

Quiz
Chemistry 121

Name Key

1. Determine the molar mass to the nearest 100th place (two places past the decimal point) for the following compounds:

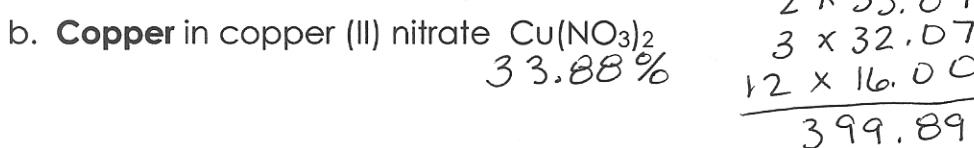
$$\begin{array}{r} 3 \times 14.01 \\ 12 \times 1.01 \\ 1 \times 30.97 \\ 4 \times 16.00 \\ \hline 149.12 \end{array}$$



$$\begin{array}{r} 3 \times 12.01 \\ 8 \times 1.01 \\ 1 \times 16.00 \\ \hline 60.11 \end{array}$$

2. Find the percentage:

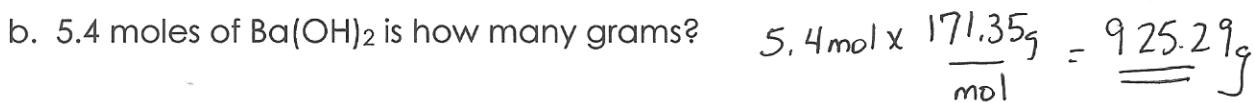
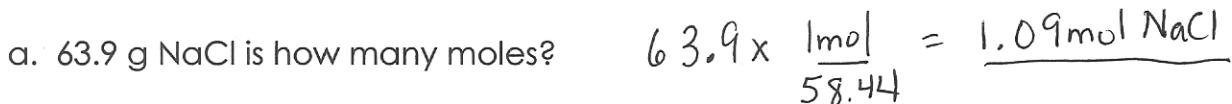
$$\begin{array}{r} \text{Cu} | 63.55 \\ 28.02 \\ 96.00 \\ \hline 187.57 \end{array}$$



$$\begin{array}{r} 2 \times 55.84 \rightarrow 111.68 \\ 3 \times 32.07 \\ 12 \times 16.00 \\ \hline 399.89 \end{array}$$

3. Carry out the following conversions:

$$\begin{array}{r} 137.33 \\ 32.00 \\ 2.02 \\ \hline 171.35 \end{array}$$



4. If one mole contains 6.022×10^{23} objects – how many atoms of oxygen are in 4.0 moles of oxygen gas? (note: oxygen is a diatomic molecule).

$$6.022 \times 10^{23} \times 4.0 \times 2 = 48. \times 10^{23} = 4.8 \times 10^{24} \text{ atoms O}$$

5. Given the following percentage composition – find the empirical formula:

$$\begin{array}{l} 38.9\% \text{ Ba} \quad 38.9 \text{ g Ba} \times \frac{1 \text{ mol}}{137.33} = 0.28326/28326 = 1 \\ 29.4\% \text{ Cr} \quad 29.4 \text{ g Cr} \times \frac{1 \text{ mol}}{52.00} = 0.56538/28326 = 2 \\ 31.7\% \text{ O} \quad 31.7 \text{ g O} \times \frac{1 \text{ mol}}{16.00} = 1.98125/28326 = 7 \end{array}$$

