CHEM 120 Review (Molarity) for Chem. 141

1. Household bleach is an aqueous solution of sodium hypochlorite. What is the molarity of a bleach solution containing 17.8 g of sodium hypochlorite in a total volume of 455 mL?
2. Muriatic acid, an industrial grade of concentrated HCl, is used to clean masonry and etch cement prior to painting. What volume of 11.7 M muriatic acid is required to make 15.0 L of a 3.4 M acid solution?
3. Citric acid, H3C6H5O7, in orange juice may be neutralized by sodium hydroxide according to the equation below. A 1.25 L sample of orange juice required 6.67 mL of a 0.025 *M* solution of NaOH to reach the equivalence point. What was the molarity of the citric acid in the orange juice sample?

1. How many milliliters of 0.238 M KMnO4 are needed to react with 3.36 g of iron(II) sulfate, FeSO4? The reaction is as follows:

      10 FeSO4(aq) + 2 KMnO4(aq) + 8 H2SO4(aq) 🡪5 Fe2SO4(aq) + 2 MnSO4(aq) + K2SO4(aq) +8 H2O(l)

1. A solution is prepared with 70.0 g nitric acid, HNO3, and 130.0 g water. It has a density of 1.21 g/mL

What is the molarity of the solution?

1. You mix 732.0 mL of 0.2187 M lithium sulfate with 350.0 mL of 0.5988 M titanium(III) nitrate. Determine the number of grams of titanium(III) sulfate solid produced, and the final concentration of all ions in the solution.

3 Li2SO4(aq) + 2 Ti(NO3)3(aq) 🡪 6 LiNO3(aq) + Ti2(SO4)3(s)

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**Concentrations of all ions present after mixing.**

**Moles Ti2(SO4)3 produced Mass Ti2(SO4)3 produced**

**Moles Li+1 = [Li+1] =**

**Moles SO4-2 = [SO4-2] =**

**Moles Ti+3 = [Ti+2] =**

**Moles NO3-1 = [NO3-1] =**