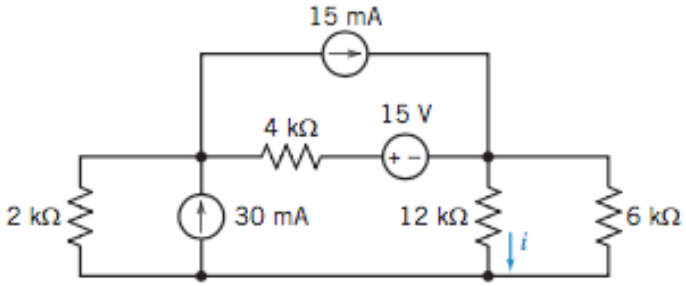
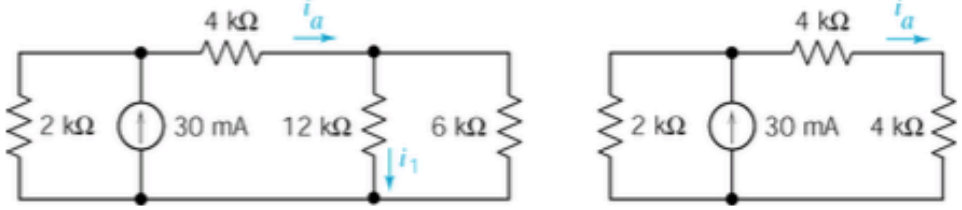
Solution of Assignment 5, by Emad Gad

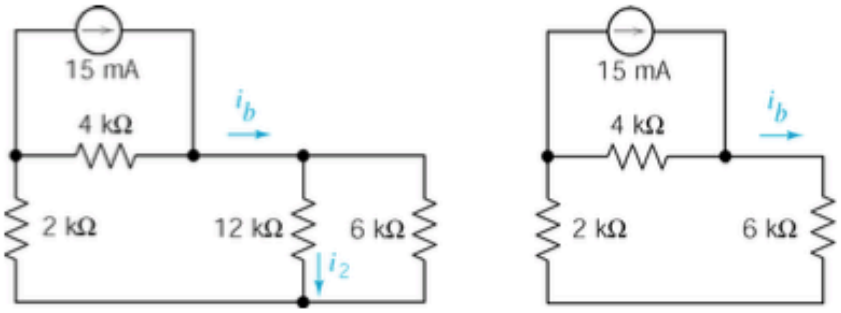


Consider 30 mA source only (open 15 mA and short 15 V sources). Let i_1 be the part of i due to the 30 mA current source.



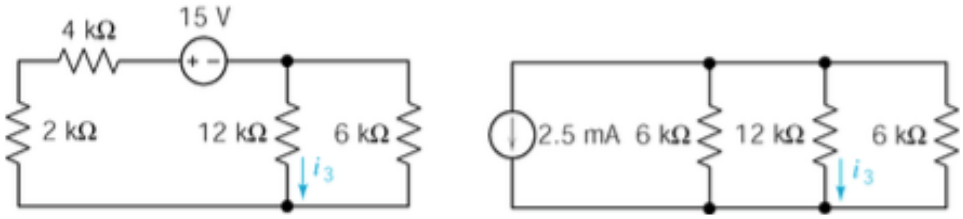
$$i_a = 30\left(\frac{2}{2+8}\right) = 6 \text{ mA} \quad \Rightarrow \quad i_1 = i_a\left(\frac{6}{6+12}\right) = \underline{2 \text{ mA}}$$

Consider 15 mA source only (open 30 mA source and short 15 V source) Let i_2 be the part of i due to the 15 mA current source.



$$i_b = 15\left(\frac{4}{4+6}\right) = 6 \text{ mA} \quad \Rightarrow \quad i_2 = i_b\left(\frac{6}{6+12}\right) = \underline{2 \text{ mA}}$$

Consider 15 V source only (open both current sources). Let i_3 be the part of i due to the 15 V voltage source.



$$i_3 = -2.5\left(\frac{6\|6}{(6\|6)+12}\right) = -10\left(\frac{3}{3+12}\right) = \underline{-0.5 \text{ mA}}$$

Finally, $\underline{i = i_1 + i_2 + i_3 = 2+2-0.5 = 3.5 \text{ mA}}$