

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
- ☐ weaker
- ☐ more dilute

4. A buffer is made from...

- ☐ a weak acid and its conjugate base
- ☐ a strong acid alone
- ☐ pure water

5. At the equivalence point, the moles of acid and base are...

- ☐ equal
- ☐ both zero
- ☐ doubled

6. A weaker bond to hydrogen makes an acid...

- ☐ stronger
- ☐ weaker
- ☐ neutral

7. A buffer has $\text{p}K_a = 5.0$ with equal acid and base. Its pH?

8. If $[\text{H}^+] = 1.0 \times 10^{-4}$, find $[\text{OH}^-]$. Enter the exponent (a negative number).

9. A solution has $\text{pH} = 9$ at 25 degrees. Its pOH ?

10. A weak acid and a dilute acid are the same thing.

☐ 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. **5**

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

8. **-10**

$[\text{OH}^-] = 10^{-14}/10^{-4} = 10^{-10}$.

9. **5**

$\text{pOH} = 14 - \text{pH} = 14 - 9 = 5$.

10. **False**

Weak is about ionization; dilute is about concentration.