

Molarity Problems

1. What is the molarity of a solution that was prepared by dissolving 14.2 g of NaNO_3 (molar mass = 85.0 g/mol) in enough water to make 350 mL of solution?

$$\frac{14.2\text{g NaNO}_3}{0.350\text{L soln}} \left(\frac{1\text{mol NaNO}_3}{85\text{gNaNO}_3} \right) \equiv$$

Ans: 0.477 M

2. What is the molarity of a solution that was prepared by dissolving 82.0 g of CaCl_2 (molar mass = 111.1 g/mol) in enough water to make 812 mL of solution?

$$\frac{82.0\text{ g CaCl}_2}{0.812\text{L soln}} \left(\frac{1\text{mol CaCl}_2}{111.1\text{gCaCl}_2} \right) \equiv$$

Ans: 0.909 M

3. What is the molarity of a solution that contains 5.5 g of HCl (molar mass = 36.5 g/mol) dissolved in enough water to make 250 mL of solution?

$$\frac{5.5\text{ g HCl}}{0.250\text{L soln}} \left(\frac{1\text{mol HCl}}{36.5\text{ g HCl}} \right) \equiv$$

Ans: 0.60 M

4. How many grams of NaBr (molar mass = 102.9 g/mol) would be needed to prepare 700 ml of 0.230 M NaBr solution?

$$0.700\text{L soln} \left(\frac{0.230\text{mol NaNO}_3}{1\text{L soln}} \right) \left(\frac{102.9\text{gNaNO}_3}{1\text{mol NaNO}_3} \right) \equiv$$

Ans: 16.6 g NaBr