

$$\text{pH} = -\log[\text{H}_3\text{O}^+] \quad \text{pOH} = -\log[\text{OH}^-]$$

$$[\text{H}_3\text{O}^+] = 10^{-\text{pH}} \quad [\text{OH}^-] = 10^{-\text{pOH}}$$

pH	$[\text{H}_3\text{O}^+]$	$[\text{OH}^-]$
0	1	$10^{-14}$
1	0.1	$10^{-13}$
2	0.01	$10^{-12}$
3	0.001	$10^{-11}$
4	$10^{-4}$	$10^{-10}$
7	$10^{-7}$	$10^{-7}$
10	$10^{-10}$	$10^{-4}$
11	$10^{-11}$	0.001
12	$10^{-12}$	0.01
13	$10^{-13}$	0.1

$$\text{pH} + \text{pOH} = \underline{\hspace{2cm}}$$

$$[\text{H}_3\text{O}^+][\text{OH}^-] = 1.0 \times 10^{-14}$$

$$\text{pH} = -\log[\text{H}_3\text{O}^+] \quad \text{pOH} = -\log[\text{OH}^-]$$

$$[\text{H}_3\text{O}^+] = 10^{-\text{pH}} \quad [\text{OH}^-] = 10^{-\text{pOH}}$$

$$\text{pH} + \text{pOH} = 14.00$$

- What is the pH of  $[\text{H}_3\text{O}^+] = 4.6 \times 10^{-5}$ ?
- What is the pOH of  $[\text{OH}^-] = 3.3 \times 10^{-4}$ ?
- What is the pOH of  $[\text{H}_3\text{O}^+] = 4.6 \times 10^{-5}$ ?
- What is the  $[\text{H}_3\text{O}^+]$  when the pH = 4.2?

#### Clicker Questions

What is the pH when  $[\text{H}_3\text{O}^+] = 0.045 \text{ M}$ ?

What is the pH when  $[\text{OH}^-] = 6.5 \times 10^{-4} \text{ M}$ ?

What is the  $[\text{H}_3\text{O}^+]$  when pH = 3.66 M?

What is the  $[\text{OH}^-]$  when pH = 5.84 M?

