Chemistry 2.1 **Worksheet 3** Name _____ MR/ YP

Question 1

Calculate the concentration of each of the following underlined solutions given that:

a) 25 mL of a solution of $\underline{HNO_3}$ reacts exactly with 20.4 mL of 0.20 mol L^{-1} Na_2CO_3

b) 13.4 mL of a solution of KOH reacts exactly with 10 mL of 0.05 mol L^{-1} H_2SO_4

c) 16.4 mL of a solution of $\underline{H_2SO_4}$ reacts exactly with 20 mL of 0.04 mol L^{-1} Na_2CO_3

d) 9.8 mL of a solution of HBr reacts exactly with 10 mL of 0.25 mol L^{-1} NaOH

e) 13.8 mL of a solution of NaOH reacts exactly with 20 mL of 0.15 mol L^{-1} HNO_3

Question 2

Mr. Yung used standard solution of 0.132 molL^{-1} sodium carbonate (Na_2CO_3) titrated against with 20.0 mL of unknown HCl solution. The following table is experimental result.

Trial	**#1**	**#2**	**#3**	**#4**
Titre (mL)	23.42	22.56	22.55	22.56

The equation between sodium carbonate and nitric acid is shown below

$$Na_2CO_3 + 2\ HNO_3 \rightarrow H_2O + 2\ NaNO_3 + CO_2$$

Question 3

Mr. Macann conducted the same experiment but has a different result. Calculate the concentration from this data.

Trial	**#1**	**#2**	**#3**	**#4**
Titre (mL)	22.16	21.90	22.03	20.89