

Calculations with C, n, V, and m

1. What volume of 0.25 mol/L $\text{LiCl}_{(\text{aq})}$ contains 5.0 mol of LiCl ? (20 L)
2. What volume of a 0.500 M AgNO_3 solution would contain 1.65 mol of silver nitrate? (3.30 L)
3. Muriatic acid, used to etch concrete floors before painting, contains $\text{HCl}_{(\text{aq})}$. How many moles of hydrogen chloride are in 125 mL of 0.0100 M $\text{HCl}_{(\text{aq})}$ solution. (0.00125 mol)
4. What is the molar concentration of a solution prepared by dissolving 10.0 g of NaOH to make a 150.0 mL of $\text{NaOH}_{(\text{aq})}$? (1.67 M)
5. What mass of copper (II) sulfate is required to make 200.0 mL of an electroplating solution with a CuSO_4 concentration of 3.50 M? (112 g)
6. What volume of 0.100 M sodium hydroxide solution can be prepared from 10.0 g of solute? (2.50 L)
7. Which of the following contains the greater mass of solute:
5.1 L of 2.25 mol/L of $\text{CuSO}_4_{(\text{aq})}$ (1800 g)
OR
2.1 L of 0.10 mol/L $\text{PbSO}_4_{(\text{aq})}$ (64 g)

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8. Calculate the concentration of sodium chloride when 0.250 moles of NaCl(s) is dissolved in 750.0 mL of water. (0.333 M)
9. Calculate the molar concentration of a solution prepared by dissolving 7.50g of sodium nitrate, (NaNO₃) in enough water to produce a 500.0 mL of solution. (0.176 M)
10. Calculate the mass of magnesium sulphate, MgSO₄(s), required to produce 500.0 mL of 0.100 mol/L solution. (6.02 g)
11. A 500 mL solution of NaCl has a concentration of 2.00 M. What mass of NaCl was required to prepare this solution? (58.4 g)
12. What is the molar concentration of a solution in which 0.25 mol of CaCl₂ is dissolved in water to form a 550 mL solution? (0.45 M)
13. A typical household ammonia solution has a concentration of 1.44 mol/L. What volume of this solution would contain 1.340 mol of NH₃? (1.93 L)