Chemistry 2.1 **Worksheet 8** Name _____ MR/ YP

**Question 1-** Many ionic crystals contain water molecules. These salts are called hydrated crystals.

Most hydrated crystals such as Cobalt chloride can be dehydrated by thermo decomposition

$$CoCl_2 \cdot xH_2O \rightarrow CoCl_2 + xH_2O$$

Using the following information and steps, determine the water of crystallisation of $CoCl_2$ (find $x$)

Experimental results
Mass of hydrated crystals before it was heated = 4.29 g
Mass after heated (dehydrated) = 2.34 g

- Determine the amount of anhydrous $CoCl_2$

Molar mass of $CoCl_2$ is _____

Amount of $CoCl_2$ is _____

- Determine the amount of water loss

Mass of hydrated – Mass of anhydrous = Mass of water loss = _____

Molar mass of $H_2O$ is _____

Amount of $H_2O$ is _____

- Determine the molar ratio

The molar ratio between $CoCl_2$ : $H_2O$ is _____

**Question Two**
Using the steps above, determine the water of crystallisation of Magnesium sulphate

$$MgSO_4 \cdot xH_2O \rightarrow MgSO_4 + xH_2O$$

Experimental results
Mass of hydrated crystals before it was heated = 1.40 g
Mass after heated (dehydrated) = 0.68 g