

1. What are the products of an acid/base neutralization reaction?
2. Predict the products of these reactions and determine whether the solution remaining is acidic, basic or neutral. Assume the same amount of acid and base is added,
  - a.  $\text{HCl} + \text{LiOH} \rightarrow$
  - b.  $\text{HC}_2\text{H}_3\text{O}_2 + \text{NaOH} \rightarrow$
  - c.  $\text{Al}(\text{OH})_3 + \text{HClO}_4 \rightarrow$
  - d.  $\text{NH}_4\text{OH} + \text{HBr} \rightarrow$
3. Explain what the common-ion effect is.
4. Calculate the pH of a 0.250 M  $\text{HClO}$  solution.
5. Calculate the pH of a buffered solution that contains 0.50 M acetic acid and 0.50 M sodium acetate.
6. What concentration of potassium benzoate would need to be added to a 0.150 M benzoic acid solution in order to yield a buffer with a pH of 4.12?
7. In a titration of  $\text{HCl}$  with  $\text{NaOH}$ , 100.0 mL of the base was required to neutralize 20.0 mL of 5.0 M  $\text{HCl}$ . What is the molarity of the  $\text{NaOH}$ ? (Be sure to write the neutralization reaction.)