Dilutions and Percent Solutions Homework

1) If I add 25 mL of water to 125 mL of a 0.15 M NaOH solution, what will the molarity of the diluted solution be? (**x = 0.125 M**)

2) If I add water to 100 mL of a 0.15 M NaOH solution until the final volume is 150 mL, what will the molarity of the diluted solution be? (**x = 0.100 M**)

3) How much 0.05 M HCl solution can be made by diluting 250 mL of 10 M HCl? (**x = 50,000 mL)**

4) I have 345 mL of a 1.5 M NaCl solution. If I boil the water until the volume of the solution is 250 mL, what will the molarity of the solution be? (**x = 2.07 M)**

5) How much water would I need to add to 500 mL of a 2.4 M KCl solution to make a 1.0 M solution? (**700 mL**)

1. What is the percent by mass of 5.0 g of NaCl mixed with 80. g of water?

2. What is the percent by mass of 25.0 g of sodium acetate mixed with 40. g of water?

3. What mass of NaOH is found in 40. g of a 10% by mass solution? How many moles of NaOH is this?

4. What mass of lithium chloride is found in 85 g of a 25% by mass solution?

5. A group of friends finish an entire 750mL bottle of Jack Daniels, labeled 90. proof. Using this information, find out how much alcohol was in this bottle.

6. How many g of NaCl are found in 60. g of a 4.0% (by mass) solution?

7. How many moles of NaOH are needed to make 120 g of a 15% solution?

8. What is the percent solution (by volume) when 50. mL of ethanol is diluted to 140 mL with water?

9. What volume of ethylene glycol (in mL) is needed to make 1 gallon of antifreeze, a 60.0 % (by volume) solution? 4 qt = 1 gallon. 1 qt = 946 mL.

10. A 200-gram solution of alcohol contains 180 mL of water. What is the mass percent of alcohol?

(Remember water's density at 4oC = 1.00 g/mL.)

Ans: 1) 5.9% 2) 38% 3) 4.0 g, 0.10 mol 4) 21 g 5) 340mL 6) 2.4 g 7) 0.45 mol 8) 36% 9) 2270 mL 10) 10% alcohol