ANSWER TO "TRY YOURSELF" PROBLEM FROM STUDY SECTION 4.7

1.065 g of $H_2C_2O_4$ (oxalic acid) requires 35.62 mL of NaOH for titration to an equivalence point. Calculate the concentration of the NaOH.

 $H_2C_2O_4(aq) + 2 \text{ NaOH}(aq) \rightarrow Na_2C_2O_4(aq) + 2 H_2O(liq.)$

Try Yourself 4.7
1.065 g H2 C2 O4 (oxalic acid) requires 35.62 mL
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NaOH.
$$M = 90.023 met^{-1}$$

H2 C2 O4 (ag) + 2 NaOH(ag) $\rightarrow Na_2 C_2 O_4 (ag) + 2 H2 Cl
1.065 g 35.62 mL
 $LD C = ?$
Calculate mol amount of H2 C2 O4.
 $n = \frac{M}{M} = \frac{1.0653}{90.023 gmol^{-1}} = 0.012 mol H(22 O4)$
Mol hatio between H2 C2 O4 and MaOH
 $H2 C2 O4 : NaOH$
 $1 : 2$
 $\therefore n_{NaOH} = 2(n_{C2H_2O_4}) = 2(0.012) = 0.024 mol$
Calculate concentration:
 $C_{MaOH} = \frac{n_{MaOH}}{N_{NaOH}} = \frac{0.024 mol}{0.03562 L}$
 $\therefore [NaOH] = 0.674 M$$

Remember to convert the volume in millilitre (mL) to dm³ (L) because per definition the concentration (molarity) is equal to mol per dm³ solution. So, 35.62 mL = 0.03562 dm³