**Molarity Practice Problems**

1) How many grams of potassium carbonate are needed to make 200 mL of a 2.5 M solution?

2) How many liters of 4 M solution can be made using 100 grams of lithium bromide?

3) What is the concentration of a 450 mL solution that contains 200 grams of iron (II) chloride?

4) How many grams of ammonium sulfate are needed to make a 0.25 M solution at a concentration of 6 M?

5) What is the concentration of a solution that has a volume of 2.5 L and contains 660 grams of calcium phosphate?

6) How many grams of copper (II) fluoride are needed to make 6.7 liters of a 1.2 M solution?

7) How many liters of 0.88 M solution can be made with 25.5 grams of lithium fluoride?

8) What is the concentration of a solution that with a volume of 660 that contains 33.4 grams of aluminum acetate?

9) How many liters of 0.75 M solution can be made using 75 grams of lead (II) oxide?

10) How many grams of manganese (IV) oxide are needed to make a 5.6 liters of a 2.1 M solution?

11) What is the concentration of a solution with a volume of 9 mL that contains 2 grams of iron (III) hydroxide?

12) How many liters of 3.4 M solution can be made using 78 grams of isopropanol (C3H8O)?

13) What is the concentration of a solution with a volume of 3.3 mL that contains 12 grams of ammonium sulfite?

15) 56 mL of 1.1 M iron (II) phosphate

16) 6.7 L of 4.5 M ammonium nitrate

17) 4.5 mL of 0.05 M magnesium sulfate

18) 90 mL of 1.2 M BF3

6) 120 grams of calcium nitrite in 240 mL of solution.

7) 98 grams of sodium hydroxide in 2.2 liters of solution.

8) 1.2 grams of hydrochloric acid in 25 mL of solution.

9) 45 grams of ammonia in 0.75 L of solution.

14) 250 mL of 0.75 M lithium nitrite

8. 4.5 g of NH4Cl is added to 225 mL of water. What is the molality?

9. A solution of MgBr2 is 1.40 m. What is the molality of bromide ions in solution?

10. What is the molality of ions in solution if 2.0 moles of Al(NO3)3 is added to 2.5 kg of water?

11. How many moles of ions are dissolved in 0.75 kg of water when the concentration of (NH4)3PO4 is 0.40 m?

**12**. A solution of Ca(NO3)2 must be 2.00 m in ions. What mass of Ca(NO3)2 must be added to 125 g of water to make this solution?

**13**. 32.0 g of NaOH is added to water to make 500. g of solution. What is the molality?