

- Write the formulas for the following compounds:
 - Lithium sulfide
 - Calcium sulfate
 - Boron phosphide
 - Hydrobromic acid
 - Aqueous hydrogen hypochlorite
- Name the following compounds:
 - AlCl_3
 - $\text{Hg}(\text{NO}_3)_2$
 - KNO_3
 - SrBr_2
 - Fe_2O_3
 - H_3PO_4
- Calculate the mass in grams of 0.354 moles of ammonia gas.
- Write the balanced chemical equations:
 - Solid sodium sulfate reacts with carbon to form solid sodium sulfide and carbon dioxide.
 - Aluminum metal reacts readily with water to form hydrogen and aluminum hydroxide.
- What volume of 0.075 mol/L solution can be prepared from 10.0 g of potassium permanganate?
- Draw the electron dot diagram, predict the shape and polarity of the following molecules:
 - Hydrogen sulfide
 - Silicon tetrafluoride
 - Arsenic trichloride
 - CH_3Cl
- Distinguish empirically between a metal and a non-metal.
- Write an empirical definition of an acid and a base.
- Silver metal can be recovered from waste silver nitrate solution by reacting silver nitrate with copper metal. What mass of silver can be obtained using 50.0 g of copper?
- Write both the systematic IUPAC name and the classical name for each of the following acids:
 - $\text{HNO}_3(\text{aq})$
 - $\text{HNO}_2(\text{aq})$
 - $\text{HI}(\text{aq})$
 - $\text{H}_3\text{BO}_3(\text{aq})$

- Write the analysis for each of the following:
 - PROBLEM: Which of the following solutions labeled 1,2,3 &4 is potassium permanganate, lithium chloride, strontium chloride and copper (II) sulfate?
EVIDENCE:

SOLUTION	COLOUR	FLAME TEST	
1	Colourless	Red	
2	Blue	Green	
3	Purple	Violet	
4	Colourless	red	

- PROBLEM: Which of the following solutions labeled 1,2,3 &4 is hydrochloric acid, ammonium chloride, ethanol and barium hydroxide?

SOLUTION	Litmus	Conductivity	
1	No change	None	
2	Blue to red	Good	
3	No change	Good	
4	Red to blue	good	

- A solution is known to contain sulfide ions and/or carbonate ions. Design an experiment to test for the presence of each ion.
- A calcium chloride solution has a concentration of 0.251 mol/L. What amount of calcium chloride is present in a 125 mL bottle?
- How does the solubility of solids and gases change as the temperature increases?
- What is the concentration of the cations and anions in a 2.1 mol/L solution of iron(III) chloride?
- What volume of concentrated phosphoric acid is required to prepare 250 mL of a 0.375 M solution?
- What mass of lead (II) iodide precipitate forms when 2.93 g of potassium iodide in solution reacts with excess lead(II) nitrate solution?
- A windshield washer solution was prepared by dissolving 100. g of methanol in water to form 2.00 L of solution. What is the molar concentration of the solution?
- Describe how to prepare 100.0 mL of 0.100 mol/L glucose solution.
- PROBLEM: What is the molar concentration of an unknown sodium carbonate solution?
EVIDENCE: Titration of 25.0 mL samples of $\text{Na}_2\text{CO}_3(\text{aq})$ with 0.352 mol/L $\text{HCl}(\text{aq})$

Trial	1	2	3	4
Final burette reading(mL)	16.5	31.8	47.0	16.4
Initial burette reading (mL)	0.6	16.5	31.8	1.2
Volume added				