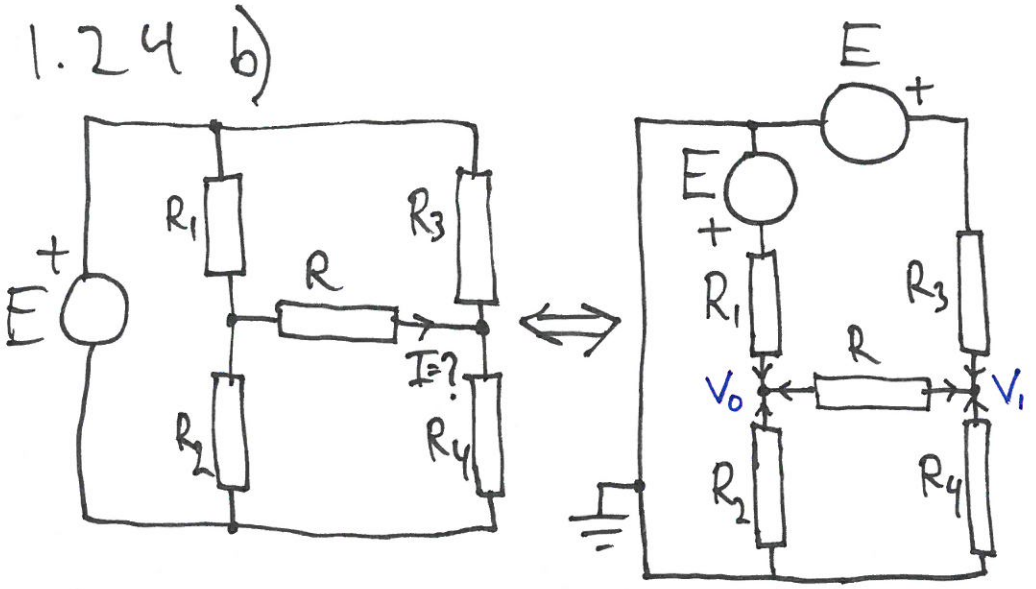
1.24 b)



$E = 6\ V$

$R_1 = 1\Omega$

$R_2 = 5\Omega$

$R_3 = 2\Omega$

$R_4 = 4\Omega$

$R = 3\Omega$

$$\begin{cases} \frac{0-V_0}{R_2} + \frac{E-V_0}{R_1} + \frac{V_1-V_0}{R} = 0 \\ \frac{V_0-V_1}{R} + \frac{E-V_1}{R_3} + \frac{0-V_1}{R_4} = 0 \end{cases} \Leftrightarrow$$

$$\begin{cases} -\left(\frac{1}{R}+\frac{1}{R_1}+\frac{1}{R_2}\right)\cdot V_0 + \frac{1}{R}\cdot V_1 = \frac{-E}{R_1} \\ \frac{1}{R}\cdot V_0 - \left(\frac{1}{R}+\frac{1}{R_3}+\frac{1}{R_4}\right)\cdot V_1 = \frac{-E}{R_3} \end{cases} \Leftrightarrow$$

$$\begin{cases} -\left(\frac{1}{3}+\frac{1}{1}+\frac{1}{5}\right)\cdot V_0 + \frac{1}{3}\cdot V_1 = \frac{-6}{1} \\ \frac{1}{3}\cdot V_0 - \left(\frac{1}{3}+\frac{1}{2}+\frac{1}{4}\right)\cdot V_1 = \frac{-6}{2} \end{cases} \Leftrightarrow \begin{cases} -\frac{23}{15}\cdot V_0 + \frac{1}{3}\cdot V_1 = -6 \quad (1) \\ \frac{1}{3}\cdot V_0 - \frac{13}{12}\cdot V_1 = -3 \quad (2) \end{cases}$$

$(2) \Rightarrow V_0 = -9 + \frac{13}{4}\cdot V_1 \quad (*)$

$(*)$ insatt i (1) ger:

$$-\frac{23}{15}\cdot\left(-9+\frac{13}{4}\cdot V_1\right) + \frac{1}{3}\cdot V_1 = -6 \Leftrightarrow \frac{69}{5} + \left(\frac{1}{3} - \frac{23\cdot 13}{15\cdot 4}\right)\cdot V_1 = -6 \Leftrightarrow$$

$$\frac{20-299}{60}\cdot V_1 = \frac{-30-69}{5} = \frac{-99}{5} \Leftrightarrow V_1 = \frac{-99}{5}\cdot\frac{60}{-279} = \frac{-9\cdot 11}{\cancel{5}}\cdot\frac{\cancel{5}\cdot 12}{-9\cdot 31} = \frac{132}{31} V$$

$$(*) = -9 + \frac{13}{4}\cdot\frac{132}{31} = \frac{-31\cdot 9}{31} + \frac{13}{\cancel{4}}\cdot\frac{11\cdot\cancel{4}\cdot 3}{31} = \frac{-279+429}{31} = \frac{150}{31}$$

$$I = \frac{V_0 - V_1}{R} = \frac{\frac{150-132}{31}}{3} = \frac{6}{31} \approx 0.19\ A$$

$$\boxed{I \approx 0.19\ A}$$