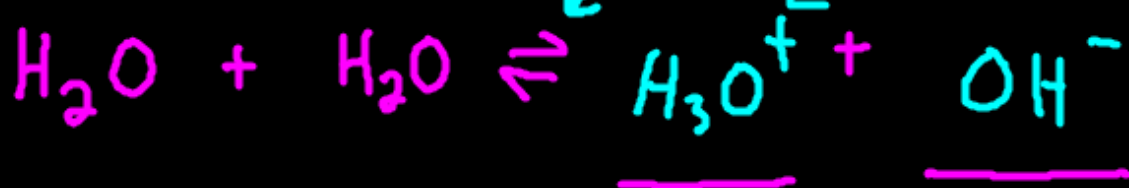


pH

definition = how acidic a solution is
measure of $[H^+]$

$$pH = -\log [H^+]$$

Ion-Product Constant, K_w

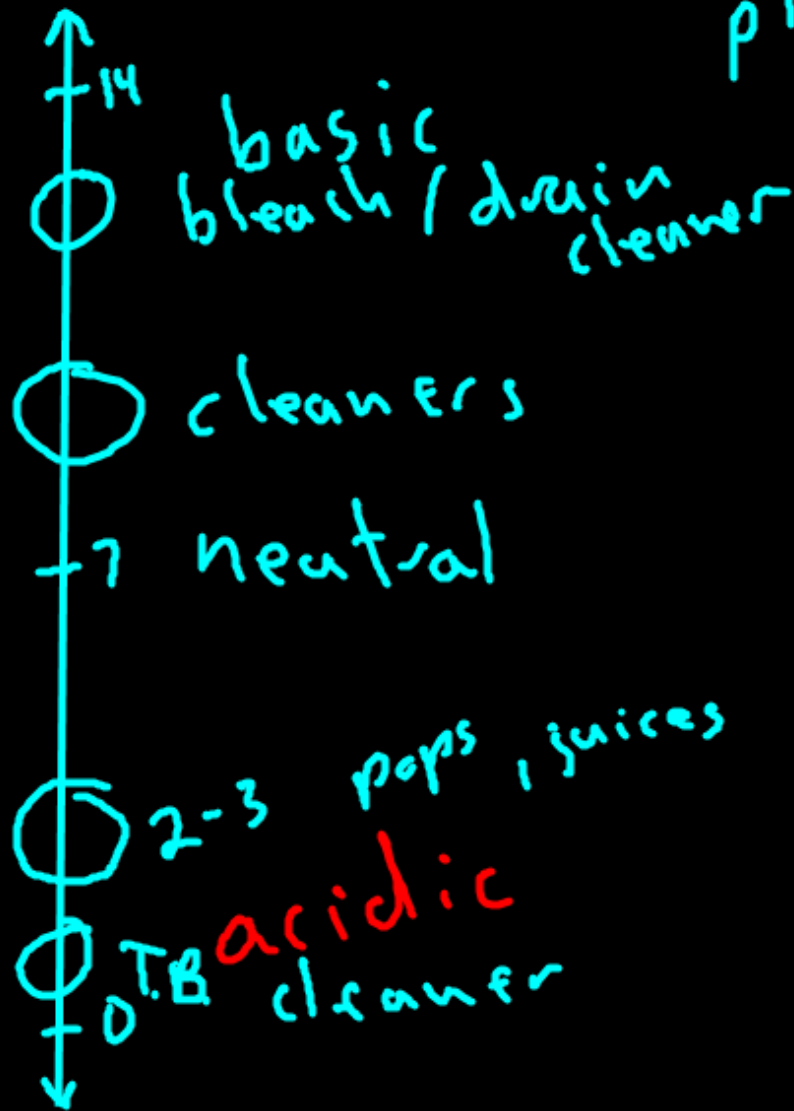


$$K_w = [H_3O^+][OH^-] = (1 \times 10^{-7})(1 \times 10^{-7})$$

$$= 1 \times 10^{-14}$$

pH Scale

$$\text{pH} = -\log [\text{H}^+]$$



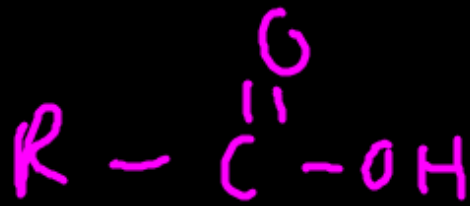
slippery
bitter

Sour

pH and the Cell

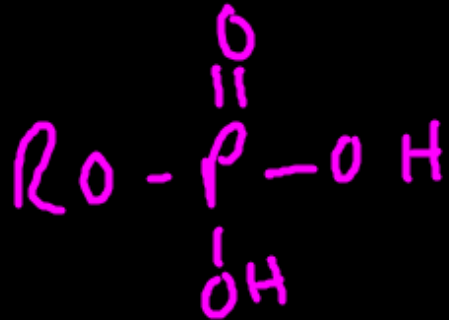
physiological pH 7.35 - 7.45

Blood 

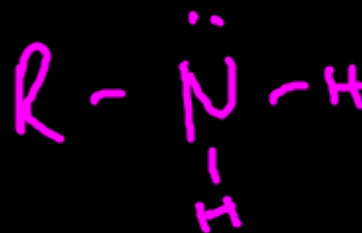


carboxylic acid

acids



phosphate ester



amines - Bases

measuring pH

meters - device that measures pH

test papers - turn different colors

pH problems

acidic
or basic

$$[H^+] = 3.0 \times 10^{-10} \text{ M}$$

$$\text{pH} = -\log(3.0 \times 10^{-10}) = 9.52$$

s.f.

$$[OH^-] = ?$$

$$K_w = [H^+][OH^-]$$

$$[OH^-] = \frac{K_w}{[H^+]} = \frac{1.0 \times 10^{-14}}{3.0 \times 10^{-10}} = 3.3 \times 10^{-5} \text{ M}$$

$$.3 \times 10^{-4}$$

$$\text{pH} = 5.12$$

$$\text{pH} = -\log [\text{H}^+]$$

$$[\text{H}^+] = ?$$

$$[\text{H}^+] = 10^{-\text{pH}} = 10^{-5.12}$$

↓
2nd log

$$10^{-7}$$