Molarity Worksheet #1

The molarity (M) of a solution is the number of moles of solute per liter of solution. The formula for molarity can be found in Table T of your reference tables and is as follows:

$$\text{Molarity (M)} = \frac{\text{moles of solute}}{\text{liters of solution}}$$

Directions: Solve the following problems. Include the equation used and show all work. Please state the answer to the correct number of significant figures and box all answers with proper units.

1. What is the molarity of a solution that contains 0.40 moles of KBr in a 0.50 L solution?

2. If you have 5.0 moles of NaCl in a 2.0 L solution, what is the molarity of the solution?

3. If you have 60. moles of HCl what should the total volume of solution be to make a 10. M solution of HCl(aq)?

4. Which solution is most concentrated?
a) 5 M HCl b) 3 M HCl
c) 0.09 M HCl d) 23 M HCl

5. Which solution is most dilute?
a) 5 M HCl b) 3 M HCl
c) 0.09 M HCl d) 23 M HCl

6. What is the molarity of a solution with 1.75 moles of KNO_3 in 3.0 L of solution?

7. **What is the molarity of a solution that contains 65.1 g of NH_4Cl in 3.50-L of solution?

8. To produce 3.00 L of a 1.90 M solution of sodium hydroxide (NaOH).

a. How many moles of sodium hydroxide must be dissolved?

b. How many grams of sodium hydroxide must you measure out for the solution?