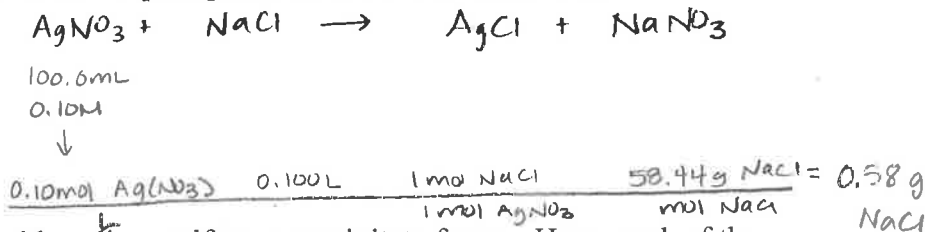


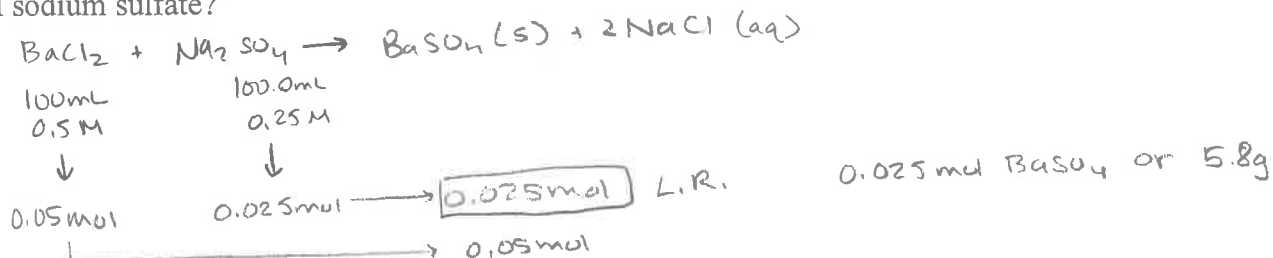
CH 4: RXNS Ans Key

Solution Stoichiometry/Double Displacement Questions:

1. How many grams of NaCl are needed to precipitate all silver ions (Ag^+) from 100.0 mL of 0.10 M AgNO_3 solution?

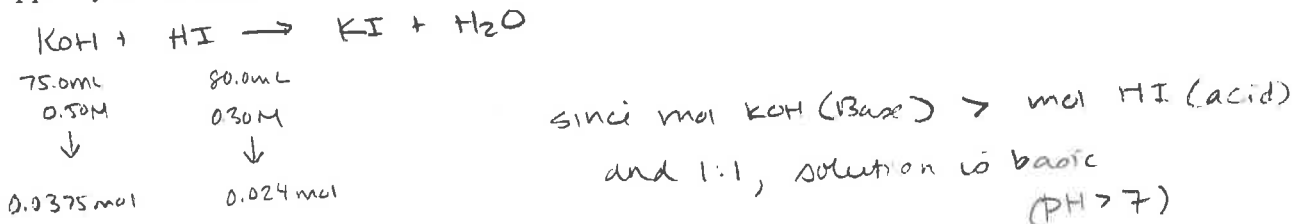


2. When barium chloride reacts with sodium sulfate, a precipitate forms. How much of the precipitate can form if 100.0 mL of 0.5 M barium chloride reacts with 100.0 mL of 0.25 M sodium sulfate?

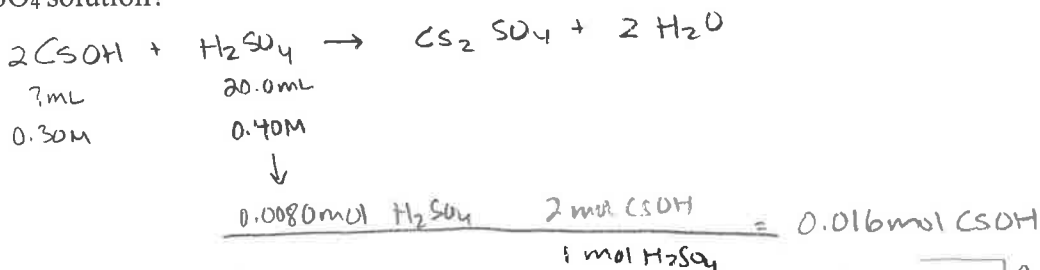


Acid Base Neutralization Questions:

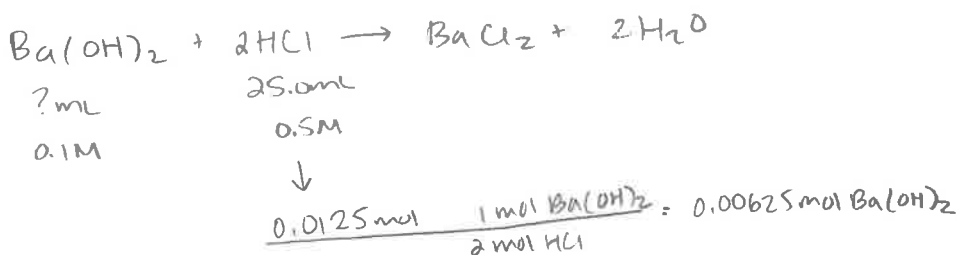
1. When 75.0 mL of a 0.50 M KOH solution is mixed with 80.0 mL of a 0.30 M HI solution, will the resultant solution be acidic, basic, or neutral? Show calculation to support your answer.



2. How many mL of a 0.30 M CsOH solution are needed to neutralize 20.0 mL of a 0.40 M H_2SO_4 solution?



3. What volume of 0.1 M $\text{Ba}(\text{OH})_2$ is needed to neutralize 25.0 mL of 0.5 M HCl?



$$0.1 \text{ M} = \frac{0.00625 \text{ mol}}{x \text{ L}}$$

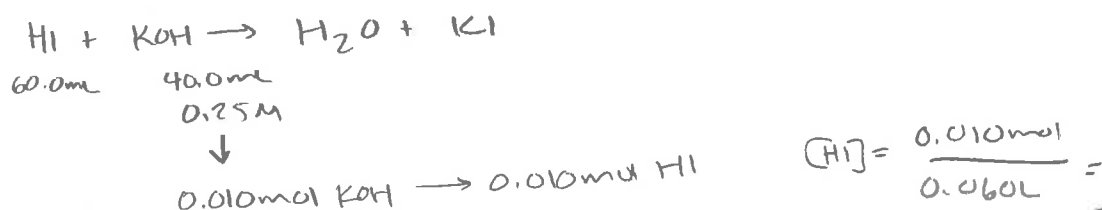
$$x \text{ L} = 0.0625 \text{ L} = 62.5 \text{ mL}$$

$$0.30 \text{ M} = \frac{0.016 \text{ mol}}{x \text{ L}}$$

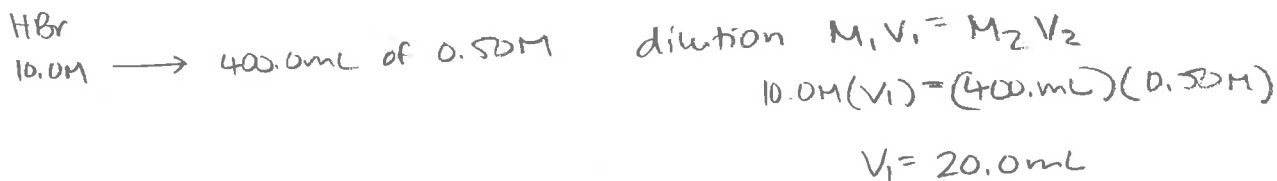
$$x = 0.053 \text{ L}$$

$$= 53 \text{ mL}$$

4. It takes 60.0 mL of HI to neutralize 40.0 mL of a 0.25 M KOH solution. What is the molarity of HI?

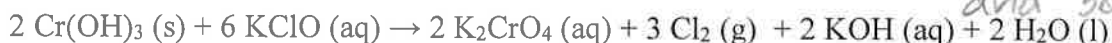


5. You are given a stock solution of concentrated HBr which is 10.0 M. You need to prepare 400.0 mL of a 0.50 M HBr solution. How many mL of the stock solution will you need and how many mL of water will you need?

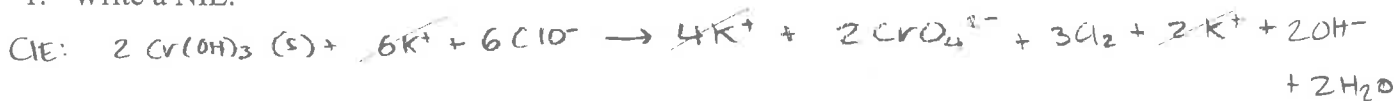


0.17 M

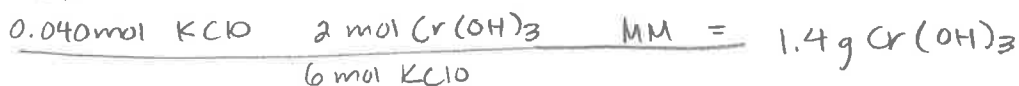
Redox Questions:



1. Write a NIE.

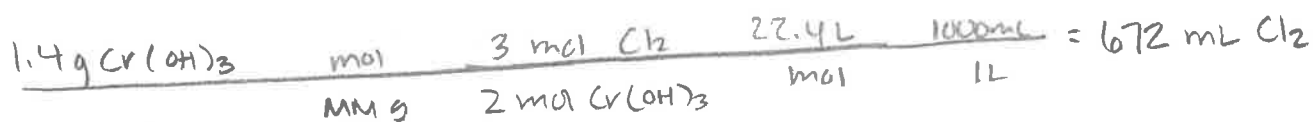
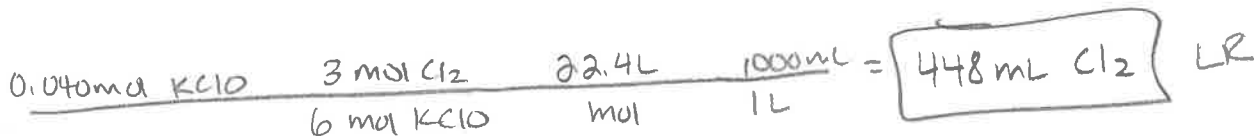


2. What mass of chromium (III) hydroxide would be needed to completely react with 100.0 mL of 0.40 M potassium hypochlorite solution?



3. If the reaction took place at STP, how many mL of chlorine gas would be produced?
 Recall: at STP, standard molar volume is 22.4 L/mol

STP = 0°C & 1 atm



Redox Titration Questions:

$\text{Na}_2\text{Cr}_2\text{O}_7$ (40.0 mL of 0.5 M) is titrated with KI (60.0 mL of 0.25 M)



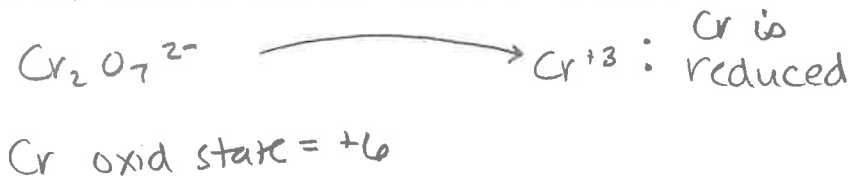
1. Name the two compounds involved in this reaction: $\text{Na}_2\text{Cr}_2\text{O}_7$ and KI.

Sodium dichromate & potassium iodide

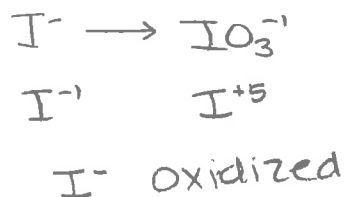
2. Identify the analyte and the titrant.



3. Identify what is oxidized and what is reduced. Explain your answer.



4. Identify the limiting and excess reagent.



40.0 mL

0.5 M



0.02 mol

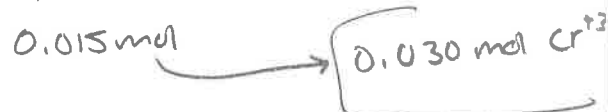


60.0 mL

0.25 M



0.015 mol



LR = KI

