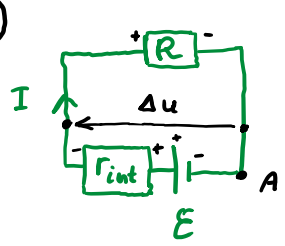
10.47



• Loi des mailles (de A) : $\mathcal{E} - r_{int} \cdot I - RI = 0$

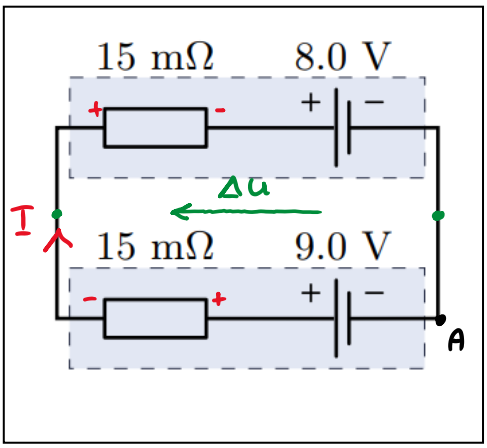
$\Delta u = \mathcal{E} - r_{int} \cdot I$

• Applications : $\begin{cases} 6 - r_{int} \cdot I - 2 \cdot I = 0 \\ 4,9 = 6 - r_{int} \cdot I \end{cases}$

$4,9 = 2I \Rightarrow I = \frac{4,9}{2} = 2,45\ A$

$\Rightarrow r_{int} = \frac{4,9-6}{-I} = 0,45\ \Omega$

10.48



On cherche Δu !

(a). Loi des mailles, à partir de A :

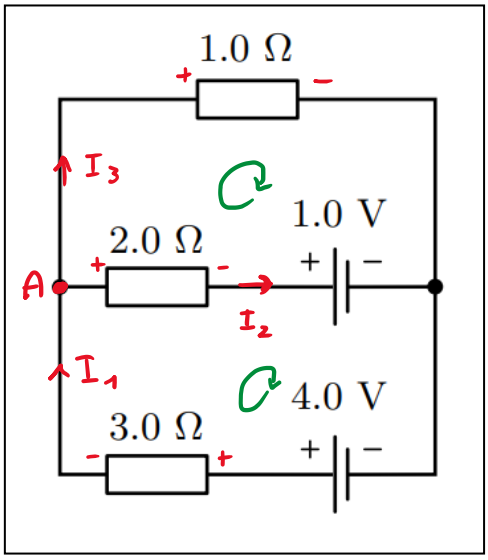
$9,0 - 0,015I \cdot 2 - 8,0 = 0$

$-0,03I = -1,0$

$I = \frac{1,0}{0,030} = 3,3 \cdot 10^{1}\ A$

(b). $\Delta u = 9,0 - 0,015 \cdot I = 8,5\ V$

10.50



• Loi des nœuds en A : $I_1 = I_2 + I_3$ (1)

• Loi des mailles haut, de A :

$-I_3 + 1 + 2I_2 = 0$ (2)

• Loi des mailles bas, de A :

$-2I_2 - 1 + 4 - 3I_1 = 0$ (3)

Résolution (on cherche I_1 et I_2) :

(1) → (2) : $I_3 = I_1 - I_2 \Rightarrow -I_1 + I_2 + 1 + 2I_2$

$= -I_1 + 3I_2 + 1 = 0$

$\Rightarrow \begin{cases} -I_1 + 3I_2 = -1 \\ -3I_1 - 2I_2 = -3 \end{cases}$ $\cdot(-3)$; $\Rightarrow$ $3I_1 - 9I_2 = 3$

$+(-3I_1 - 2I_2 = -3)$

$-11I_2 = 0 \Rightarrow I_2 = 0\ A$! (a)

$\Rightarrow -I_1 = -1 + 3 \cdot I_2 \Rightarrow I_1 = 1A$

$\Rightarrow \mathcal{P}_{dissipée} = R I_1^2 = 3\ W$ (b)