

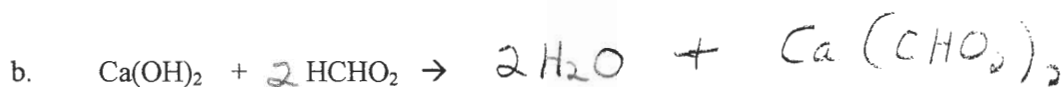
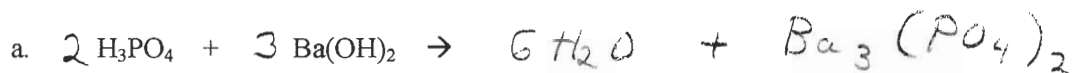
SHOW ALL WORK TO RECEIVE CREDIT

1. (4 Pts) Give the correct name AND formula for 2 strong acids and 2 strong bases.

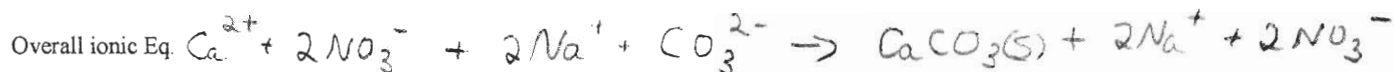
Acids

Bases

2. (4 Pts) Complete and balance the following reactions:



3. (4 Pts) Give the overall ionic and the net ionic equation for the following reaction:



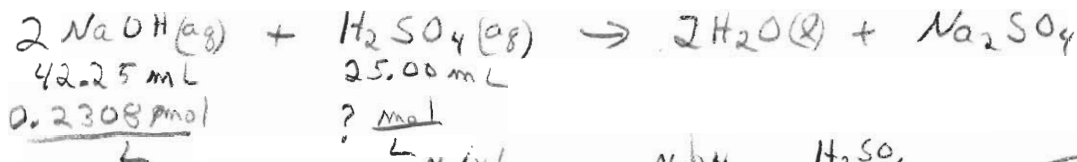
4. (4 Pts) How many grams of
- Na_2SO_4
- are needed to prepare 350.0 mL of 0.10 M solution?

Atomic masses: Na 23.0, S 32.06, O 16.00

$$\frac{350.0 \text{ mL}}{1000 \text{ mL}} \times \frac{0.10 \text{ mol}}{1 \text{ mol}} \times \frac{142.06 \text{ g}}{1 \text{ mol}} = 4.97 \text{ g}$$

5.0 g

5. (7 Pts) It took 42.25 mL of 0.2308 M NaOH solution to neutralize 25.00 mL of sulfuric acid solution. Determine the Molarity of the sulfuric acid solution. Start with a balanced chemical equation.



$$\frac{25.00 \times 10^{-3} \text{ L H}_2\text{SO}_4}{42.25 \times 10^{-3} \text{ L NaOH}} \times \frac{0.2308 \text{ mol NaOH}}{1 \text{ mol NaOH}} \times \frac{1 \text{ mol H}_2\text{SO}_4}{2 \text{ mol NaOH}} = 0.1950 \text{ mol H}_2\text{SO}_4 / \text{L H}_2\text{SO}_4$$

6. (2 Pts) How many mL of 3.00 M HCl solution are needed to prepare 250.0 mL of 0.150 M HCl solution?

$$M_1 V_1 = M_2 V_2 \quad (3.00 \text{ M})(V_1) = (0.150 \text{ M})(250.0 \text{ mL})$$

$$V_1 = 12.5 \text{ mL}$$

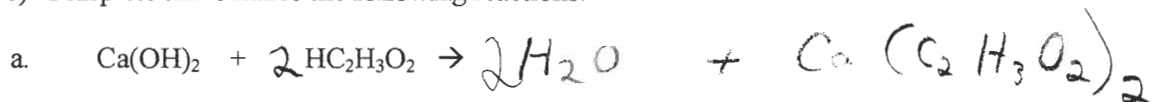
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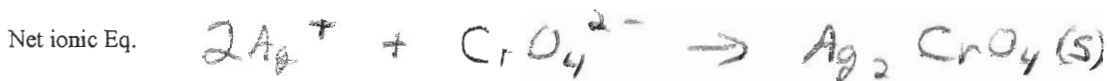
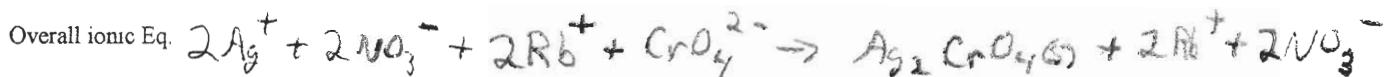
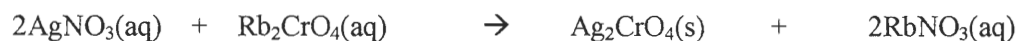
Bases

Acids

2. (4 Pts) Complete and balance the following reactions:



3. (4 Pts) Give the overall ionic and the net ionic equation for the following reaction:



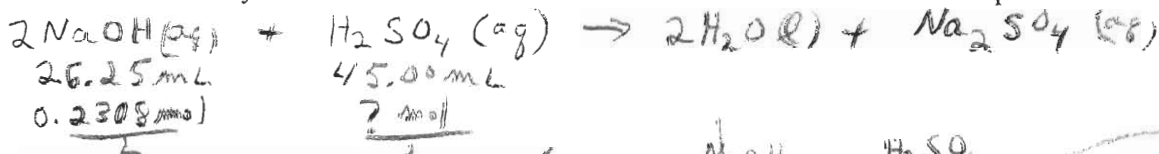
4. (4 Pts) How many grams of
- K_2SO_4
- are needed to prepare 350.0 mL of 0.10 M solution?

Atomic masses: K 39.1, S 32.06, O 16.00

$$\frac{350.0 \text{ mL}}{1000 \text{ mL}} \times \frac{0.10 \text{ mol}}{1 \text{ L}} \times \frac{174.26 \text{ g}}{\text{mol}} = 6.1 \text{ g K}_2\text{SO}_4$$

5. (7 Pts) It took 26.25 mL of 0.2308 M NaOH solution to neutralize 45.00 mL of sulfuric acid solution.

Determine the Molarity of the sulfuric acid solution. Start with a balanced chemical equation.



$$\frac{45.00 \times 10^{-3} \text{ L}}{1 \text{ L}} \times \frac{26.25 \text{ mL}}{1000 \text{ mL}} \times \frac{0.2308 \text{ mol/L}}{1 \text{ mol}} \times \frac{1 \text{ mol}}{2 \text{ mol}} = 0.06732 \text{ mol/L H}_2\text{SO}_4$$

6. (2 Pts) How many mL of 4.00 M HCl solution are needed to prepare 450.0 mL of 0.150 M HCl solution?

$$M_1 V_1 = M_2 V_2 \quad (4.00 \text{ M}) V_1 = (0.150 \text{ M})(450.0 \text{ mL})$$

$$V_1 = 16.9 \text{ mL}$$