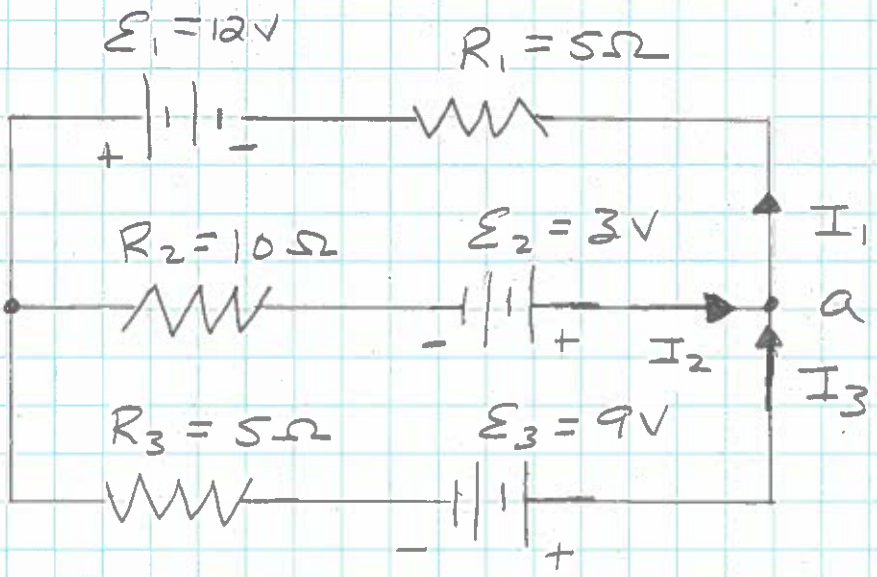

Assume currents as shown:

Junction at a: $I_3 + I_2 = I_1$ (1)

Top loop ↶ from a: $-I_1R_1 + \mathcal{E}_1 - I_2R_2 + \mathcal{E}_2 = 0$ (2)

Bottom loop ↷ from a: $-\mathcal{E}_3 + I_3R_3 - I_2R_2 + \mathcal{E}_2 = 0$ (3)

subst. (1) → (2):

$$-(I_3 + I_2)R_1 + \mathcal{E}_1 - I_2R_2 + \mathcal{E}_2 = 0$$

or, $$-I_3R_1 - (R_1 + R_2)I_2 + \mathcal{E}_1 + \mathcal{E}_2 = 0 \quad (4)$$

equations (4) and (3) with numbers:

$$5I_3 - 10I_2 = 6 \quad (3)$$

$$-5I_3 - 15I_2 = -15 \quad (4)$$

add: equ'n (1) + equ'n (2):

$$-25I_2 = -9 \Rightarrow I_2 = \frac{9}{25}\,A = 0.36\,A$$

equ'n (3) → $I_3 = \frac{10I_2 + 6}{5}$

$I_3 = 1.92\,A$

and equ'n (1):

$I_1 = I_2 + I_3$

$I_1 = 2.28\,A$