

20080305-1432

A 1.000 meter radius sphere is filled with 1.000 kilogram of a gas. Find the density of the gas in the sphere.

1<sup>st</sup> Find Volume of Sphere  $V = \frac{4}{3}\pi r^3$

$$V = \frac{4}{3}\pi(1\text{m})^3 = \frac{4\pi}{3}\text{m}^3$$

2<sup>nd</sup> Find Density  $\rho = (\text{mass})/\text{Volume}$

$$\rho = \frac{1.000\text{ Kg}}{\frac{4\pi}{3}\text{ m}^3} = \frac{3.000\text{ Kg}}{4\pi\text{ m}^3}$$

$$\rho = \frac{0.7500\text{ Kg}}{\pi\text{ m}^3}$$

$$\rho = 0.2387\text{ Kg/m}^3$$

$$\text{Density} = 0.2387\text{ Kg/m}^3$$