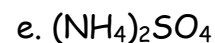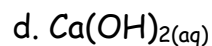# Chemistry 11
Solution Worksheet

Directions: Answer in the space provided and be sure to show ALL your work. Have fun ☺

1. Which of the following form ionic solutions?

   a. NaCl   b. SO_3 c. K_3PO_4 d. C_4H_{10} e. $(NH_4)_2SO_4$

2. Which of the following is a conducting solution?

   a. $NaCl_{(aq)}$ b. $HCl_{(aq)}$ c. $CH_3COOH_{(aq)}$ d. $Ca(OH)_{2(aq)}$ e. $SO_{2(l)}$

3. Calculate the molar concentrations of ALL the ions in solutions.

   a. 0.750 M $Na_3PO_{4(aq)}$

   b. 0.550 M $NaCl_{(aq)}$

   c. 0.650 M $Ca(OH)_{2(aq)}$

   d. Mix 250.0 ml of 0.350 M NaCl with 375.0 mL of 0.550 M $CaCl_2$?
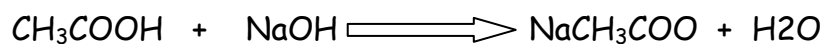
Titrations

4. A 112.5 ml sample of vinegar (containing acetic acid, CH_3COOH) was titrated using 0.504 M NaOH. If the titration required 20.65 ml of the NaOH solution, what was the molar concentration of acetic acid in the vinegar?

$$CH_3COOH \ + \ NaOH \Longrightarrow NaCH_3COO \ + \ H2O$$

5. A 25.00 mL sample of an unknown H_2SO_4 solution was reacted with 0.650 M NaOH. Using the date below, calculate the concentration of H_2SO_4.

Volume of NaOH used:

Run #1 = 36.50 mL's

Run #2 = 36.54 mL's

Run #3 = 38.00 mL's

6. A 10.00 ml sample of HCl was titrated with 0.750 M NaOH. Using the data below, calculate the HCl concentration.

Volume of NaOH used:

Run #1 = 6.50 mL's

Run #2 = 8.54 mL's

Run #3 = 8.60 mL's