

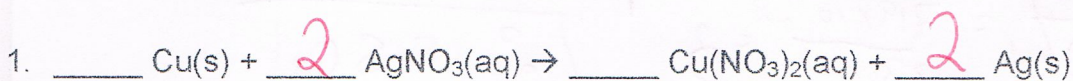
Limiting Reactant



Name _____

Date _____ Period _____

Show ALL of your work for credit on this assignment!



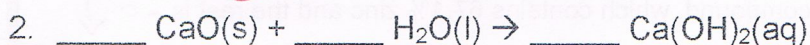
If 2.5 moles of copper and 5.5 moles of silver nitrate are available to react, what is the limiting reactant?

$$2.5 \text{ mol of Cu} \times \frac{2 \text{ mol of AgNO}_3}{1 \text{ mol of Cu}} = 5.0 \text{ mol of AgNO}_3$$

$$5.5 \text{ mol of AgNO}_3 \times \frac{1 \text{ mol of Cu}}{2 \text{ mol AgNO}_3} = 2.75 \text{ mol of Cu}$$

Have Cu AgNO₃ ⊖ = Cu
 2.5 5.5

Need 2.75 5.0
 ⊖ ⊕



How many grams of calcium hydroxide will be formed in this reaction when 4.44 g of calcium oxide and 7.77 g of water are available to react? Also identify the limiting and excess reactants.

$$4.44 \text{ g} \times \frac{1 \text{ mol}}{44 \text{ g of CaO}} = 0.1 \text{ mol of CaO} \times \frac{1 \text{ mol Ca(OH)}_2}{1 \text{ mol CaO}} = 0.1 \text{ mol of Ca(OH)}_2$$

$$7.77 \text{ g} \times \frac{1 \text{ mol}}{18 \text{ g of H}_2\text{O}} = 0.43 \text{ mol of H}_2\text{O} \times \frac{1 \text{ mol CaO}}{1 \text{ mol H}_2\text{O}} = 0.43 \text{ mol CaO}$$

Have CaO H₂O CaO = L.R
 0.1 0.43 excess = 0.33

N 0.43 0.1
 ⊖ ⊕

$$0.1 \text{ mol of CaO} \times \frac{1 \text{ mol Ca(OH)}_2}{1 \text{ mol CaO}} = 0.1 \text{ mol Ca(OH)}_2$$

$$0.1 \times \frac{74 \text{ g}}{1 \text{ mol}} = 7.4 \text{ g of Ca(OH)}_2$$