

1. What is a LIMITING REACTANT? (2 points)
2. According to the following balanced equation,  $2 \text{FePO}_4 + 3 \text{Na}_2\text{SO}_4 \rightarrow \text{Fe}_2(\text{SO}_4)_3 + 2 \text{Na}_3\text{PO}_4$ , how many grams of iron (III) sulfate ( $\text{Fe}_2(\text{SO}_4)_3$ ) can be produced from 30 grams of iron (III) phosphate ( $\text{FePO}_4$ ) and 40 grams of sodium sulfate ( $\text{Na}_2\text{SO}_4$ )? (12 Points)

3. In the above reaction, which substance is the limiting reactant? (1 points)
4. How much excess (IN GRAMS) remains of the non limiting reactant? (3 points)
5. If Dexter performed this experiment in his laboratory and actually obtained 30 grams of  $\text{Fe}_2(\text{SO}_4)_3$ , what is the percent yield of the reaction? (2 points)

**Atomic and Molar Masses You MAY need for the above problems**

$\text{FePO}_4$ : 151 g = 1 mole,  $\text{Na}_2\text{SO}_4$ : 142 g = 1mole,  $\text{Fe}_2(\text{SO}_4)_3$ : 400 g = 1 mole,  $\text{Na}_3\text{PO}_4$ : 164 g = 1 mole

6. What is a STOICHIOMETRY? (2 points)
7. According to the following balanced equation,  $2 \text{FePO}_4 + 3 \text{Na}_2\text{SO}_4 \rightarrow \text{Fe}_2(\text{SO}_4)_3 + 2 \text{Na}_3\text{PO}_4$ , how many grams of sodium phosphate ( $\text{Na}_3\text{PO}_4$ ) can be produced from 25 grams of iron (III) phosphate ( $\text{FePO}_4$ ) and 40 grams of sodium sulfate ( $\text{Na}_2\text{SO}_4$ )? (12 Points)
8. In the above reaction, which substance is the limiting reactant? (1 points)
9. How much excess (IN GRAMS) remains of the non limiting reactant? (3 points)
10. If Dexter performed this experiment in his laboratory and actually obtained 20 grams of  $\text{Na}_3\text{PO}_4$ , what is the percent yield of the reaction? (2 points)

**Atomic and Molar Masses You MAY need for the above problems**

$\text{FePO}_4$ : 151 g = 1 mole,  $\text{Na}_2\text{SO}_4$ : 142 g = 1mole,  $\text{Fe}_2(\text{SO}_4)_3$ : 400 g = 1 mole,  $\text{Na}_3\text{PO}_4$ : 164 g = 1 mole