

# pH and Indicators

Write an equation to represent the ionic product of water.

Define pH.

State the pH values you would expect for the following solutions.

Neutral:

Acidic:

Basic:

Define the following:

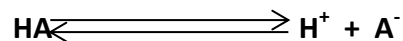
Strong acid:

Strong base:

Weak acid:

Weak base:

Write the acid dissociation constant ( $K_a$ ) for an acid (HA) undergoing dissociation as follows:



Describe the conjugate base of a strong acid.

Describe the conjugate base of a weak acid.

How would you calculate the pH of an acidic solution when given  $\text{H}^+$  ion concentration?

How would you calculate the pH of a basic solution when give  $\text{OH}^-$  ion concentration?

State two limitations of the pH scale.

1.

2.

What equation is used to determine  $H^+$  ion concentration when given  $K_a$  and the molarity of the acid.

What equation is used to determine  $OH^-$  ion concentration when given  $K_b$  and the molarity of the base.

What is an acid-base indicator?

What is the range of an indicator?

Complete the following table:

Name of indicator	Range	Colour in acid	Colour in base
Methyl orange			
Litmus			
Phenolphthalein			

Which indicator(s) are most suitable in each of the following titrations?

1. Strong acid and strong base:

2. Strong acid and weak base:

3. Weak acid and strong base: