

1. In a concentrated solution there is _____.
 - a. no solvent
 - b. a large amount of solute
 - c. a small amount of solute
 - d. no solute

2. What does NOT change when a solution is diluted by the addition of solvent?
 - a. volume of solvent
 - b. mass of solvent
 - c. number of moles of solute
 - d. molarity of solution

3. A 1 M solution contains
 - a. a one-to-one ratio of solute to solvent molecules.
 - b. one mole of solute per liter of water.
 - c. one mole of solute per liter of solution.
 - d. 1 gram of solute per 100 mL of solution.

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5. If I wanted to make an HCl solution with a Molarity of 15M with a volume of 45mL, which equation would I use to calculate the amount of grams HCl I should add?
 - a. $M_1V_1=M_2V_2$
 - b. Molarity= Moles/Liters

6. 0.450 moles of NaCl are dissolved in 95.0 mL of water. Calculate the molarity of the NaCl solution.

$$M_1V_1=M_2V_2$$

Molarity=Moles of solute/Liters of Solution

- a) 0.0047 M
- b) 0.21 M
- c) 2.1 M
- d) 4.7 M
- e) None of these are correct.

7. How many moles of $\text{Ca}(\text{NO}_3)_2$ are there in 75 mL of 0.25 M solution?

$$M_1V_1=M_2V_2$$

Molarity=Moles of solute/Liters of Solution

- a) 0.00333 mol
- b) 0.0188 mol
- c) 3.33 mol
- d) 18.8 mol
- e) None of these are correct.

8. 15 g of NaCl occupy a volume of 75 mL. What is the molarity of the solution?

$$M_1V_1=M_2V_2$$

Molarity=Moles of solute/Liters of Solution

- a) 3.4 M
- b) 0.29 M
- c) 0.019 M
- d) 0.0034 M
- e) None of these are correct.

9. How many grams of NaCl are needed to prepare 0.500 L of a 4.00 M NaCl solution?

$$M_1V_1=M_2V_2$$

Molarity=Moles of solute/Liters of Solution

- a 2.00 grams NaCl
- b 4.00 grams NaCl
- c 58.5 grams NaCl
- d 117 grams NaCl

10. Calculate the new concentration when 25.00 mL of a 5.0 M stock solutions of CuSO_4 is diluted to 500.00 mL.

$$M_1V_1=M_2V_2$$

Molarity=Moles of solute/Liters of Solution

- a 100 M
- b 0.025 M
- c 0.25 M
- d 2500 M

11. If I had 50mL of a 12M solution and I added 40mL what is the new Molarity?

$$M_1V_1=M_2V_2$$

Molarity=Moles of solute/Liters of Solution

- a. 15M
- b. 112.5M
- c. 12M
- d. 6.7M