Concentration of Solutions Worksheet

Molarity

1. Tell how you would prepare a 0.5L of 0.50 M ammonium carbonate solution. Include all necessary equipment and amount of chemical (in grams).

2. What is the molarity of each of the following solutions?
    a. 40.0 grams of sodium hydroxide in 1.50 L of solution

    b. 4.10 grams of magnesium chloride in 0.30L of solution

3. If 0.885 moles of copper (II) sulfate are dissolved in enough water to make 0.070 L of solution, what is the molarity of the solution?

4. What is the molarity of a 0.40L solution in which 3.70 moles of sodium acetate are dissolved?

5. How many grams of calcium nitrate are needed to make 3.30 L of a 0.10 M solution?

Dilutions

6. If 30.0 mL of 12.0 M HCl stock solution are diluted to a volume of 500. mL, what is the molarity of the dilute solution?

7. If 27.5mL of 16.0 M nitric acid stock solution is added to water to make a 327.5mL solution, what is the molarity of the diluted solution?

8. If 50.0 mL of a stock sulfuric acid solution whose molarity is 15.0 M is diluted until the molarity of the new solution is 2.50 M, what is the volume of the new solution?

9. How would you prepare 500. mL of a 0.250 M solution of NaCl from a 3.00 M stock solution?

Percent Solutions

10. How many grams of water must be added to 25.0 g salt in order to have a 4.00 % (by mass) salt solution?

11. Prepare 750.0 g of a 5.00 % saline solution (NaCl solution).

12. Prepare a 40.00 % alcohol solution using 500.0 mL of water:

13. What is the percent (v/v)of ethanol in the final solution when 100.0 mL of it are diluted to a volume of 300. mL with water?