

Mole Calculation Worksheet

- 1) How many moles are in 15 grams of lithium?

$$\frac{1 \text{ mol Li} \mid 15 \text{ g Li}}{6.94 \text{ g Li}} = \boxed{2.2 \text{ mol Li}}$$

- 2) How many grams are in 2.4 moles of sulfur?

$$\frac{32.07 \text{ g S} \mid 2.4 \text{ mol S}}{1 \text{ mol S}} = \boxed{77 \text{ g S}}$$

- 3) How many moles are in 22 grams of argon?

$$\frac{1 \text{ mol Ar} \mid 22 \text{ g Ar}}{39.95 \text{ g Ar}} = \boxed{0.55 \text{ mol Ar}}$$

- 4) How many grams are in 88.1 moles of magnesium?

$$\frac{24.31 \text{ g Mg} \mid 88.1 \text{ mol Mg}}{1 \text{ mol Mg}} = \boxed{2140 \text{ g Mg}}$$

- 5) How many moles are in 2.3 grams of phosphorus?

$$\frac{1 \text{ mol P} \mid 2.3 \text{ g P}}{30.97 \text{ g P}} = \boxed{0.074 \text{ mol P}}$$

- 6) How many grams are in 11.9 moles of chromium?

$$\frac{52.00 \text{ g Cr} \mid 11.9 \text{ mol Cr}}{1 \text{ mol Cr}} = \boxed{619 \text{ g Cr}}$$

- 7) How many moles are in 9.8 grams of calcium?

$$\frac{1 \text{ mol Ca} \mid 9.8 \text{ g Ca}}{40.08 \text{ g Ca}} = \boxed{0.24 \text{ mol Ca}}$$

- 8) How many grams are in 238 moles of arsenic?

$$\frac{74.92 \text{ g As} \mid 238 \text{ mol As}}{1 \text{ mol As}} = \boxed{17,800 \text{ g As}}$$

What are the molecular weights of the following compounds?

- 9) NaOH

$$\boxed{40.00 \text{ g}}$$

- 12) H₃PO₄

$$\boxed{98.00 \text{ g}}$$

- 10) H₂O

$$\boxed{18.02 \text{ g}}$$

- 13) Mn₂Se₇

$$\boxed{662.60 \text{ g}}$$

- 11) MgCl₂

$$\boxed{95.21 \text{ g}}$$

- 14) (NH₄)₂SO₄

$$\boxed{132.17 \text{ g}}$$

15) How many grams are in 4.5 moles of sodium fluoride, NaF?

$$\frac{41.99 \text{ g NaF}}{1 \text{ mol NaF}} \times 4.5 \text{ mol NaF} = \boxed{190 \text{ g NaF}}$$

16) How many moles are in 98.3 grams of aluminum hydroxide, Al(OH)₃?

$$\frac{1 \text{ mol Al(OH)}_3}{78.01 \text{ g Al(OH)}_3} \times 98.3 \text{ g Al(OH)}_3 = \boxed{1.26 \text{ mol Al(OH)}_3}$$

17) How many grams are in 0.02 moles of beryllium iodide, BeI₂?

$$\frac{262.81 \text{ g BeI}_2}{1 \text{ mol BeI}_2} \times 0.02 \text{ mol BeI}_2 = \boxed{5.3 \text{ g BeI}_2}$$

18) How many moles are in 68 grams of copper (II) hydroxide, Cu(OH)₂?

$$\frac{1 \text{ mol Cu(OH)}_2}{97.57 \text{ g Cu(OH)}_2} \times 68 \text{ g Cu(OH)}_2 = \boxed{0.70 \text{ mol Cu(OH)}_2}$$

19) How many grams are in 3.3 moles of potassium sulfide, K₂S?

$$\frac{110.27 \text{ g K}_2\text{S}}{1 \text{ mol K}_2\text{S}} \times 3.3 \text{ mol K}_2\text{S} = \boxed{360 \text{ g K}_2\text{S}}$$

20) How many moles are in 1.2×10^3 grams of ammonia, NH₃?

$$\frac{1 \text{ mol NH}_3}{17.04 \text{ g NH}_3} \times 1.2 \times 10^3 \text{ g NH}_3 = \boxed{70 \text{ mol NH}_3}$$

21) How many grams are in 2.3×10^{-4} moles of calcium phosphate, Ca₃(PO₃)₂?

$$\frac{278.18 \text{ g Ca}_3(\text{PO}_3)_2}{1 \text{ mol Ca}_3(\text{PO}_3)_2} \times 2.3 \times 10^{-4} \text{ mol Ca}_3(\text{PO}_3)_2 = \boxed{0.064 \text{ g Ca}_3(\text{PO}_3)_2}$$

22) How many moles are in 3.4×10^{-7} grams of silicon dioxide, SiO₂?

$$\frac{1 \text{ mol SiO}_2}{60.09 \text{ g SiO}_2} \times 3.4 \times 10^{-7} \text{ g SiO}_2 = \boxed{5.7 \times 10^{-9} \text{ mol SiO}_2}$$

23) How many grams are in 1.11 moles of manganese sulfate, Mn₃(SO₄)₇?

$$\frac{837.31 \text{ g Mn}_3(\text{SO}_4)_7}{1 \text{ mol Mn}_3(\text{SO}_4)_7} \times 1.11 \text{ mol Mn}_3(\text{SO}_4)_7 = \boxed{929 \text{ g Mn}_3(\text{SO}_4)_7}$$