

1. What is the molarity of a solution containing 130 g of lithium bromide (LiBr) dissolved in enough water to make 4.25 Liters of solution?
2. How many grams of sodium acetate ($\text{NaC}_2\text{H}_3\text{O}_2$) are needed to prepare 2.5 liters of 3.00 M solution in water?
3. What is the molality of 17.2 g of lithium carbonate (Li_2CO_3) dissolved in 500.0 g of methanol?
4. In the preparation of a 0.33 molal solution of sodium chloride, how many grams of NaCl would be added to 50.0 g of the solvent?
5. What is the mole fraction of oxygen in a sample of air containing 2.50 g Nitrogen gas, 0.005 grams of helium gas, and 0.36 g of oxygen gas?
6. The mole fractions of several gases are as listed: CO_2 (0.790), CO (0.080), CH_4 (0.091). The sample also contains oxygen gas. What is the mole fraction of oxygen gas?
7. What is the mass percent oxygen in a sample of gas that contains 0.120 g nitrogen, 0.030 g oxygen, and 0.0050 g argon?
8. What is the change in boiling point of 500.0 g of water when 25.0 g of ethylene glycol ($\text{C}_2\text{H}_6\text{O}_2$) is added to the water? K_b for water is $0.52 \text{ C}/^\circ\text{m}$.
9. What is the change in freezing point of 750.0 g of water when 350.0 g of ethylene glycol ($\text{C}_2\text{H}_6\text{O}_2$) is added to the water? K_f for water is $1.86 \text{ C}/^\circ\text{m}$.
10. A solution contains 3.24 grams of a non-electrolyte in 200.0 grams of water. If the solution boils at 100.13 C , then determine the molecular mass of the solute.