

**Unit 9 Vocabulary Words**

Aqueous	Concentrated	Concentration	Dilute	Heterogeneous
Homogeneous	Insoluble	Mol/L	Molarity	Non-polar solvent
Unsaturated	Polar solvent	Precipitate	Saturated	Soluble
Solute	Solvent			

**Quiz Next Day on Vocab****Concentration and Dilution Problems**

1. If 0.400 moles of  $\text{H}_2\text{SO}_4$  are present in 1.50 L of solution, what is the concentration of the solution?

$$\frac{.400 \text{ mol}}{1.50 \text{ L}} = \boxed{0.267 \text{ M}}$$

2. If 1.07 grams of  $\text{NH}_4\text{Cl}$  are completely dissolved in water, what is the concentration if the total volume is 500 mL?

$$1.07 \text{ g} \times \frac{1 \text{ mol}}{53.5 \text{ g}} = \frac{0.0200 \text{ mol}}{.500 \text{ L}} = \boxed{.04 \text{ M}}$$

↖ I guess 1 sigfig

3. A chemist determines the concentration of a solution of KOH to be 0.300 M. How many grams of KOH would be present in 4.00 L of this solution?

$$4.00 \text{ L} \times \frac{0.300 \text{ mol}}{1 \text{ L}} \times \frac{56.1 \text{ g}}{1 \text{ mol}} = \boxed{67.3 \text{ g}}$$

4. What volume of 16.0 M  $\text{H}_2\text{SO}_4$  is required to produce 2.00 L of a 0.800 M solution?

$$V_1 = \frac{V_2 M_2}{M_1} = \frac{(2.00 \text{ L})(0.800 \text{ M})}{(16.0 \text{ M})} = \boxed{0.100 \text{ L}}$$

5. What volume of a 4.0 M stock solution of NaOH will be required to produce 0.500 L of a 0.025 M solution?

$$V_1 = \frac{V_2 M_2}{M_1} = \frac{(0.500 \text{ L})(0.025 \text{ M})}{4.0 \text{ M}} = \boxed{.0031 \text{ L}}$$