Limiting and Excess Reactants Practice #1

Name: _____

1. **At high temperatures, iron metal reacts with sulfur to produce the brown-black iron (II) sulfide precipitate. In this reaction, 7.62 grams of iron metal is allowed to react with 8.67 grams of sulfur.**

$$\_\_\_\_Fe_{(s)} + \_\_\_\_S_{(l)} \rightarrow \_\_\_\_FeS_{(s)}$$

   a. What is the limiting reactant (L.R.)? What is the excess reactant (E.R.)?

   b. How many grams of iron (II) sulfide are **PRODUCED** in the reaction?

2. **Consider the following D-R reaction: 55.0 grams of aqueous sodium iodide reacts with 65.0 grams of aqueous silver nitrate:**

$$\_\_\_\_NaI_{(aq)} + \_\_\_\_AgNO_{3\,(aq)} \rightarrow \_\_\_\_NaNO_{3\,(aq)} + \_\_\_\_AgI_{(s)}$$

   a. What is the limiting reactant (L.R.)? What is the excess reactant (E.R.)?

   b. How many grams of silver iodide are **PRODUCED** in the reaction?

3. **Consider the following D-R reaction: 0.704 moles of sodium sulfate react with 0.191 moles of barium nitrate.** *(Hint: Write a balanced chemical equation first)*

   a. What is the limiting reactant (L.R.)? What is the excess reactant (E.R.)?

   b. How many grams of barium sulfate are **PRODUCED** in the reaction?

4. **If 1.64 grams of water and 6.58 grams of sulfur trioxide react in a synthesis reaction, how many grams of sulfuric acid, H_2SO_4, are produced?**
   (Hint: Produce balanced equation first and then determine L.R. and E.R.)

5. **If 0.793 moles of aluminum metal is reacted with 0.572 moles of iron (III) oxide, how many grams of iron metal are produced in this single replacement reaction?**
   (Hint: Produce balanced equation first and then determine L.R. and E.R.)