

pH Calculation Practice (Chemistry)

Name: KEY Pd: _____

Show formula, setup and answer with units if appropriate.

1. What is the pH of a solution if its $[H^+]$ is as given? Determine if the solution is acidic or basic.

a. $4.2 \times 10^{-12} M$

$$-\log(4.2 \times 10^{-12})$$

$$pH = 11.38$$

b. $0.537 M$

$$-\log(0.537)$$

$$pH = 0.27$$

2. Determine the pH of the following solutions. Determine if the solution is acidic or basic.

a. $0.033 M HNO_3$

$$-\log(0.033)$$

$$pH = 1.48$$

b. $0.017 M HI$

$$-\log(0.017)$$

$$pH = 1.77$$

3. What is the pH of a solution if the pOH is as given? Determine if the solution is acidic or basic.

$$pH + pOH = 14$$

a. 13.25

$$14 - 13.25 = 0.75$$

b. 2.95

$$14 - 2.95 = 11.05$$

4. Determine the $[H^+]$ for the following solutions:

$$10^{-pH} = [H^+]$$

a. $pH = 3.95$

$$10^{-3.95} = 1.12 \times 10^{-4} M$$

b. $pH = 12.82$

$$10^{-12.82} = 1.51 \times 10^{-13} M$$

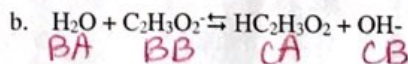
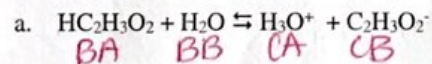
5. What is true about the relative concentrations of hydrogen ions $[H^+]$ & hydroxide ions $[OH^-]$ in each of these solutions:

a. Basic $[OH^-] > [H^+]$

b. Acidic $[H^+] > [OH^-]$

c. Neutral $[H^+] = [OH^-]$

6. Identify each as an acid, base, conjugate acid and conjugate base. You may use BA, BB, ca, cb.



7. Classify each of these as an Arrhenius acid or base:

a. $Ca(OH)_2$ Arrhenius base

c. KOH Arrhenius base

b. HNO_3 Arrhenius acid

d. C_2H_3COOH Arrhenius acid