Name: _____Date: _____ Per: _____

Solution Concentration Worksheet – Practice Problems

Show work and units in all problems.

1. A solution is prepared by mixing 17.5 g potassium nitrate with 183 g water.
    a. What is the concentration expressed as % by mass?

    b. What is the concentration expressed in ppm?

    c. What is the molarity of the solution?

    d. What is the grams per liter of the solution?

2. A solution is prepared by mixing 30.0 g sucrose with 300.0 g water.
    a. What is the concentration expressed as % sucrose by mass?

    b. What is the concentration expressed in ppm?.

3. What is the concentration of 0.0020 g iron(III) ions dissolved in 500.0 g water expressed as ppm?

4. What is the concentration of 2.55 g calcium hydroxide dissolved in 850.0 g water expressed in molarity?

5. A saturated solution of potassium chloride is prepared by dissolving 45.8 g potassium chloride in 100.0 g water at 60C.

a. What is the mass % of potassium chloride?

b. What would be the new concentration (mass %) if 155 g water were added?

6. A concentrated commercial solution of hydrochloric acid (HCl) is 37 percent by mass. If you had a solution of 550 g of the acid, how many grams of HCl would be in the solution? Hint: Relate what you know to what you don't know.

7. St. Louis City water contains an average of 0.99 ppm fluoride. If a 750 g sample of water with this concentration is measured, how many grams of fluoride ions are present in the solution? Hint: Relate what you know to what you don't know.

8. You need to make 150.5 mL of a solution that is 2.25 M sodium sulfate. How many grams would you need to measure?