

Name: _____

Block: _____

Concentration Problems

1. What is the molarity of a solution that contains 25.2 g of KNO_3 (F.W. = $101.1 \frac{\text{g}}{\text{mol}}$) dissolved in enough water to make a total volume of 200. mL of solution?
2. What is the molarity of a solution that contains 22.5 g of NaI (F.W. = $149.89 \frac{\text{g}}{\text{mol}}$) dissolved in enough water to make a total volume of 500. mL of solution?
3. How many grams of NaOH (F.W. = $40.00 \frac{\text{g}}{\text{mol}}$) would you dissolve in water to make 1.0 L of a 2.0 M solution?
4. How many grams of KCl (F.W. = $74.55 \frac{\text{g}}{\text{mol}}$) would you dissolve in water to make 250. mL of 0.100 M solution?

5. How many mL of 12.0 M HCl would you add to water to make 500. mL of a 1.00 M solution?
6. If you put two teaspoons (8.0 g) of sugar ($C_{12}H_{22}O_{11}$) into 300. mL of coffee, what is the concentration of sugar in the resulting solution?
7. If you added 28.0 g of K_3PO_4 (F.W. = $212.27 \frac{g}{mol}$) to H_2O to make 90.0 mL of solution, what is the concentration of K^+ in the resulting solution? What is the concentration of PO_4^{3-} ? (Note: assume the K_3PO_4 dissociates completely.)
8. If you added 100. g of Na_2SO_4 (F.W. = $142.05 \frac{g}{mol}$) to 100. mL of water at $20.^\circ C$, what would the concentration of Na^+ and SO_4^{2-} ions be? (Note: not all of the Na_2SO_4 will dissolve; you will need to refer to your solubility charts.)