

34 pts

Molar Masses

Determine the molar masses of the following compounds. Show all work!

A) CaCl_2

$$\begin{array}{r} \text{Ca} \quad 1 \times 40.08 \text{ g} = 40.08 \text{ g} \\ \text{Cl} \quad 2 \times 35.45 \text{ g} = 70.90 \text{ g} \\ \hline 110.98 \text{ g CaCl}_2 \\ \text{mol} \end{array}$$

b) $\text{Cu}(\text{NO}_3)_2$

$$\begin{array}{r} \text{Cu} \quad 1 \times 63.55 \text{ g} = 63.55 \text{ g} \\ \text{N} \quad 2 \times 14.01 \text{ g} = 28.02 \text{ g} \\ \text{O} \quad 6 \times 16.00 \text{ g} = 96.00 \text{ g} \\ \hline 187.57 \text{ g Cu}(\text{NO}_3)_2 \\ \text{mol} \end{array}$$

c) sulfuric acid H_2SO_4

$$\begin{array}{r} \text{H} \quad 2 \times 1.008 \text{ g} = 2.016 \text{ g} \\ \text{S} \quad 1 \times 32.07 \text{ g} = 32.07 \text{ g} \\ \text{O} \quad 4 \times 16.00 \text{ g} = 64.00 \text{ g} \\ \hline 98.09 \text{ g H}_2\text{SO}_4 \\ \text{mol} \end{array}$$

d) sodium bicarbonate NaHCO_3

$$\begin{array}{r} \text{Na} = 1 \times 22.99 \text{ g} = 22.99 \text{ g} \\ \text{H} = 1 \times 1.008 \text{ g} = 1.008 \text{ g} \\ \text{C} = 1 \times 12.01 \text{ g} = 12.01 \text{ g} \\ \text{O} = 3 \times 16.00 \text{ g} = 48.00 \text{ g} \\ \hline 84.01 \text{ g NaHCO}_3 \\ \text{mol} \end{array}$$

e) ammonium dichromate $(\text{NH}_4)_2\text{Cr}_2\text{O}_7$

$$\begin{array}{r} \text{N} \quad 2 \times 14.01 \text{ g} = 28.02 \text{ g} \\ \text{H} \quad 8 \times 1.008 \text{ g} = 8.064 \text{ g} \\ \text{Cr} \quad 2 \times 52.00 \text{ g} = 104.00 \text{ g} \\ \text{O} \quad 7 \times 16.00 \text{ g} = 112.00 \text{ g} \\ \hline 252.08 \text{ g } (\text{NH}_4)_2\text{Cr}_2\text{O}_7 \\ \text{mol} \end{array}$$

f) copper (II) sulfate pentahydrate $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$

$$\begin{array}{r} \text{Cu} \quad 1 \times 63.55 \text{ g} = 63.55 \text{ g} \\ \text{S} \quad 1 \times 32.07 \text{ g} = 32.07 \text{ g} \\ \text{O} \quad 9 \times 16.00 \text{ g} = 144.00 \text{ g} \\ \text{H} \quad 10 \times 1.008 \text{ g} = 10.080 \text{ g} \\ \hline 249.7 \text{ g CuSO}_4 \cdot 5\text{H}_2\text{O} \\ \text{mol} \end{array}$$