

- 1) A 1.34 mole sample of LiCl dissolves in water. The volume of the final solution is 0.86 L. Find the molarity of the solution.
- 2) A 9.98 g sample of glucose, $C_6H_{12}O_6$, is dissolved in enough water to produce a 1395 mL solution. What is the molarity of the solution?
- 3) How many grams of $MgSO_4 \cdot 9H_2O$ are needed to prepare 125 mL of 0.200 *M* magnesium sulfate?
- 4) 251 mL of 0.45 *M* HCl is added to 455 mL of distilled water. What is the molarity of the final solution?
(Hint: Find the number of moles of HCl and the total volume of the final solution)
- 5) How many millilitres of 0.250 *M* $KMnO_4$ contain 0.00450 moles of $KMnO_4$?
- 9) The density of a 13.2 mass % solution of NaF is 1.21 g/mL. Find the molarity of the solution.
- 10) Find the mole fraction of glucose, $C_6H_{12}O_6$, in a 2.1 *m* solution of glucose and water.
- 11) A rigid 5.5 L sealed vessel contains 0.350 moles $N_{2(g)}$, 0.125 moles $Ar_{(g)}$, and 0.110 moles $He_{(g)}$. Find the mole fraction of each gas.
- 12) A gaseous solution contains 41.0% O_2 and 59.0% N_2 by mass. Find the mole fraction of each substance in the solution.
- 13) A 0.452 g sample of an unknown compound is dissolved in 8.543 g of water. Find the molar mass of the unknown compound if the molality of the solution is found to be 0.524 *m*.