

Name: _____

Error Analysis

1. During a chemistry lab, your group determines the density of copper to be 10.02 g/cm^3 . The accepted value for the density of copper is 8.96 g/cm^3 .

a. Find the absolute error.

$$|10.02 \text{ g/cm}^3 - 8.96 \text{ g/cm}^3| = \boxed{1.06 \text{ g/cm}^3}$$

$$|\text{experimental} - \text{actual}| = \text{absolute error}$$

b. Find the percent error.

$$\left(\frac{|1.06|}{8.96} \right) \times 100 = \boxed{11.8\%}$$

$$\left(\frac{|\text{absolute error}|}{\text{actual value}} \right) \times 100 = \% \text{ Error}$$

2. The electrolysis of 18.0 g of H_2O should produce exactly 16.0 g of oxygen gas. However, when you collect the gas, the mass that you determined for oxygen was 14.9 g .

a. Find the absolute error. = $|\text{experimental} - \text{actual}|$

$$|14.9 \text{ g} - 16.0 \text{ g}| = \boxed{1.1 \text{ g}}$$

b. Find the percent error. = $\left(\frac{|\text{absolute error}|}{\text{actual value}} \right) \times 100$

$$\left(\frac{|1.1|}{16.0 \text{ g}} \right) \times 100 = \boxed{6.9\%}$$