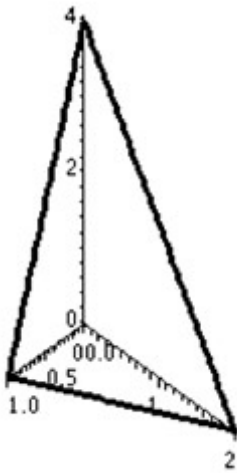


2. Sketch the solid whose volume is given by

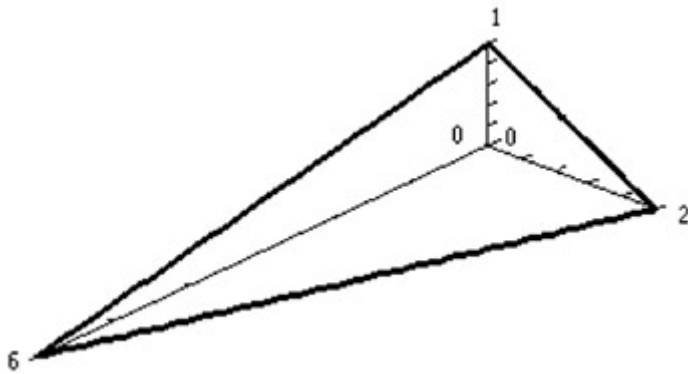
$$\int_0^4 \int_0^{\frac{4-x}{2}} \int_0^{\frac{12-3x-6y}{4}} dz \, dy \, dx \quad (1)$$

Then rewrite the integral in the order  $\int \int \int dy \, dx \, dz$  with the appropriate limits of integration.

3. Find the volume of the tetrahedron bounded by the coordinate plane  $z = 4 - 4x - 2y$ .



4. Find the volume of the tetrahedron shown below.



1. First figure, by geometry  $V = \frac{1}{2} * (2 \times 1 \times 1) = 1$ ;

Setting up the integral...

$$\int_{x=0}^2 \int_{y=0}^1 \int_{z=0}^{1-y} dz \, dy \, dx = \int_{x=0}^2 \int_{y=0}^1 (1-y) \, dy \, dx = \dots \quad (2)$$