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. SO₃    c. K₃PO₄    d. C₄H₁₀    e. (NH₄)₂SO₄

2. Which of the following is a conducting solution?
   a. NaClₐq    b. HClₐq    c. CH₃COOHₐq    d. Ca(OH)₂ₐq    e. SO₂(l)

3. Calculate the molar concentrations of ALL the ions in solutions.
   a. 0.750 M Na₃PO₄ₐq

   b. 0.550 M NaClₐq

   c. 0.650 M Ca(OH)₂ₐq

   d. Mix 250.0 ml of 0.350 M NaCl with 375.0 mL of 0.550 M CaCl₂?
4. A 112.5 ml sample of vinegar (containing acetic acid, CH₃COOH) 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?

\[
\text{CH}_3\text{COOH} + \text{NaOH} \rightarrow \text{NaCH}_3\text{COO} + \text{H}_2\text{O}
\]

5. A 25.00 mL sample of an unknown H₂SO₄ solution was reacted with 0.650 M NaOH. Using the data below, calculate the concentration of H₂SO₄.

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