

Molarity Calculations

Use the equation below to solve the problems involving molarity.

$$\text{Molarity (M)} = \frac{\text{\# of moles of solute (mol)}}{\text{Liters of solution (L)}}$$

1. What is the molarity of a solution that has 2.3 moles of sodium chloride in 0.45 liters of solution?
2. Calculate the molarity of solution that has 1.2 moles of CaCO_3 dissolved to make 1.22 liters of solution.
3. A solution of sodium sulfate has 0.19 moles of solute dissolved to make a total volume of 0.120 L. What is the molarity?
4. How many moles of Na_2CO_3 are there in 10.0 L of 2.0 M solution?
5. How many moles of carbon dioxide are in a solution that has a molarity of 2.50 M and a total volume of 0.50 L?
6. What is the amount of moles of NaCl dissolved in a 2.00 M solution if the final volume is 0.1200 L?
7. What volume of 12.0 M hydrochloric acid contains 3.0 moles of HCl?
8. How many liters are in a 0.50 M solution of Al_2O_3 if 4.907 moles are dissolved?

9. 0.1720 mol of PbCl_2 is dissolved to form a 5.0 molar (M) solution. What is the volume?
10. What is the molarity of 5.00 g of sodium hydroxide in 750.0 mL of solution?
11. What is the molarity of 1.25 g of hydrochloric acid in 25.0 mL of solution?
12. How many moles of calcium hydroxide are needed to make 100. mL of a 0.250 molar solution?
13. How many grams of calcium hydroxide are needed to make the above solution?
14. How many grams of solute are dissolved in a 0.5 molar solution of $\text{Mg}(\text{OH})_2$ if the volume is 3.00L?
15. How many grams of H_2SO_4 are needed to make an 8.00 M solution that has a volume of 0.7500 L?