# Stoichiometry 3

Name: _____

Directions: Write the balanced equation for each reaction and show all steps in your solution. Remember to include units in your work.

1) When silver nitrate mixes with calcium chloride, a white precipitate of silver chloride forms along with a solution of calcium nitrate.

Equation:

a) If 3.45 g of silver chloride is produced, how many grams of calcium chloride was used?

b) How many grams of calcium nitrate would be produced from 11.36 grams of silver nitrate?

2) When copper wire is placed in a solution of silver (I) nitrate, a single replacement reaction occurs, producing copper (II) nitrate and solid silver.

Equation:

a) How many atoms of copper can replace 3.45 g of silver?

b) What mass of copper (II) nitrate is produced if .004 kg of silver is produced?

3) Zinc (II) acetate and sodium phosphate undergo a double replacement reaction.

Equation:

a) How many molecules of sodium phosphate are used up forming $7.93 \times 10^{20}$ molecules of zinc phosphate?

b) What mass of zinc acetate is needed to produce 300 g of sodium acetate?

4) As carbon dioxide gas is bubbled through water, carbonic acid ($H_2CO_3$) is produced.

Equation:

a) What volume of carbon dioxide gas must be bubbled through water to produce 1.78 g of carbonic acid?

b) $9.21 \times 10^{22}$ molecules of carbonic acid are produced. How many molecules of water were used?

Answers:

| | | |
|---|---|---|
| 1a) 1.33 g calcium chloride | 1b) 5.45 g calcium nitrate | 2a) $9.62 \times 10^{21}$ atoms Cu |
| 2b) 3.44 g copper | 3a) $1.59 \times 10^{21}$ molecules sodium phosphate | |
| 3b) 334.7 g zinc acetate | 4a) 0.64 L carbon dioxide | 4b) $9.21 \times 10^{22}$ molecules water |