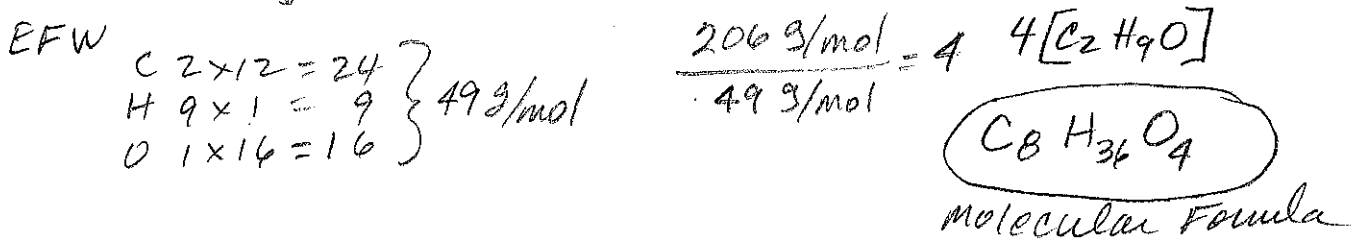
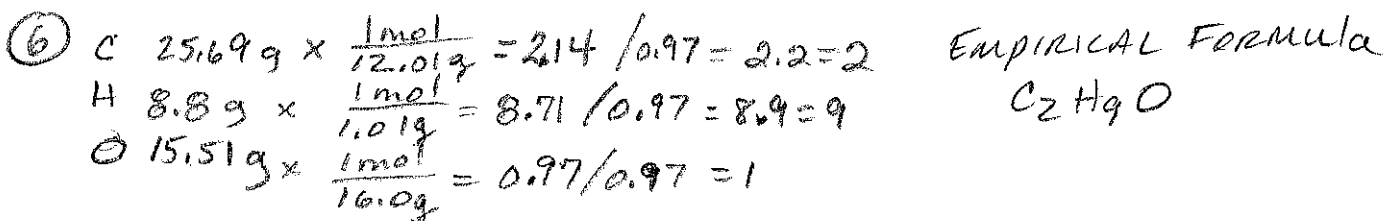
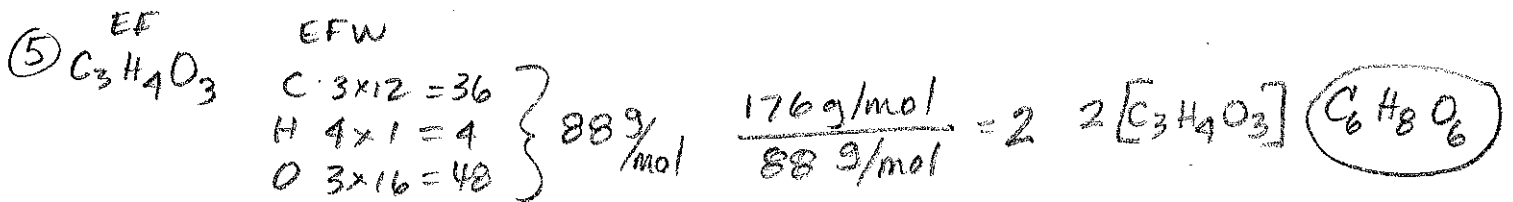
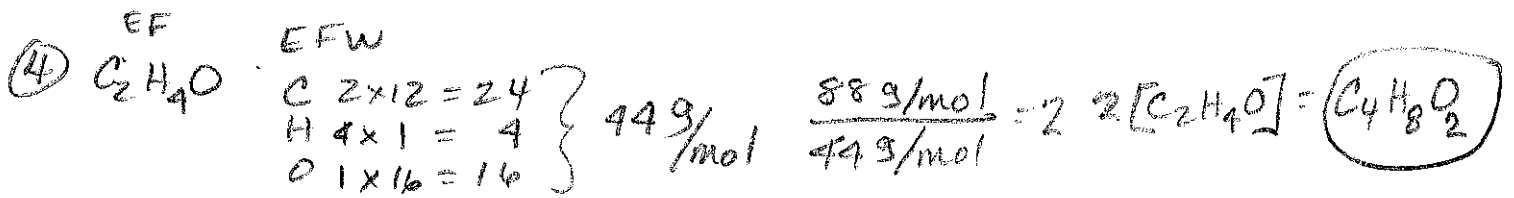
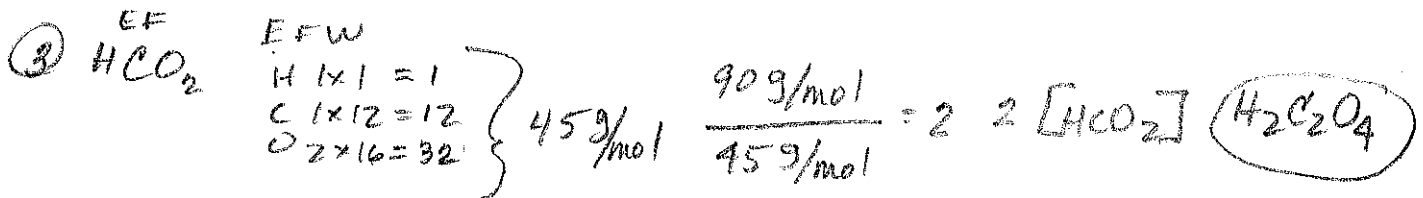
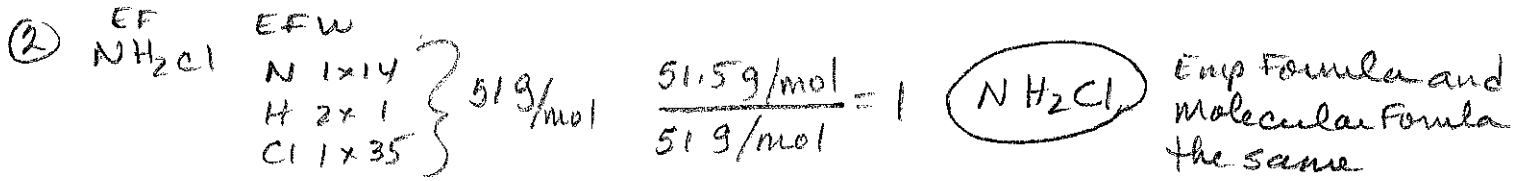
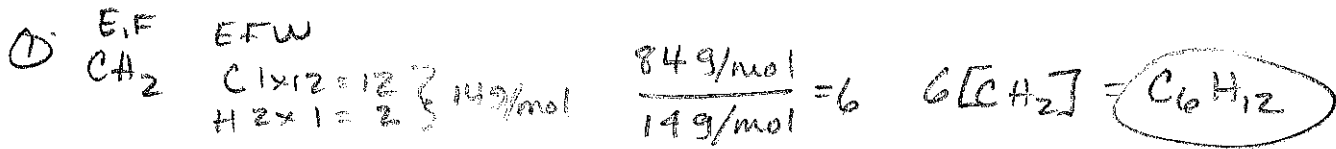


Assignment # 5 Molecular Formula



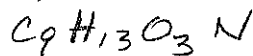
Assignment # 5 Molecular

⑦

$$\begin{aligned} \text{C } 59 &\times \frac{1\text{mol}}{12.01} = 4.92 / 0.55 = 8.9 = 9 \\ \text{H } 7.1 &\times \frac{1\text{mol}}{1.01} = 7.03 / 0.55 = 12.78 = 13 \\ \text{O } 26.2 &\times \frac{1\text{mol}}{16.00} = 1.64 / 0.55 = 2.9 = 3 \\ \text{N } 7.7 &\times \frac{1\text{mol}}{14.01} = 0.55 / 0.55 = 1 \end{aligned}$$

MOLECULAR FORMULA $\text{C}_9\text{H}_{13}\text{O}_3\text{N}$
SAME AS EMPIRICAL

EMPIRICAL FORMULA



EFW $\left. \begin{array}{l} \text{C } 9 \times 12 \\ \text{H } 13 \times 1 \\ \text{O } 3 \times 16 \\ \text{N } 1 \times 14 \end{array} \right\} 183\text{g/mol}$

$$\frac{180\text{g/mol}}{183\text{g/mol}} = 1$$

⑧

$$\begin{aligned} \text{C } 49.5 &\times \frac{1\text{mol}}{12.01} = 4.13 / 1.03 = 4.01 = 4 \\ \text{H } 5.15 &\times \frac{1\text{mol}}{1.01} = 5.1 / 1.03 = 4.95 = 5 \\ \text{N } 28.9 &\times \frac{1\text{mol}}{14.01} = 2.06 / 1.03 = 2 \\ \text{O } 16.5 &\times \frac{1\text{mol}}{16.01} = 1.03 / 1.03 = 1 \end{aligned}$$

EMPIRICAL FORMULA



EFW $\left. \begin{array}{l} \text{C } 4 \times 12 \\ \text{H } 5 \times 1 \\ \text{N } 2 \times 14 \\ \text{O } 1 \times 16 \end{array} \right\} 97\text{g/mol}$

$$\frac{195\text{g/mol}}{97\text{g/mol}} = 2$$

2 $[\text{C}_4\text{H}_5\text{N}_2\text{O}] = \text{C}_8\text{H}_{10}\text{N}_4\text{O}_2$ molecular Formula

⑨

$$\begin{aligned} \text{C } 35.51\text{g} &\times \frac{1\text{mol}}{12.01} = 2.96 / 0.59 = 5 \\ \text{H } 4.77\text{g} &\times \frac{1\text{mol}}{1.01} = 4.7 / 0.59 = 7.9 = 8 \\ \text{O } 37.85\text{g} &\times \frac{1\text{mol}}{16.0} = 2.36 / 0.59 = 4.1 = 4 \\ \text{N } 8.29\text{g} &\times \frac{1\text{mol}}{14.01} = 0.59 / 0.59 = 1 \\ \text{Na } 13.6\text{g} &\times \frac{1\text{mol}}{22.99} = 0.59 / 0.59 = 1 \end{aligned}$$

EMPIRICAL FORMULA



EFW $\left. \begin{array}{l} \text{C } 5 \times 12 = 60 \\ \text{H } 8 \times 1 = 8 \\ \text{O } 4 \times 16 = 64 \\ \text{N } 1 \times 14 = 14 \\ \text{Na } 1 \times 23 = 23 \end{array} \right\} 169\text{g/mol}$

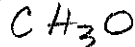
$$\frac{169\text{g/mol}}{169\text{g/mol}} = 1$$

MOLECULAR FORMULA $\text{C}_5\text{H}_8\text{O}_4\text{NNa}$
SAME AS EMPIRICAL

⑩

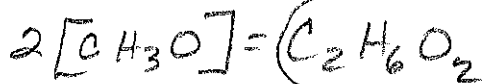
$$\begin{aligned} \text{C } 38.7 &\times \frac{1\text{mol}}{12.01\text{g}} = 3.2 / 3.2 = 1 \\ \text{H } 9.7 &\times \frac{1\text{mol}}{1.01\text{g}} = 9.6 / 3.2 = 3 \\ \text{O } 51.6 &\times \frac{1\text{mol}}{16.0\text{g}} = 3.2 / 3.2 = 1 \end{aligned}$$

EMPIRICAL FORMULA



EFW $\left. \begin{array}{l} \text{C } 1 \times 12 \\ \text{H } 3 \times 1 \\ \text{O } 1 \times 16 \end{array} \right\} 31\text{g/mol}$

$$\frac{62.1\text{g/mol}}{31\text{g/mol}} = 2$$



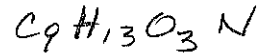
MOLECULAR FORMULA

Assignment # 5 Molecular

⑦ C $59 \times \frac{1 \text{ mol}}{12.01} = 4.92 / 0.55 = 8.9 = 9$
 H $7.1 \times \frac{1 \text{ mol}}{1.01} = 7.03 / 0.55 = 12.78 = 13$
 O $26.2 \times \frac{1 \text{ mol}}{16.00} = 1.64 / 0.55 = 2.9 = 3$
 N $7.7 \times \frac{1 \text{ mol}}{14.01} = 0.55 / 0.55 = 1$

MOLECULAR FORMULA $\text{C}_9\text{H}_{13}\text{O}_3\text{N}$
 SAME AS EMPIRICAL

EMPIRICAL FORMULA

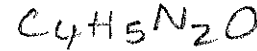


EFW C 9×12
 H 13×1
 O 3×16
 N 1×14 } 183 g/mol

$\frac{180 \text{ g/mol}}{183 \text{ g/mol}} = 1$

⑧ C $49.5 \times \frac{1 \text{ mol}}{12.01} = 4.13 / 1.03 = 4.01 = 4$
 H $5.15 \times \frac{1 \text{ mol}}{1.01} = 5.1 / 1.03 = 4.95 = 5$
 N $28.9 \times \frac{1 \text{ mol}}{14.01} = 2.06 / 1.03 = 2$
 O $16.5 \times \frac{1 \text{ mol}}{16.01} = 1.03 / 1.03 = 1$

EMPIRICAL FORMULA



EFW C 4×12
 H 5×1
 N 2×14
 O 1×16 } 97 g/mol

$\frac{195 \text{ g/mol}}{97 \text{ g/mol}} = 2$

2 $[\text{C}_4\text{H}_5\text{N}_2\text{O}] = \text{C}_8\text{H}_{10}\text{N}_4\text{O}_2$ molecular Formula

⑨ C $35.51 \text{ g} \times \frac{1 \text{ mol}}{12.01} = 2.96 / 0.59 = 5$
 H $4.77 \text{ g} \times \frac{1 \text{ mol}}{1.01} = 4.7 / 0.59 = 7.9 = 8$
 O $37.85 \text{ g} \times \frac{1 \text{ mol}}{16.0} = 2.36 / 0.59 = 4.1 = 4$
 N $8.29 \text{ g} \times \frac{1 \text{ mol}}{14.01} = 0.59 / 0.59 = 1$
 Na $13.6 \text{ g} \times \frac{1 \text{ mol}}{22.99} = 0.59 / 0.59 = 1$

EMPIRICAL FORMULA



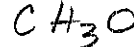
EFW C $5 \times 12 = 60$
 H $8 \times 1 = 8$
 O $4 \times 16 = 64$
 N $1 \times 14 = 14$
 Na $1 \times 23 = 23$ } 169 g/mol

$\frac{169 \text{ g/mol}}{169 \text{ g/mol}} = 1$

MOLECULAR FORMULA $\text{C}_5\text{H}_8\text{O}_4\text{NNa}$
 SAME AS EMPIRICAL

⑩ C $38.7 \text{ g} \times \frac{1 \text{ mol}}{12.01 \text{ g}} = 3.2 / 3.2 = 1$
 H $9.7 \text{ g} \times \frac{1 \text{ mol}}{1.01 \text{ g}} = 9.6 / 3.2 = 3$
 O $51.6 \text{ g} \times \frac{1 \text{ mol}}{16.0 \text{ g}} = 3.2 / 3.2 = 1$

EMPIRICAL FORMULA



EFW C 1×12
 H 3×1
 O 1×16 } 31 g/mol

$\frac{62.1 \text{ g/mol}}{31 \text{ g/mol}} = 2$

2 $[\text{CH}_3\text{O}] = \text{C}_2\text{H}_6\text{O}_2$

MOLECULAR FORMULA