What is the pH Scale?

Worksheet

pH = log[H], where [H] is the hydrogen ion concentration. Each step represents a 10 change in acidity. pH <7 is acidic, pH >7 is basic, pH=7 is neutral.

pH = -@log_{10}[H^+]

Questions

1. pH = 3 means

A) neutral
B) basic
C) acidic
D) no H

2. Neutral solution pH?

A) 0
B) 7
C) 14
D) 10

3. [H]=10 mol/L, pH=?

A) 10
B) 10
C) 4
D) 0.01

4. pH increases by 2 units. H changes by?

A) 2
B) 10
C) 100
D) 200

5. If [H] = 0.01 mol/L, find pH.

6. If [H] = 110 mol/L, find pH.

7. Lemon juice (pH2) is how many times more acidic than pure water (pH=7)?

8. Define: What does pH measure?

9. Define: What is pH 7?

10. Define: pH formula?

Answer Key

1. C) acidic - pH <7 = acidic (more H than water).
2. B) 7 - pH = 7 is neutral (pure water at 25C).
3. A) 10 - pH = log(10) = 10.
4. C) 100 - Each unit = 10, so 2 units = 10 = 100.
5. pH = log(0.01) = log(10) = 2
6. pH = log(110) = 8 (basic)
7. pH difference = 72 = 5 Factor = 10 = 100,000 more acidic
8. The concentration of H ions (hydrogen ions). Scale 0-14.
9. Neutral. Equal [H] and [OH].
10. pH = log[H], where [H] is in mol/L.