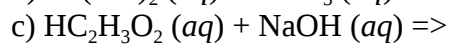
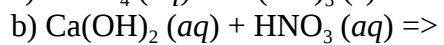
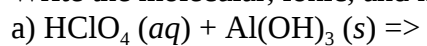


Date: _____

1. What volume of 0.200 M HNO_3 solution is required to neutralize 30.0 mL of 0.350 M NaOH ?
2. 35.0 mL of 0.300 M HCl and 48.0 mL of 0.460 M KOH are mixed together. Calculate the amount of water produced and the concentration of excess H^+ or OH^- remaining after the reaction is complete.

3. 3.62 g of solid HCl is dissolved in water to make 400.0 mL of solution. It takes 120.0 mL of sodium hydroxide solution to neutralize the acidic solution. What is the concentration of the sodium hydroxide solution?

4. Write the molecular, ionic, and net ionic equations for the following acid-base reactions:



5. An aqueous solution of sodium bicarbonate (baking soda) is mixed with hydrochloric acid to produce carbon dioxide bubbles, water, and sodium chloride. Write the molecular, ionic, and net ionic equations for this reaction.

What volume of 1.5 M baking soda solution would be required to neutralize 150.0 mL of a 0.50 M solution of hydrochloric acid?