

AP Chemistry Daily Videos

8.4 Acid-Base Reactions and Buffers

Video #1

1. Write down the generic formula for a neutralization reaction.
2. What is the net ionic equation for ALL strong acid and strong base reactions?

Ⓜ
2:27

3. Evaluate your ability to answer the question making sure you identify any errors.

Determine the pH when the following solutions are combined:

Substance	V ₁ (mL)	M ₁ (M)	M ₂
perchloric acid (HClO ₄)	35.00	0.2000	
Potassium hydroxide (KOH)	25.00	0.2500	

4. Record what the instructor does and make sure you write down explanations for each step.

Determine the pH when the following solutions are combined:

Substance	V ₁ (mL)	M ₁ (M)	M ₂
Hypochlorous acid (HClO)	35.00	0.2000	
Potassium hydroxide (KOH)	25.00	0.2500	

5. If you didn't get the correct answer, which step did your mistake begin and why was it a mistake?

Determine the pH for 100 mL of the following solution.

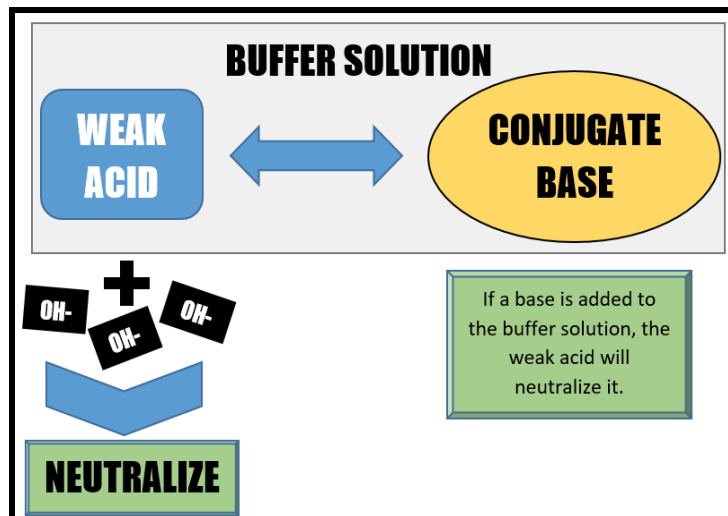
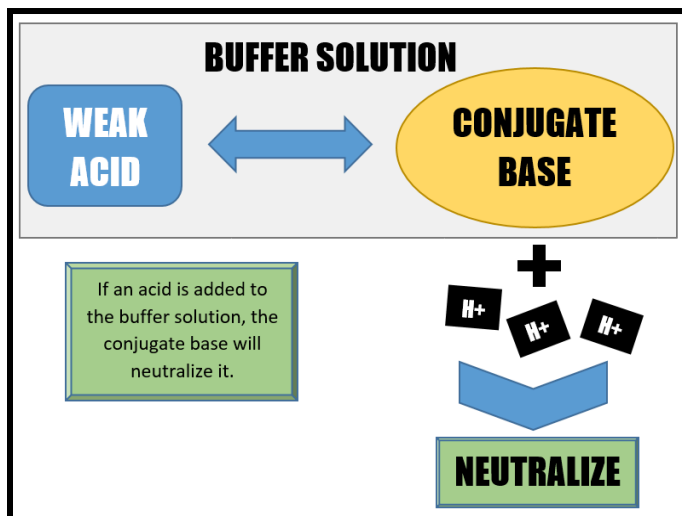
Substance	M_1 (M)
hypochlorous acid (HClO)	0.2500
Potassium hydroxide (KOH)	0.2500

6. What is the equivalency point?

Video #2

1. What is the half equivalency point?
2. What is true at the half equivalency point for a weak acid/strong base?
3. What is true at the half equivalence point for a strong acid/weak base?

4. What is a buffer solution? And what is a buffer's function? Use the images below to guide you.



Video #3

1. If you didn't get the correct answer, which step did your mistake begin and why was it a mistake?

Acid	V_1 (mL)	M_1 (M)	K_a
HA	30.00	0.2000	2×10^{-9}
HX	30.00	0.2000	2×10^4

Which of the following provides the best claim and justification for a comparison of the pH of the solutions above if 30.00 mL samples of 0.2000 M NaOH are added to each?

A. The pH of HA would be higher than HX because NaOH is a strong base.
 B. The pH of HA would be higher than HX because it forms a weak conjugate base.
 C. The pH of HA would be lower than HX because it is a weak acid.
 D. The pH of HA would be lower than HX because it forms water as a product.

2. Evaluate yourself.

A 0.599 g sample of LiOH is added to 1.0 L of a 0.050 M solution of hydrozoic acid (HN_3). Assume the volume remains unchanged after the LiOH is added. $K_a(\text{HN}_3) = 1.9 \times 10^{-5}$ at 25°C

(A) Write the net ionic equation for the reaction that occurs in the aqueous solution.
 (B) Determine the molarity of LiOH in the solution.
 (C) Is the solution less than, equal to, or greater than 7? Justify your answer.