

Molarity Calculations – Answer Key

Calculate the molarities of the following solutions:

- 1) 2.3 moles of sodium chloride in 0.45 liters of solution. **5.1 M**
- 2) 1.2 moles of calcium carbonate in 1.22 liters of solution. **0.98 M**
- 3) 0.090 moles of sodium sulfate in 12 mL of solution. **7.5 M**
- 4) 0.750 moles of lithium fluoride in 65.0 mL of solution. **11.5 M**
- 5) 0.80 moles of magnesium acetate in 5.0 liters of solution. **0.16 M**
- 6) 120.0 grams of calcium nitrite in 240.0 mL of solution. **3.785 M (MM=132.03)**
- 7) 98 grams of sodium hydroxide in 2.2 liters of solution. **1.1 M (MM=40.0)**
- 8) 1.20 grams of hydrochloric acid in 25.0 mL of solution. **1.32 M (MM=36.46)**
- 9) 45 grams of ammonium chloride in 0.75 L of solution. **1.1 M (MM=53.5)**

Explain how you would make the following solutions.

- 10) 2 L of 6 M HCl **Dissolve 437 g HCl, dilute to 2 L (MM=36.46)**
- 11) 1.5 L of 2 M NaOH **Dissolve 120 g NaOH, dilute to 1.5 L (MM=40.0)**
- 12) 0.75 L of 0.25 M Na₂SO₄ **Dissolve 26.64 g Na₂SO₄, dilute to 0.75 L (MM=142.03)**
- 13) 45 mL of 0.12 M sodium carbonate **Dissolve 0.57 g Na₂CO₃, dilute to 45 mL (MM=105.97)**
- 14) 250 mL of 0.75 M lithium nitrite **Dissolve 9.93 g LiNO₂, dilute to 250 mL (MM=52.95)**
- 15) 56 mL of 1.1 M iron (II) phosphate **Dissolve 22.02 g Fe₃(PO₄)₂, dilute to 56 mL**
- 16) 6.7 L of 4.5 M ammonium nitrate **Dissolve 2400 g NH₄NO₃, dilute to 6.7 L (MM=80.06)**
- 17) 4.5 mL of 0.05 M magnesium sulfate **Dissolve 0.027 g MgSO₄, dilute to 4.5 mL (MM=120.38)**
- 18) 90 mL of 1.2 M BF₃ **Dissolve 7.32 g BF₃, dilute to 90 mL**