Stoichiometry: Mass – Mole Worksheet

Solve the following stoichiometry problems and type in the correct answer with units. (for example: 3.45 mol or 4.62 g) Round the masses from the periodic table to the nearest whole number. Round all answers to 2 decimal places.

1. Based on the following chemical equation, please answer the following questions

$$Fe(SO_4)_3 + 6\,NaCl \rightarrow 2\,FeCl_3 + 3\,Na_2SO_4$$

a. Calculate the amount of moles of NaCl needed to produce 75 g of $FeCl_3$.

Answer: _____ $\frac{g\ FeCl_3}{} \left| \frac{1\ mol\ FeCl_3}{g\ FeCl_3} \right| \frac{mol\ NaCl}{mol\ FeCl_3} =$

b. Calculate the amount of $Fe_2(SO_4)_3$ in grams produce 215 g Na_2SO_4.

Answer: _____ $\frac{g\ Na_2SO_4}{} \left| \frac{1\ mol\ Na_2SO_4}{g\ Na_2SO_4} \right| \frac{mol\ Fe_2(SO_4)_3}{mol\ Na_2SO_4} \left| \frac{g\ Fe_2(SO_4)_3}{1\ mol\ Fe_2(SO_4)_3} \right| =$

c. Calculate the amount in grams of $FeCl_3$ produced with 95g of $Fe(SO_4)_3$.

Answer: _____ $\frac{g\ Fe(SO_4)_3}{} \left| \frac{1\ mol\ Fe(SO_4)_3}{g\ Fe(SO_4)_3} \right| \frac{mol\ FeCl_3}{mol\ Fe(SO_4)_3} \left| \frac{g\ FeCl_3}{1\ mol\ FeCl_3} \right| =$

d. Calculate the amount of moles of $Fe_2(SO_4)_3$ needed to react with 123.5 g of NaCl.

Answer: _____ $\frac{g\ NaCl}{} \left| \frac{1\ mol\ NaCl}{g\ NaCl} \right| \frac{mol\ Fe_2(SO_4)_3}{mol\ NaCl} =$

2. How many moles of $CaCO_3$ can be produced if we make 12.3 g of $Ca(HCO_3)_2$ reacts with $CaCO_3$?

$$Ca(HCO_3) + Ca(OH)_2 \rightarrow 2\,CaCO_3 + 2\,H_2O$$

Answer: _____ $\frac{g\ Ca(HCO_3)_2}{} \left| \frac{1\ mol\ Ca(HCO_3)_2}{g\ Ca(HCO_3)_2} \right| \frac{mol\ CaCO_3}{mol\ Ca(HCO_3)_2} =$