

$n_B = \text{moles of B from BCE}$

formula

Titration Practice Worksheet

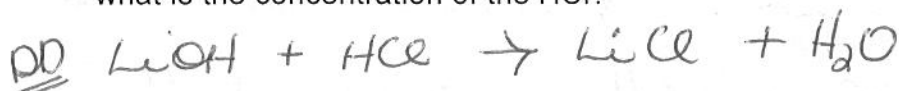
$n_A = \text{moles of A from BCE}$

OR
D.A.
It's your choice!!

$A + B = S + W$ by DD

Always write the BCE for the neutralization first!!

- 1) If it takes 54 mL of 0.10 M LiOH to neutralize 125 mL of an HCl solution, what is the concentration of the HCl?



by DA

$$54 \text{ mL B} \times \frac{0.10 \text{ mol B}}{1 \text{ L B}} \times \frac{1 \text{ mol A}}{1 \text{ mol B}} \times \frac{1}{125 \text{ mL A}} = 4.32 \times 10^{-2} \frac{\text{mol}}{\text{L}}$$

- 2) If it takes 25 mL of 0.050 M HCl to neutralize 345 mL of KOH solution, what is the concentration of the NaOH solution?

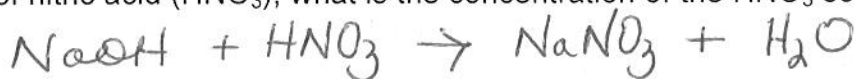


by formula

$$n_B \frac{C_A V_A}{V_B n_A} = \frac{C_B V_B n_A}{V_B n_A} = (1 \text{ mol KOH})(0.050 \text{ mol/L HCl})(25 \text{ mL})$$
$$= 0.036 \text{ M KOH}$$

$(345 \text{ mL})(1 \text{ mol HCl})$

- 3) If it takes 50 mL of 0.5 M NaOH solution to completely neutralize 125 mL of nitric acid (HNO_3), what is the concentration of the HNO_3 solution?



$$50 \text{ mL B} \times \frac{0.5 \text{ mol B}}{1 \text{ L}} \times \frac{1 \text{ mol A}}{1 \text{ mol B}} \times \frac{1}{125 \text{ mL A}} = 0.20 \text{ M HNO}_3$$

- 4) If it takes 2.4 mL of 0.125 mol/L LiOH to neutralize a 0.27 mol/L solution of chloric acid HClO, what volume of HClO did you start with?



$$\frac{n_B C_A V_A}{n_B C_A} = \frac{C_B V_B n_A}{n_B C_A}$$

$$= \frac{(0.125 \text{ M B})(2.4 \text{ mL})(1 \text{ mol A})}{(1 \text{ mol B})(0.27 \text{ M A})} = 1.1 \text{ mL}$$

HClO

$$\frac{3.5 \text{ g HCl}}{1 \text{ L}} \times \frac{1 \text{ mol HCl}}{36.5 \text{ g}} = 0.096 \frac{\text{mol}}{\text{L}}$$

- 5) If it takes 10.0 mL of a 3.5 g/L HCl solution to neutralize 15.0 mL of NaOH, what was the concentration of NaOH?



$$10.0 \text{ mL A} \times \frac{0.096 \text{ mol A}}{1 \text{ L}} \times \frac{1 \text{ mol B}}{1 \text{ mol A}} \times \frac{1}{15.0 \text{ mL B}} =$$

$$6.4 \times 10^{-2} \frac{\text{mol}}{\text{L}} \text{ NaOH}$$

- 6) If it takes 5.7 mL of 0.20 M H₂SO₄ to neutralize 10.0 mL of KOH what was the concentration of the base?



$$5.7 \text{ mL A} \times \frac{0.20 \text{ mol A}}{1 \text{ L A}} \times \frac{2 \text{ mol B}}{1 \text{ mol A}} \times \frac{1}{10.0 \text{ mL B}} = 2.28 \times 10^{-2} \frac{\text{mol}}{\text{L}}$$

KOH

$$1nA : 2nB!$$

the mole ratio
of
A to B
is
NOT
1:1!
watch
out!