pH AND pOH

Name _____

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

pH range of 0 - 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.

$pH = -\log [H^+]$ So if $[H^+] = 10^{-6}$ M, pH = 6.
$pOH = -\log [OH^-]$ So if $[OH^-] = 10^{-8}$ M, pOH = 8.
Together, pH + pOH = 14.

Complete the following chart.

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

pH & pOH Continued

Calculate the pH of the solutions below. (Be careful, some of the solutions are basic.)

1. 0.01 M HCl

2. 0.0010 M NaOH

3. 0.050 M $Ca(OH)_2$

4. 0.030 M HBr

5. 0.150 M KOH