

Mole Calculation Practice Worksheet

Answer the following questions:

- 1) How many moles are in 25 grams of water?

$$\begin{array}{r} \text{molar mass } H_2O = 2(1.01) + 16 = 18.02g \\ 1 \text{ mol } \quad 18.02g \\ \times \quad \quad 25g \end{array} \quad \underline{1.39 \text{ mol}}$$

- 2) How many grams are in 4.5 moles of Li_2O ?

$$\begin{array}{r} \text{molar mass } Li_2O = 2(6.94) + 16 = 29.88g \\ 1 \text{ mol } \quad 29.88g \\ 4.5 \text{ mol } \quad \times \end{array} \quad \underline{134.46 g}$$

- 3) How many molecules are in 23 moles of oxygen?

$$\begin{array}{r} 1 \text{ mol } \quad 6.02 \times 10^{23} \text{ molecules} \\ 23 \text{ mol } \quad \times \end{array} \quad \underline{1.38 \times 10^{25} \text{ molecules}}$$

- 4) How many moles are in 3.4×10^{23} molecules of H_2SO_4 ?

$$\begin{array}{r} 1 \text{ mol } \quad 6.02 \times 10^{23} \text{ molecules} \\ \times \quad \quad 3.4 \times 10^{23} \text{ molecules} \end{array} \quad \underline{0.56 \text{ mol}}$$

- 5) How many molecules are in 25 grams of NH_3 ?

$$\begin{array}{r} \text{molar mass } NH_3 = 14 + 3(1.01) = 17.03g \\ 6.02 \times 10^{23} \text{ molecules} \quad 17.03g \\ \times \quad \quad \quad \quad \quad 25g \end{array} \quad \underline{8.84 \times 10^{23} \text{ molecules}}$$

- 6) How many grams are in 8.2×10^{22} molecules of N_2I_6 ?

$$\begin{array}{r} \text{molar mass } N_2I_6 = 2(14) + 6(126.9) = 789.4g \\ 6.02 \times 10^{23} \text{ molecules} \quad 789.4g \\ 8.2 \times 10^{22} \quad \times \end{array} \quad \underline{107.53g}$$