

AP Chemistry

Name: _____ Score: _____

1. A conjugate acid-base pair differs by...
 - ☐ one proton (H^+)
 - ☐ one electron
 - ☐ one neutron
2. Find the pH of a 0.01 M strong acid.

3. A larger K_a means the weak acid is...
 - ☐ stronger
 - ☐ more dilute
 - ☐ weaker
4. A buffer is made from...
 - ☐ pure water
 - ☐ a weak acid and its conjugate base
 - ☐ a strong acid alone
5. At the equivalence point, the moles of acid and base are...
 - ☐ both zero
 - ☐ equal
 - ☐ doubled
6. A weaker bond to hydrogen makes an acid...
 - ☐ stronger
 - ☐ weaker
 - ☐ neutral
7. A larger K_a corresponds to a larger $\text{p}K_a$.
 - ☐ True ☐ False
8. A buffer resists pH change best when the acid and conjugate base are about equal.
 - ☐ True ☐ False

9. A buffer has $pK_a = 5.0$ with equal acid and base. Its pH?

10. The solubility of AgCl changes strongly with pH.

☐ True ☐ False

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1. **one proton (H^+)**

The acid loses one H^+ to become its conjugate base.

2. **2**

$[\text{H}^+] = 10^{-2}$, so $\text{pH} = -\log(10^{-2}) = 2$.

3. **stronger**

A bigger K_a means more ionization – a stronger weak acid.

4. **a weak acid and its conjugate base**

A buffer pairs a weak acid with its conjugate base.

5. **equal**

Equivalence means the moles exactly match.

6. **stronger**

A weaker H bond releases the proton more easily.

7. **False**

False. $\text{p}K_a = -\log K_a$, so the negative log inverts the order: a larger K_a gives a smaller $\text{p}K_a$.

8. **True**

A 1:1 ratio handles added acid and base equally well.

9. **5**

$\log 1 = 0$, so $\text{pH} = \text{p}K_a = 5.0$.

10. **False**

Cl^- is not a base, so pH has little effect.