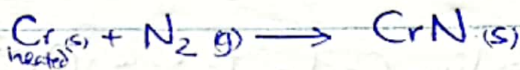
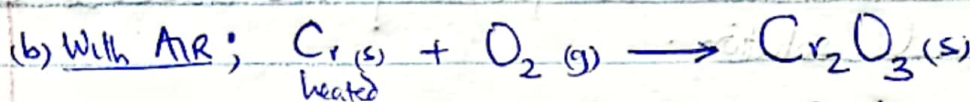
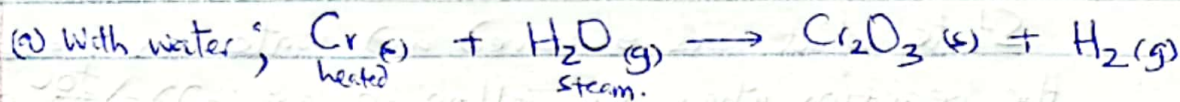
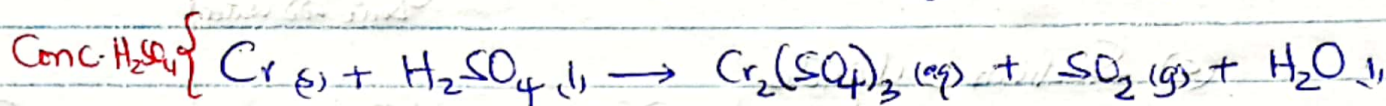
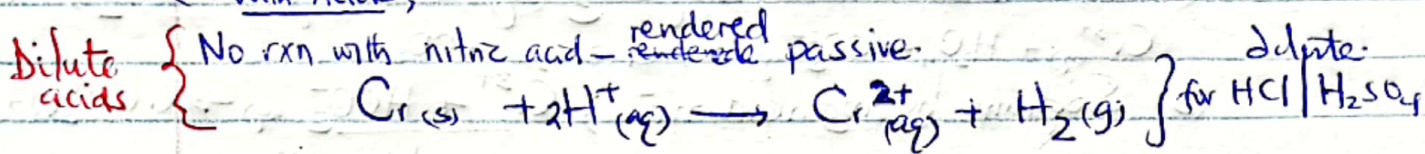


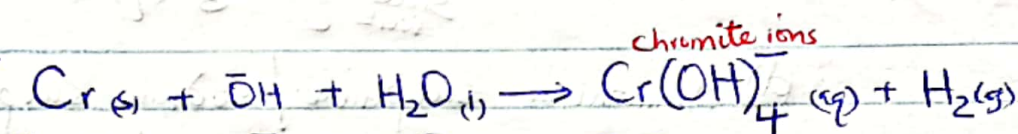
CHROMIUM. (Cr)



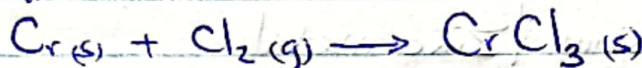
(c) With Acids;



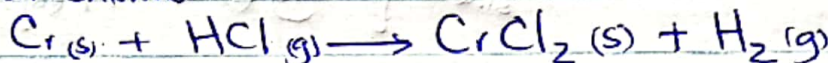
(d) NaOH



(e) Chlorine

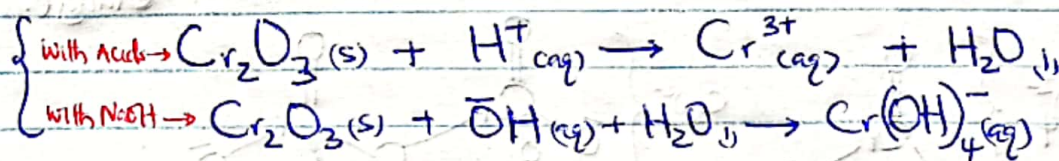
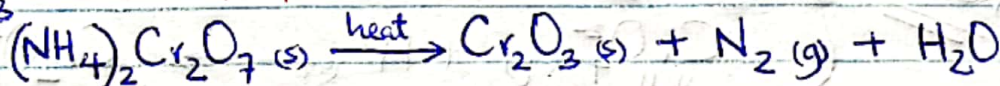


(f) Hydrogen chloride



Chromium(III) Compounds.

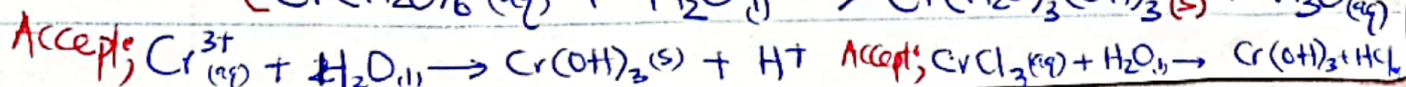
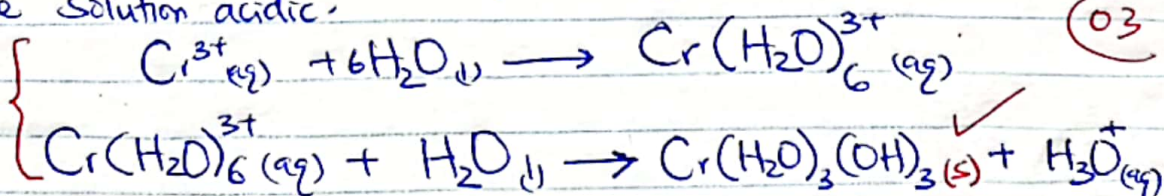
① Cr_2O_3 - green solid & amphoteric



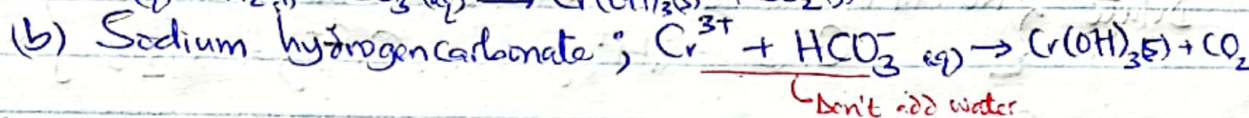
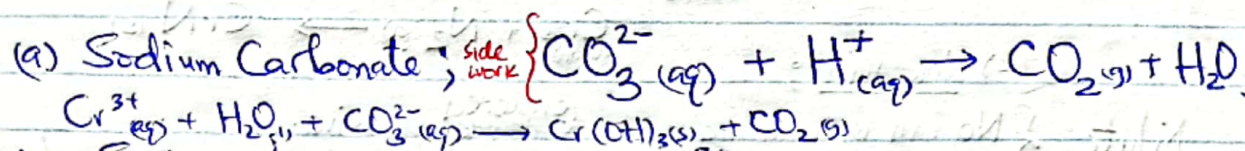
Explain why an aqueous solution of chromium(III) chloride has a pH below 7.

Chromium ion in Chromium(III) chloride has a small ionic radius hence high charge density and high polarising power on water molecules forming hexa-aqua-chromium(III) ions that undergo cationic hydrolysis forming hydrogenium ions that make the solution acidic.

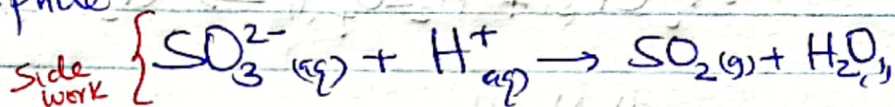
Select one



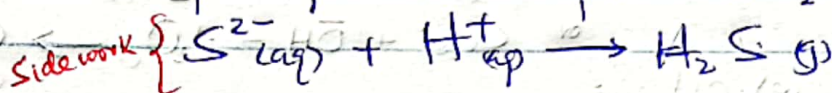
State what was observed and write an equation for the reaction when the following are added to chromium(III) chloride solution.



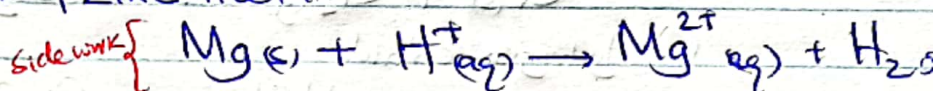
(c) Sodium sulphite



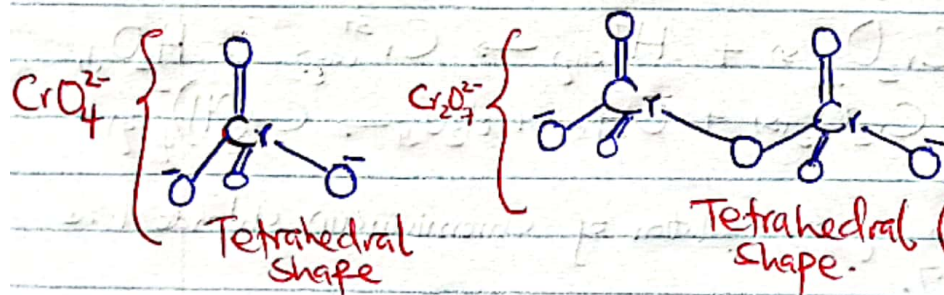
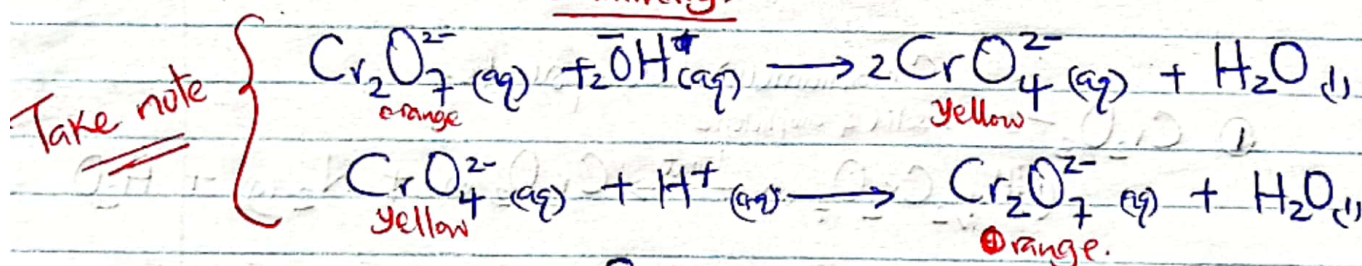
(d) Ammonium sulphide / sodium sulphide (Na_2S)



(e) Magnesium / Zinc metal.



Summary.



(2 chromate ions are tetrahedrally linked through an oxygen atom.)

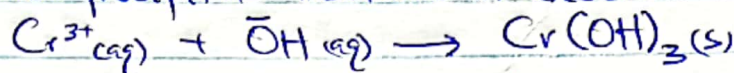
IONIC CHEMISTRY OF Cr^{3+} ions

① NaOH drop wise
until in excess.

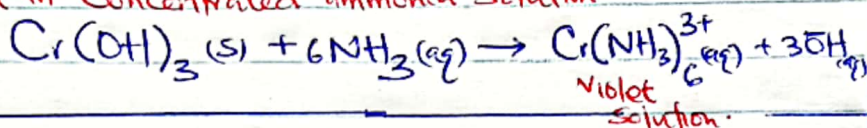
Green precipitate soluble in excess forming green solution
 $\text{Cr}^{3+}(\text{aq}) + 3\text{OH}^{-}(\text{aq}) \rightarrow \text{Cr}(\text{OH})_3(\text{s})$
 $\text{Cr}(\text{OH})_3(\text{s}) + \text{OH}^{-}(\text{aq}) \rightarrow \text{Cr}(\text{OH})_4^{-}(\text{aq})$

② Ammonia solution drop wise
until in excess

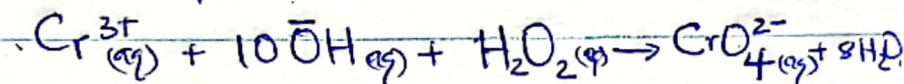
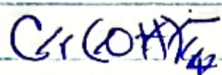
Green precipitate Insoluble in excess



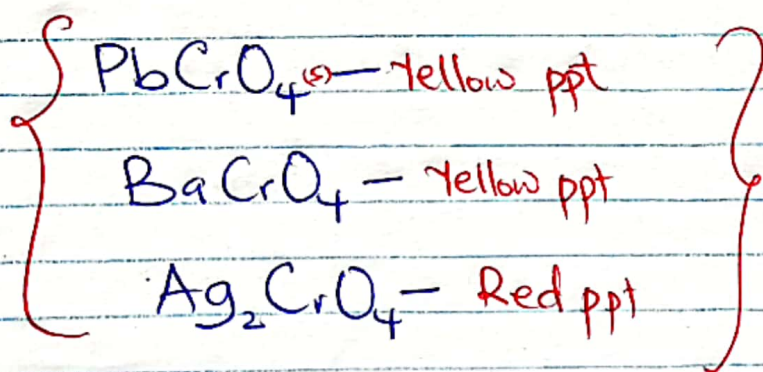
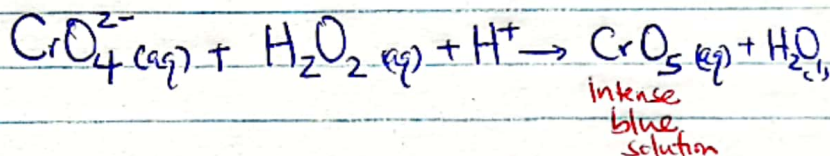
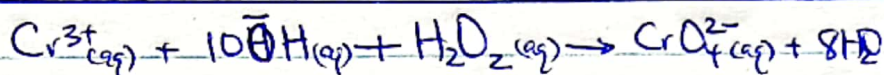
But in Concentrated ammonia solution



③ Add excess NaOH
+ H_2O_2 solution



④ Add excess NaOH
+ H_2O_2 solution +
butan-1-ol +
dil. H_2SO_4



Last minute review on Chromium



~~Kib~~

KIBUGO DENNIS.

Tuesday 3rd October
2023.
7pm