

## Stoichiometry 2

Name: \_\_\_\_\_

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

1) Solid chromium can be mixed with chlorine gas to make solid chromium (III) chloride.

Equation:

a) How many atoms of chromium are needed to react with 43.0 L of chlorine gas?

b) What volume of chlorine gas is needed to make 43.2 g of chromium (III) chloride?

2a) How many grams of oxygen are required to completely burn 9.88 grams of pentane ( $\text{C}_5\text{H}_{12}$ )?

Equation:

b) How many liters of carbon dioxide are produced by this combustion?

Answers:      1a)  $7.70 \times 10^{23}$  atoms chromium      2b) 15.3 L carbon dioxide

**Stoichiometry 2**

Name: \_\_\_\_\_

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

1) The mixture of sodium bicarbonate and sulfuric acid ( $\text{H}_2\text{SO}_4$ ) yields sodium sulfate, water and carbon dioxide.

Equation:

a) How many molecules of sodium bicarbonate are needed to react with 3.56 g of sulfuric acid?

b) What volume of carbon dioxide gas is produced by  $3.02 \times 10^{26}$  molecules of sulfuric acid?

2) By mixing aqueous solutions of ammonium phosphate and calcium chloride, aqueous ammonium chloride and solid calcium phosphate are made.

Equation:

a) How many molecules of ammonium phosphate are needed to react with 3.56 g of calcium chloride?

b) What mass of calcium phosphate is produced by  $2.03 \times 10^{25}$  molecules of calcium chloride?

Answers: 1a)  $4.37 \times 10^{22}$  molecules sodium bicarbonate    2b) 3490 g calcium phosphate