

Name \_\_\_\_\_ Date \_\_\_\_\_ Class \_\_\_\_\_

## pH and pOH

The pH of a solution indicates how acidic or basic that solution is.

pH range 0 to-7 acidic

7 neutral

7-14 basic

Since  $[H^+][OH^-] = 10^{-14}$  at 25 °C, if  $[H^+]$  is known, the  $[OH^-]$  can be calculated and vice versa.

$$pH = -\log [H^+]$$

$$pOH = -\log [OH^-]$$

$$\text{So if } [H^+] = 10^{-6} \text{ M, } pH = 6.$$

$$\text{So if } [OH^-] = 10^{-8} \text{ M, } pOH = 8.$$

Together,  $pH + pOH = 14$ .

Complete the following chart.

	$[H^+]$	pH	$[OH^-]$	pOH	Acidic or Basic
1.	$10^{-5} \text{ M}$	5	$10^{-9} \text{ M}$	9	Acidic
2.		7			
3.			$10^{-4} \text{ M}$		
4.	$10^{-2} \text{ M}$				
5.				11	
6.		12			
7.			$10^{-5} \text{ M}$		
8.	$10^{-11} \text{ M}$				
9.				13	
10.		6			