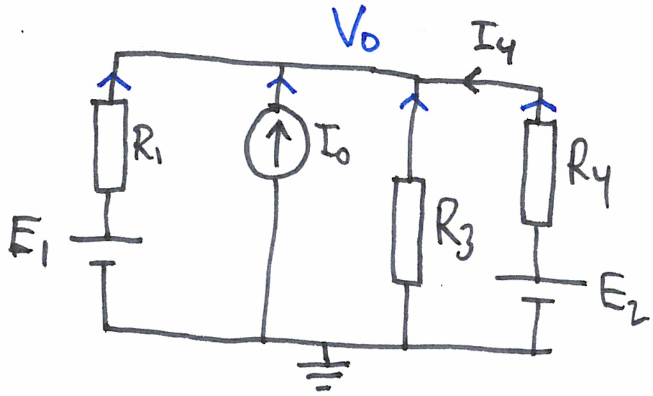
A 1.10) Lösning med hjälp av nodanalys:

Borttagning av R_2 och eliminering av E_1 som ensam källa ger:



$E_1 = 1{,}5\,V,\ E_2 = 12\,V,\ I_0 = 1{,}5\,A$
$R_1 = 3{,}0\,\Omega,\ R_2 = 7{,}0\,\Omega$
$R_3 = 6{,}0\,\Omega,\ R_4 = 2{,}0\,\Omega$

$$\frac{E_1 - V_0}{R_1} + I_0 + \frac{0 - V_0}{R_3} + \frac{E_2 - V_0}{R_4} = 0 \Rightarrow$$

$$\frac{E_1}{R_1} - \frac{V_0}{R_1} - \frac{V_0}{R_3} + \frac{E_2}{R_4} - \frac{V_0}{R_4} = -I_0 \Rightarrow$$

$$-\left(\frac{1}{R_1} + \frac{1}{R_3} + \frac{1}{R_4}\right)\cdot V_0 = -\frac{E_1}{R_1} - \frac{E_2}{R_4} - I_0 \Rightarrow$$

$$V_0 = \frac{-\frac{E_1}{R_1} - I_0 - \frac{E_2}{R_4}}{-\left(\frac{1}{R_1} + \frac{1}{R_3} + \frac{1}{R_4}\right)} = \frac{\frac{1.5}{3} + 1.5 + \frac{12}{2}}{\frac{1}{3} + \frac{1}{6} + \frac{1}{2}} = 8\ V$$

$$I_4 = \frac{E_2 - V_0}{R_4} = \frac{12 - 8}{2} = 2.0\ A$$

$$\boxed{I_4 = 2.0\ A}$$