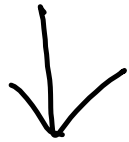


$$67.2 \times 10^{12}$$



$$6.72 \times 10^{13}$$

How many moles of Si
do you have if you
have 2.158×10^{24} Si
atoms?

$$2.158 \times 10^{24} \text{ Si atoms} \left(\frac{1 \text{ mol Si}}{6.022 \times 10^{23} \text{ Si atoms}} \right) = 3.584 \text{ mol Si}$$

How many Cu atoms are present in 78.19 g of Cu?

$$\begin{aligned} & \text{g Cu} \longrightarrow \text{mol Cu} \longrightarrow \text{Cu atoms} \\ 78.19 \cancel{\text{g Cu}} & \left(\frac{1 \cancel{\text{ mol Cu}}}{63.55 \cancel{\text{ g Cu}}} \right) \left(\frac{6.022 \times 10^{23} \text{ Cu atoms}}{1 \cancel{\text{ mol Cu}}} \right) \\ & = 7.409 \times 10^{23} \text{ Cu atoms} \end{aligned}$$

What is the mass of 1.027×10^{25} Cu atoms?

Cu atoms \rightarrow mol Cu \rightarrow g Cu

$$1.027 \times 10^{25} \text{ Cu atoms} \left(\frac{1 \text{ mol Cu}}{6.022 \times 10^{23} \text{ Cu atoms}} \right) \left(\frac{63.55 \text{ g Cu}}{1 \text{ mol Cu}} \right) = 886.8 \text{ g Cu}$$

How many H_2O molecules are present in 57.83 g of H_2O ?

$$\begin{array}{l} \text{g H}_2\text{O} \longrightarrow \text{mol H}_2\text{O} \longrightarrow \text{H}_2\text{O} \\ \text{molecules} \\ 57.83 \cancel{\text{g H}_2\text{O}} \left(\frac{1 \text{ mol H}_2\text{O}}{18.016 \cancel{\text{g H}_2\text{O}}} \right) \left(\frac{6.022 \times 10^{23} \text{ H}_2\text{O molecules}}{1 \text{ mol H}_2\text{O}} \right) \\ = 1.933 \times 10^{24} \text{ H}_2\text{O molecules} \end{array}$$

$$\begin{aligned} \text{MWT}_{\text{H}_2\text{O}} &= 2(1.008) + 1(16.00) \\ &= 2.016 + 16.00 \\ &= 18.016 \end{aligned}$$

$$\begin{array}{l} \text{H}_2\text{O} \quad 88.81\% \text{ O} \\ \quad \quad 11.19\% \text{ H} \end{array}$$

$$\text{PERCENT} = 100\% \left(\frac{\text{PART}}{\text{WHOLE}} \right)$$

$$\begin{aligned} \text{MWT}_{\text{H}_2\text{O}} &= 2(1.008) + 1(16.00) \\ &= 2.016 + 16.00 \\ &\quad \text{H part} \quad \quad \text{O part} \end{aligned}$$

$$= 18.016$$

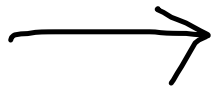
whole

$$\% \text{ H} = 100\% \left(\frac{2.016}{18.016} \right) = 11.19\%$$

$$\% \text{ O} = 100\% \left(\frac{16.00}{18.016} \right) = 88.81\%$$

100.00%

CHEMICAL
FORMULA



MASS
PERCENTAGES
OF THE
ELEMENTS

MASS
PERCENTAGES
OF THE
ELEMENTS



CHEMICAL
FORMULA

Can we do that?
With certain limitations,
Yes.