

Molarity & Molality Worksheet

17 Practice Problems

Organic Chemistry Tutor

1. 15 g of NaCl was dissolved in 225 g of water.
What is the mass percent of NaCl in the solution?

3. 2 mol of KCl is dissolved in 8 moles of water.
What is the mole fraction of KCl?

2. 25.0 mL of Methanol ($d = 0.792 \text{ g/cm}^3$) is mixed with 150. mL of water ($d = 1 \text{ g/cm}^3$). What is the volume percent of Methanol? What is the mass % of water?

4. 25.0 g of NaF is mixed with 200. g of H_2O . What is the mole fraction of NaF in the solution?

5. 15.0 g of NaBr is dissolved in 400. mL of solution. What is the Molarity of the solution?

7. The mass percent of AlCl_3 in water is 15%. The density of the solution is 1.17 g/mL. What is the Molarity of the solution?

6. 10 g of NaOH is dissolved in 500 g of water. What is the molality of the solution?

8. 74.5 g of CaCl_2 is dissolved in 560. g of water. The density of the solution is 1.15 g/mL. Calculate the Molarity of the solution.

9. The density of a 0.75 M NaOH solution is 1.1 g/mL. Calculate the mass percent of NaOH in the solution.

11. What is the molality of a 1.30 M HBr solution with a density of 1.15 g/mL?

10. The mass percent of KI in water is 15.0%. What is the molality of the solution?

12. The mass percent of NaOH in water is 4.70%. What is the mole fraction of NaOH in this solution?

13. Determine the mass % of a 0.489 m KCl solution.

15. The volume % of CH_3OH ($d = 0.792 \text{ g/mL}$) in water ($d = 1 \text{ g/mL}$) is 12.0%. Calculate the mole fraction of CH_3OH in this solution.

14. The volume percent of CH_3OH ($d = 0.792 \text{ g/mL}$) in water ($d = 1 \text{ g/mL}$) is 10.0%. What is the molality of the solution?

16. What is the Molarity of a 1.25 m $\text{C}_6\text{H}_{12}\text{O}_6$ aqueous solution with a density of 1.09 g/mL?

17. Calculate the density of a 0.845 m H_2SO_4 solution that has a concentration of 0.821 M.

Answers:

1. 6.25%

- 2a. 14. %
- 2b. 88.3%

3. 0.2
4. 0.0509
5. 0.364 M
6. 0.5 m
7. 1.3 M
8. 1.22 M
9. 2.7%
10. 1.06 m
11. 1.24 m
12. 0.0217
13. 3.55%
14. 2.75 m
15. 0.0572
16. 1.11 M
17. 1.05 g/mL