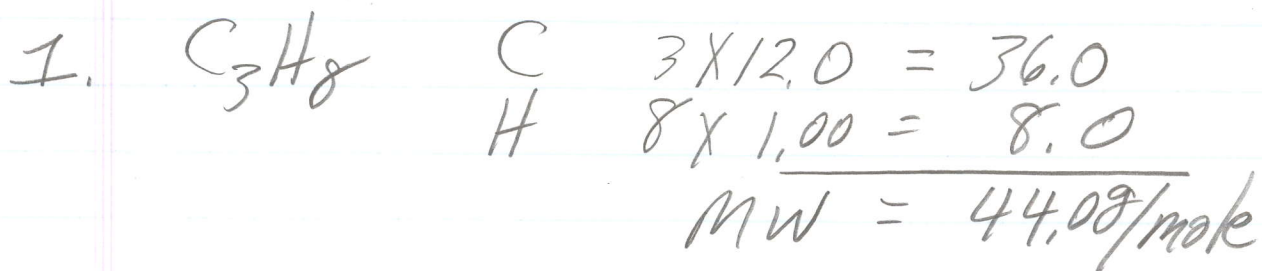


KEY 542233
Mole Practice



$$\%C = \frac{3 \times 12.0 (100)}{44.0} = 81.8\%C$$

2. $\frac{81.8 \text{ g C}}{100 \text{ g } C_3H_8} = \frac{2.2 \text{ g C}}{X \text{ g } C_3H_8}$

$$X = \frac{2.2 (100)}{81.8} = 2.6 \text{ g } C_3H_8$$

3. KCl 74.6 g/mole 2.0 moles (74.6 g/mole) = 149 g

4. $2.0 \text{ g KCl} \left(\frac{1 \text{ mole}}{74.6 \text{ g}} \right) = 0.026 \text{ moles KCl}$

5. $3 \times 10^{18} \text{ atoms} \left(\frac{1 \text{ mole}}{6.02 \times 10^{23} \text{ atoms}} \right) \left(\frac{23 \text{ g}}{\text{mole}} \right) = 0.00011 \text{ g}$

$$6. \quad 5.9 \text{ g Co} \left(\frac{1 \text{ mole}}{58.9 \text{ g}} \right) = 0.10 \text{ moles Co}$$

0.10 moles Fe has the same number of atoms

$$0.10 \text{ moles Fe} \left(\frac{55.8 \text{ g}}{\text{mole}} \right) = 5.6 \text{ g Fe}$$

$$7. \quad 19.0 \text{ g/mole} \left(\frac{1 \text{ mole}}{6.02 \times 10^{23} \text{ atoms}} \right) = 3.2 \times 10^{-23} \frac{\text{g}}{\text{atom}}$$

$$8. \quad 4 \times 10^{33} \text{ Li atoms} \left(\frac{1 \text{ mole}}{6.0 \times 10^{23} \text{ atoms}} \right) \left(6.9 \frac{\text{g}}{\text{mole}} \right) = 4.7 \times 10^{10} \text{ g Li}$$

$$9. \quad \text{K}_2\text{Cr}_2\text{O}_7 \quad 294.2 \text{ g/mole} \quad \% \text{K} = \frac{(2 \times 39.1)}{294.2} \times 100 = 26.6 \%$$

$$10. \quad \text{C}_2\text{H}_6\text{O} \quad 46.0 \text{ g/mole} \quad \% \text{O} = \frac{16.0 \times 100}{46.0} = 34\% \text{ O}$$

$$0.34 (8.0 \text{ g}) = 2.7 \text{ g O}$$

$$11. \quad 4.0 \text{ g Ca} \left(\frac{1 \text{ mole}}{40 \text{ g}} \right) = 0.10 \text{ moles Ca} \parallel 0.1 \text{ moles Si} (28 \text{ g/mole}) = 2.8 \text{ g Si}$$

~~12. 2.2 g ethanol~~

12. $3.2 \text{ g CH}_3\text{OH} \left(\frac{1 \text{ mole}}{32.0 \text{ g}} \right) = 0.10 \text{ moles CH}_4\text{O}$

$$0.10 \text{ moles} \left(6.02 \times 10^{23} \frac{\text{molecules}}{\text{mole}} \right) \left(6 \frac{\text{atoms}}{\text{molecule}} \right)$$
$$= 3.6 \times 10^{23} \text{ atoms}$$