

Assessment**Chapter 8****BLM 8-4****Chapter 8 Test****Goal**

Demonstrate and assess your understanding of the concepts you studied in Chapter 8.

- Calculate the pH of the following solutions.
 - 0.1 mol/L HCl
 - 0.01 mol/L Mg(OH)₂
 - 0.1 mol/L CH₃COOH ($K_a = 1.8 \times 10^{-5}$)
- Classify the following acids and bases as either strong or weak.
 - HCl
 - NaOH
 - NH₃
 - CH₃COOH
- Calculate the [H₃O⁺] in 0.04 mol/L NaOH.
- Insert the symbols <, >, or = to make the following statements correct.
 - When [H₃O⁺] ____ [OH⁻], the solution is acidic.
 - When [H₃O⁺] ____ [OH⁻], the solution is basic.
 - When [H₃O⁺] ____ [OH⁻], then the solution is neutral.
- What is the pH of a 100.0 mL aqueous solution containing 4.2 g of the strong acid, perchloric acid (HClO₄)?
- What mass of NaOH is required to produce a 500 mL solution with a pH = 11.00?
- What is the K_b of a base whose pH is 10.66 and concentration is 0.30 mol/L?
- If the K_b of the HCO₃⁻ ion is 2.4×10^{-8} , what is the K_a of carbonic acid, H₂CO₃?