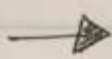


Molar Mass Notes

- * The mass of one mole of any substance is determined by the atomic mass units (a.m.u.) of each atom in that substance (see Periodic Table)
- * Carbon-12 was used to determine the number of atoms in 12g of carbon (6.02×10^{23})

Conversion
Factor



$$\frac{1 \text{ mol}}{\text{molar mass (g)}}$$

← From Periodic
Table

Calculating Molar Mass

1. Fe - atom
55.85 g/mol

2. H₂O - molecule

H: $2 \times 1.01 = 2.02$	}	add
O: $1 \times 16.00 = 16.00$		
		<u>18.02 g/mol</u>

3. Ca₃(PO₄)₂ m + Poly Formula Unit

Ca: $3 \times 40.08 = 120.24$
P: $2 \times 30.97 = 61.94$
O: $8 \times 16.00 = 128.00$
<u>310.18 g/mol</u>

Using Molar Mass

1. Calculate the mass of 1.85 moles of Iron.
- G: 1.85 mol Fe U: ? g Fe E: 1 mol = 55.85g

$$1.85 \text{ mol Fe} \times \frac{55.85 \text{ g Fe}}{1 \text{ mol Fe}} = 103.3225 \rightarrow \boxed{103 \text{ g Fe}}$$

↑
3 sf

2. Determine the number of moles in 5.2g of Fe(NO₃)₂.
- G: 5.2g Fe(NO₃)₂ U: ? mol Fe(NO₃)₂ E: 1 mol = 179.87g

$$5.2 \text{ g Fe(NO}_3)_2 \times \frac{1 \text{ mol Fe(NO}_3)_2}{179.87 \text{ g Fe(NO}_3)_2} = 0.0289097$$

↑
2 sf

$$= \boxed{0.029 \text{ mol Fe(NO}_3)_2}$$

Fe: $1 \times 55.85 = 55.85$
 N: $2 \times 14.01 = 28.02$
 O: $6 \times 16.00 = 96.00$

179.87 g/mol