**Ionization of Water and Acids and Dissociation of Bases**

Distilled water is a neutral solution of pH 7.

Why is water neutral?

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Distilled water ionizes the following way:

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The real equation is:

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Acids ionize the following way:

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Bases dissociate the following way:

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**pH = - log [ H+ ]**

In English, the pH of a solution is the negative log of the hydrogen ion concentration in mol/L.

e.g.

**pOH = - log [ OH- ]**

In English, the pOH of a solution is the negative log of the hydroxide ion concentration in mol/L.

e.g.

**pH + pOH = 14 because:**

**Kw = [ H+ ] o [ OH- ] 1 x 1014 = [ H+ ] o [ OH- ] Kw = 1 x 1014**

The relationship between the hydrogen ion concentration and the hydroxide concentration is

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

As the concentration of **[ H+ ]** in water \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the concentration of **[ OH- ]**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

e.g.