

pH Calculations

Useful Information:	
$\text{pH} = -\log [\text{H}^+]$	$[\text{H}^+] = 10^{-\text{pH}}$
$\text{pOH} = -\log [\text{OH}^-]$	$[\text{OH}^-] = 10^{-\text{pOH}}$
$\text{pH} + \text{pOH} = 14$	

1. Calculate the pH of the following solutions given the concentration of H^+ :

- a. $[\text{H}^+] = 0.10 \text{ M}$
- b. $[\text{H}^+] = 1.00 \text{ M}$
- c. $[\text{H}^+] = 1.79 \times 10^{-5}$
- d. $[\text{H}^+] = 5.52 \times 10^{-10}$
- e. $[\text{H}^+] = 1.78 \times 10^{-2}$

2. Calculate the pOH of the following solutions given the concentration of OH^- :

- a. $[\text{OH}^-] = 0.20 \text{ M}$
- b. $[\text{OH}^-] = 1.00 \times 10^{-4} \text{ M}$
- c. $[\text{OH}^-] = 8.55 \times 10^{-6} \text{ M}$
- d. $[\text{OH}^-] = 4.13 \times 10^{-2} \text{ M}$
- e. $[\text{OH}^-] = 7.98 \times 10^{-5} \text{ M}$

3. Given the pH, calculate the $[\text{H}^+]$ of the following solutions:

- a. $\text{pH} = 4.34$
- b. $\text{pH} = 8.33$
- c. $\text{pH} = 1.19$
- d. $\text{pH} = 11.32$
- e. $\text{pH} = 5.54$

4. Given the pOH, calculate the $[\text{H}^+]$ of the following solutions:

- a. $\text{pOH} = 9.87$
- b. $\text{pOH} = 2.32$
- c. $\text{pOH} = 8.65$
- d. $\text{pOH} = 12.26$
- e. $\text{pOH} = 4.43$

5. Fill in the table below:

	pH	pOH	$[\text{H}_3\text{O}^+]$	$[\text{OH}^-]$	Acidic or Basic
a.	1.00				
b.		10.50			
c.			1.76×10^{-12}		
d.				1.49×10^{-3}	