CHAPTER 6	**Putting it all Together (Dilutions as Advanced Acid-Base Calculations)**	BLM 6.3.13
ASSESSMENT		

1. A 50 mL volume of a 0.7983 mol/L solution of sodium hydroxide, NaOH(aq), is diluted to a volume of 1.50L.

   (a) What is the pOH of the concentrated solution?

   (b) What is the pH of the concentrated solution?

   (c) What is the concentration of the dilute solution?

   (d) What is the pOH of the dilute solution?

   (e) What is the pH of the dilute solution?

   (f) Compare your answers for **(b)** and **(e)**? Do they make sense considering the basic solution was diluted?

2. A 25.0 mL volume of a strong acid solution with a pH of 3.45 is used to make 2.00 L of a more dilute solution.

   (a) What is the concentration of hydronium ions in the concentrated solution?

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(b) What is the concentration of hydronium ions in the dilute solution?

(c) What is the pH of the new solution?

(d) Does your answer to (c) make sense?

3. A 35.0 mL solution of a strong acid solution with a pH of 2.674 is diluted to make 8.00 L of solution. What is the pH of the new solution?

4. What volume of a strong acid solution with a pH of 3.24 is required to make 20 L of a solution with a pH of 6.54.

5. A 15.0 mL volume of a strong base solution with a pH of 8.729 is used to make 500 mL of a dilute solution. (**Note:** because it is a basic solution, we must work with the concentration of hydroxide ions, not the concentration of hydronium ions.)

   (a) What is the pOH of the solution?

(b) What is the concentration of hydroxide ions in the concentrated solution?

(c) What is the concentration of hydroxide ions in the dilute solution?

(d) What is the pOH of the dilute solution?

(e) What is the pH of the dilute solution?

(f) Does your answer to **(e)** make sense?

6. A 20.0 mL volume of a strong base solution with a pH of 11.35 is used to make 12.00 L of a dilute solution. What is the pH of the new solution?

7. What volume of a strong base solution with a pH of 12.32 is needed to make 8.00 L of a dilute solution with a pH of 10.57?