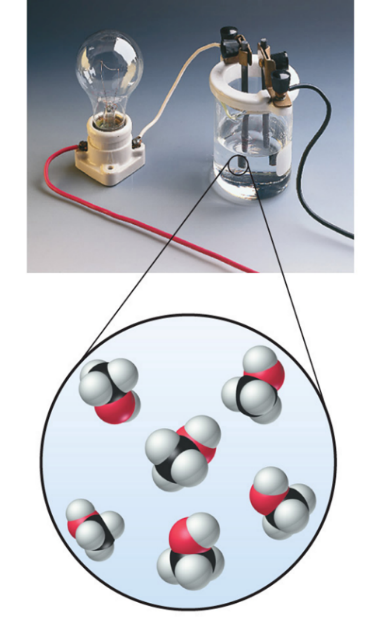
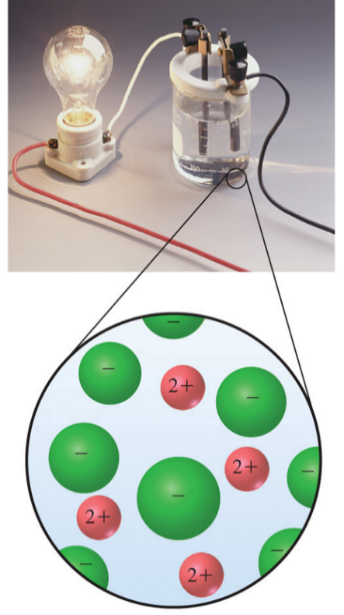


2.0 grams of solute

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1. Which picture represents the solution with the highest molarity?
   1. The picture on the left.
   2. The picture on the right.
   3. They have the same molarity because they have the same mass.
   4. More information is needed.



Use the pictures to answer questions 2-5.

1. The picture on the \_\_\_\_\_\_\_\_\_\_\_\_is an ionic compound, and the picture on the \_\_\_\_\_\_\_\_\_\_\_\_\_is a covalent compound.
   1. Left, right
   2. Right, left
2. Ionic compounds \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in solution, while covalent compounds\_\_\_\_\_\_\_\_\_\_\_\_\_.
   1. Remain intact, dissociate
   2. Dissociate, remain intact
3. For covalent compounds, if one mole of compound is dissolved in water to one liter, the total concentration is \_\_\_\_\_\_ molar because the compound \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
   1. 1 M, dissociates
   2. 1 M, remains intact
   3. Depends on the compound, dissociates
   4. Depends on the compound, remains intact
4. For the ionic compound in the picture with the generic formula MX2, if one mole of compound is dissolved in in water to one liter, the concentration of **ions** is \_\_\_\_\_\_ molar because the compound \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
   1. 1 M, remains intact
   2. 1 M, dissociates
   3. 2 M, dissociates
   4. 2 M, remains intact
   5. 3 M, dissociates
5. What is the molar concentration when 2.5 moles of solute is diluted to 0.50 L?
   1. 0.20 M
   2. 5.0 M
   3. 1.3 M
   4. 2.5 M
6. What is the molar concentration when 56.5 grams of KCl is diluted to 575 mL with water?
   1. 1.32 M
   2. 9.83 x 10-2 M
   3. 2.29 M
   4. 98.3 M
   5. 1.32 x 10-3 M
7. What is the molar concentration of chloride ions in a 1.25 M solution of CaCl2?
   1. 0.625 M
   2. 1.25 M
   3. 2.50 M
   4. 3.75 M
8. How many grams of sucrose (C12H22O11, MM = 342.297 g/mol) are in 355 mL of a 0.32 M solution?
   1. 3.9 x 104 g
   2. 1.1 x 102 g
   3. 3.1 x 102 g
   4. 3.9 x 101 g
   5. 3.3 x 10-4 g
9. How many grams of I- are in 255 mL of a 0.250 M solution of MgI2?
   1. 6.38 x 10-2 g
   2. 0.128 g
   3. 8.09 g
   4. 35.5 g
   5. 16.2 g
10. A 0.025 L sample of a 12 M solution was diluted to 0.100 L. What is the concentration of the diluted solution?
    1. 3.0 M
    2. 48 M
    3. 4.8 x 103 M
    4. 2.1 x 10-4 M
11. You want to make 250. mL of a 0.25 M HCl solution. How many milliliters of a 5.0 M stock solution are needed?
    1. 5.00 x 103 mL
    2. 12.5 mL
    3. 313 mL
    4. 5.00 x 10-3 mL
    5. 2.00 x 10-4 mL
12. You made a dilute solution of lead(II) nitrate for a lab experiment but forgot to cap it. You return the next morning. What has happened to the solution? The volume of the solution \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_; the concentration \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
    1. Decreased, increased
    2. Decreased, decreased
    3. Increased, decreased
    4. Increased, increased
    5. Nothing happened to the solution.
13. Which statement is true about describing solution concentration?
    1. Dilute solutions can never be saturated.
    2. Concentrated solutions are always saturated.
    3. Unsaturated solutions are always dilute.
    4. All the statements are true.
    5. None of the statements are true.
14. A solution of ethanol in water is prepared by dissolving 55.6 mL of ethanol (C2H5OH, MM = 46.069 g/mol) in enough water to make a 250. mL solution. What is the solution’s molarity? The density of ethanol is 0.789 g/mL.
    1. 0.222 M
    2. 175 M
    3. 3.81 M
    4. 1.30 x 104 M
    5. 8.08 M
15. You have 15 grams of silver nitrate (AgNO3) available. What volume in mL of a 0.35 M solution can you prepare if you use all the silver nitrate?
    1. 0.088 mL
    2. 0.25 mL
    3. 43 mL
    4. 250 mL
    5. 4.3 x 104 mL
16. Standard solutions are typically made in labs to reduce error when making dilute solutions. A standard solution of fluoxymesterone (C20H29FO3,MM = 336.449 g/mol) was prepared by dissolving 10.00 mg to a total volume of 500.0 mL. A 100.0 µL sample was taken from the stock solution and diluted to a final volume of 100.0 mL. What is the concentration of the diluted solution?
    1. 5.944 x 10-5 M
    2. 5.944 x 10-8 M
    3. 6.729 x 10-3 M
    4. 6.729 x 10-7 M
    5. 3.36 M
17. A 40.0 mL sample of 0.205 M AgNO3(aq) was mixed with 40.0 mL of 0.205 M K2CrO4(aq). What mass of precipitate will form? (Hint—determine the soluble product first; the other product is the precipitate.)
    1. 2.72 g
    2. 1.36 g
    3. 1.59 g
    4. 8.20 g
    5. 3.32 g
18. A 1.31-gram sample of the acid HC6H5O (MM = 94.12 g/mol) completely reacted with 11.61 mL of NaOH. What was the concentration of NaOH in the original solution?
    1. 1.20 M
    2. 13.9 M
    3. 8.86 M
    4. 0.113 M
    5. 0.162 M
19. What volume in mL of 0.100 M NaOH is required to precipitate all of the Ni2+ from 150.0 mL of a 0.249 M solution of Ni(NO3)2?
    1. 747 mL
    2. 374 mL
    3. 0.747 mL
    4. 0.374 mL
    5. 0.0747 mL