

Quiz 5 – Solutions & Neutralization

AP Chemistry

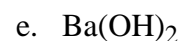
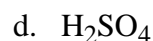
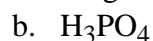
This quiz must be completed and brought to my room before the start of first period on Tuesday. Failure to do so will incur a 25% penalty unless there is a legal reason.

You must show all work in order to receive credit.

1. Write the ionic and net ionic equation for this reaction carried out in solution.



2. Identify each of the following as a weak or strong, acid or base.



3. Write the net ionic equation for the reaction of solid chromium III hydroxide and nitric acid

4. What is the molarity of a nitric acid solution if 36.00mL of it reacts completely with 2.00g of NaOH?

5. Hydrochloric acid (75.0mL of 0.250M) is added to 225.0mL of 0.0550M $\text{Ba}(\text{OH})_2$ solution. What is the concentration of the excess H^+ or OH^- ions left in this solution?

6. A 1.42g sample of a pure compound, with formula M_2SO_4 , was dissolved in water and treated with an excess of aqueous barium chloride, resulting in the precipitation of all the sulfate ions as barium sulfate. The precipitate was collected, dried, and found to weigh 2.33g. Determine the atomic mass of M, and identify M.

7. A mixture contains only NaCl and $\text{Fe}(\text{NO}_3)_3$. A 0.456g sample of the mixture is dissolved in water, and an excess of NaOH is added, producing a precipitate of $\text{Fe}(\text{OH})_3$. The precipitate is filtered, dried, and weighed. Its mass is 0.107g. Calculate the following:

a. The mass of iron in the sample

b. The mass of $\text{Fe}(\text{NO}_3)_3$ in the sample

c. The mass percent of $\text{Fe}(\text{NO}_3)_3$ in the sample

8. Consider a 1.50g mixture of magnesium nitrate and magnesium chloride. After dissolving this mixture in water, 0.500M silver nitrate is added dropwise until precipitate formation is complete. The mass of the white precipitate formed is 0.641g.

a. Calculate the mass percent of magnesium chloride in the mixture.

b. Determine the minimum volume of silver nitrate that must have been added to ensure complete formation of the precipitate.

