

TITRATION CALCULATIONS

Follow the procedure every time

Example Question: If 25cm^3 of a solution of sodium hydroxide is exactly neutralised by 13.5 cm^3 of 0.6 mol dm^{-3} hydrochloric acid, what is the concentration of the alkali?

STEP 1: Write out a balanced equation for the neutralisation reaction



STEP 2: Determine the 'mole ratio' between acid and alkali using the balanced equation

"The balanced equation above tells us that 1 mole of acid reacts with 1 moles of alkali"

STEP 3: Split the page into 2 sections and write in all the values you know:

ACID	ALKALI
$N = C \times V = 0.0081$	$N = ?$
$C = 0.6\text{ mol/dm}^3$	$C = ?$
$V = 0.0135\text{ dm}^3$	$V = 0.025\text{ dm}^3$

Key points:

- You should have 2 values of the known solution and only 1 value for the unknown solution
- Remember to convert any volumes from cm^3 into dm^3 by dividing by 1000

STEP 4: Use the 'mole ratio' to find the value for N of the unknown solution

"The balanced equation above tells us that 1 mole of acid reacts with 1 mole of alkali"

Therefore 0.0081 moles of acid will react with 0.0081 moles of alkali.

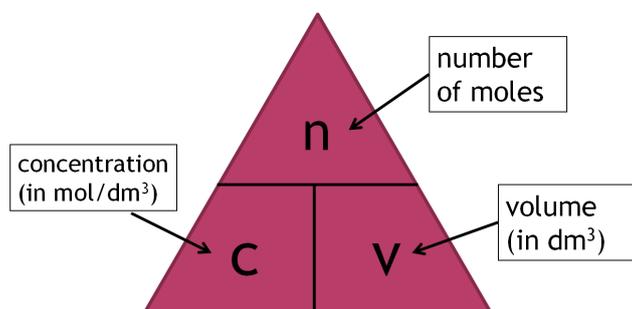
STEP 5: Use the triangle to complete the calculation now that you know 2 values for the unknown solution.

ALKALI

$$N = 0.0081\text{ moles}$$

$$C = N/V = 0.0081/0.025 = \underline{\underline{3.24\text{ mol/dm}^3}}$$

$$V = 0.025\text{ dm}^3$$



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ALKALI

N =

C = N/V =

V =

