7. (6 points) Find the volume of the solid in the first octant which is bounded by 
\[ x^2 = 4y \] and \[ 5y + 9z = 45. \]

\[ \text{Vol} = \int \int \int_\Omega dV = \int_0^6 \int_0^{\frac{9}{4}x^2} \left( \frac{6}{9}y - \frac{5}{9}y^2 + \frac{5}{18}y^3 \right) dx \]

\[ = \left[ \frac{5}{2} \right] \left( 6 \right) - \left[ \frac{5}{2} \right] \left( 36 \right) + \frac{65}{18} \]

\[ = 16 \]

8. (6 points) Find the volume of the solid in the first octant which is bounded by 
\[ x^2 + y^2 = 4 \] and \[ x + y - z = 0. \]

\[ \text{Vol} = \int \int \int_\Omega dV = \int_0^2 \int_0^{\sqrt{4-x^2}} \left( \frac{x^2}{2} + \frac{y^2}{2} \right) dy \]

\[ = \int_0^2 \left[ \frac{1}{2} \left( 4 - x^2 \right) + \frac{4 - x^2}{2} \right] dx \]

\[ = \int_0^2 \left[ \frac{1}{2} \left( 4 - x^2 \right) \right] dx \]

\[ = 4 - \frac{8}{6} + \left( \frac{4}{3} \right)^2 \]

\[ = 4 - \frac{8}{3} + \frac{8}{3} = \frac{4}{3} + \frac{4}{3} = \frac{16}{3} \]