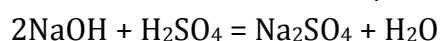Answer on Question #63561, Chemistry / Inorganic Chemistry

Question:

what is the concentration of the naoh(aq) given that 20.8cm3 of 0.0500 moldm-3 h2so4 neutralises 25.0cm3 of it?

Solution:

1) Write down the balanced equation:
   $2NaOH + H_2SO_4 = Na_2SO_4 + H_2O$
   We can see than 1 mole of acid neutralizes 2 moles of NaOH.
2) Let's calculate amount of moles of acid in solution:
   $20.8 \text{ cm}^3 = 0.0208 \text{ dm}^3$.
   So 0.0208 dm^3 of $0.0500 \text{ moldm}^{-3}$ solution contains $0.0208 * 0.0500 = 0.00104$ moles of acid.
3) Using 1) we can conclude that NaOH solution contains $0.00104 * 2 = 0.00208$ moles of NaOH.
   $25.0 \text{ cm}^3 = 0.0250 \text{ dm}^3$. So the concentration is 0.00208 moles $/ 0.0250 \text{ dm}^3 = 0.0832 \text{ mol/dm}^3$.

Answer:

The concentration of NaOH solution is 0.0832 mol/dm^3.