

Chapter 5

PH. Strong acid, strong base,
PH - metric titration

Titration: Strong acid + strong base

Water: $HA + H_2O \rightarrow H_3O^+ + A^-$

Equation: $H_3O^+ + OH^- \rightarrow 2H_2O$

PH is measured by Indicator

base (buret)

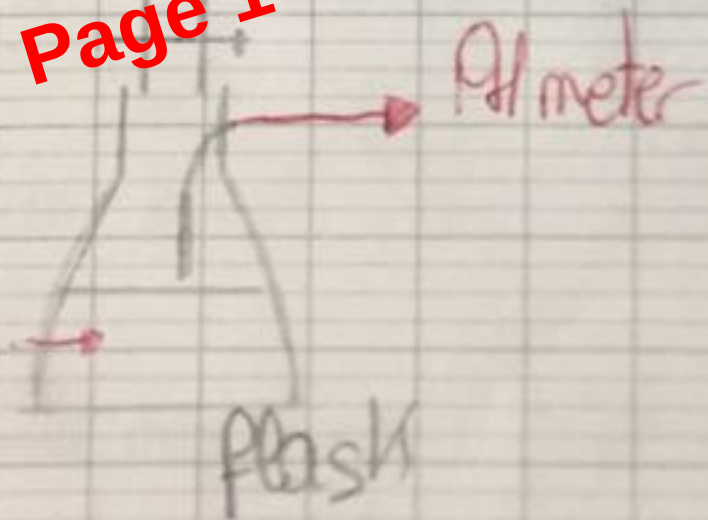
Cb

Vb: Graph

PH meter (most accurate)

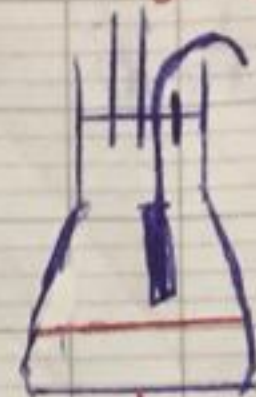
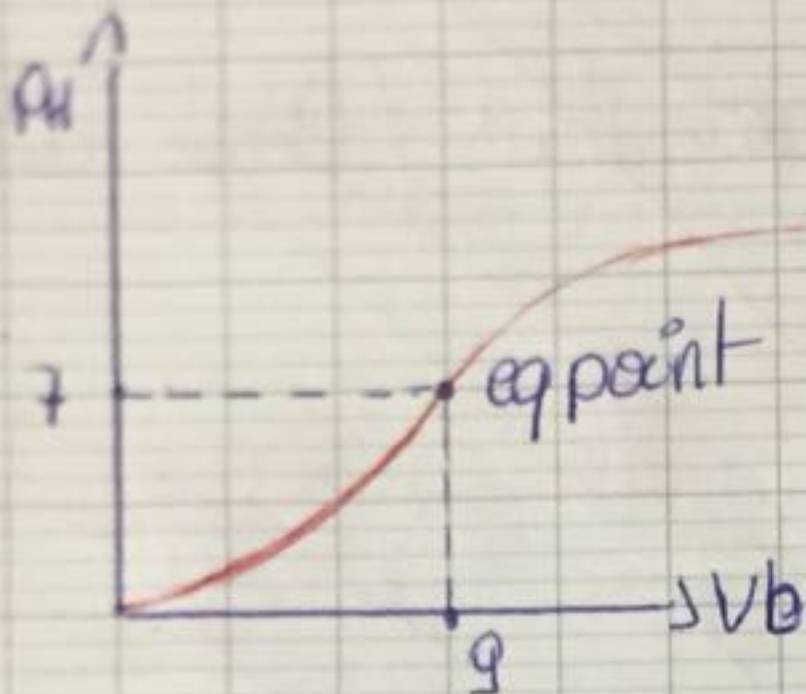
PH paper

acid
Ca
Va



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Example



base
 $C_b: 0.1 \text{ mol/L}$
 $V_b: \text{graph}$

acid

$C_a = ?$

$V_a: 10 \text{ mL}$

eq point (9, 7) $\rightarrow$ titration of S Acid
 with S base

Find concentration

upon titration: $C_a V_a = C_b V_b$

$$C_a \times 10 = 0.1 \times 9$$

$$C_a = \frac{0.9}{10} = 0.09 \text{ mol/L}$$

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$$n = C \times V = 4.5 \times 1 = 4.5 \text{ mol}$$

$$m = n \times M = 4.5 \times 40 = 180 \text{ g}$$

$$d = m/V \rightarrow m = d \times V = 1.07 \times 1 = 1.07 \text{ kg} \xrightarrow{\times 1000} 1070 \text{ g}$$

$$\% = 180 / 1070 \times 100$$