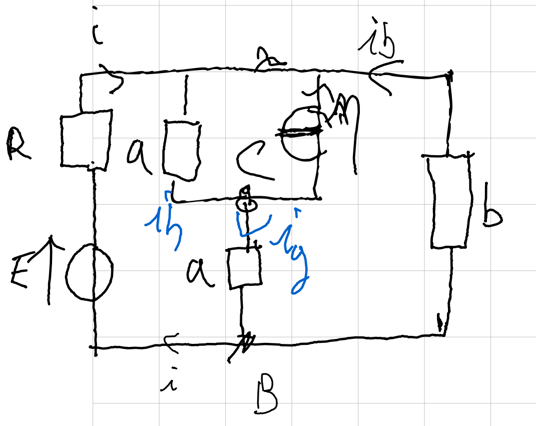

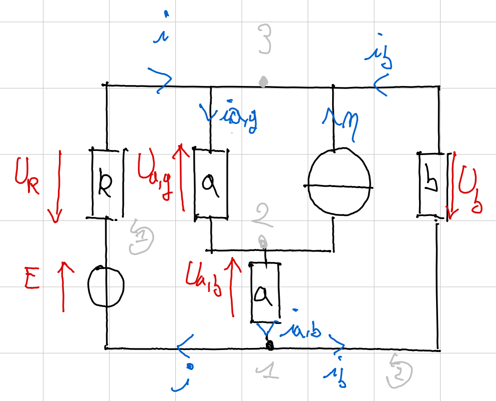

LdM1: $E = Ri + a\left(i_{ab} + i_{ag}\right)$

LdM2: $E + b i_b = Ri$

4 éq° indépendantes

LdN1: $i_{ab} = i + i_b$

inconnues: $i, i_b, i_{ag}, i_{ab} = 4$ ✓

LdN2: $i_{ag} = \eta + i_{ab}$

(LdN3: $i_{ag} = i + i_b + \eta$)

LdM1 et LdM2: $E - Ri = a\left(i_{ab} + i_{ag}\right) = -b i_b$

$\Leftrightarrow i_b = -\frac{a}{b}\left(i_{ab} + i_{ag}\right)$ (1)

LdN1 et LdN2: $i_{ab} + i_{ag} = 2i_{ab} + \eta = 2(i + i_b) + \eta$ (2)

(1) et (2): $-b i_b = a\left(2(i + i_b) + \eta\right)$

$\Leftrightarrow i_b(b + 2a) = -2ai - a\eta$

$\Leftrightarrow i_b = -\frac{2ai + a\eta}{b + 2a}$ (3)

LdM2 ← (3) $\Leftrightarrow E - \frac{b}{b+2a}\left(2ai + a\eta\right) = Ri$

$\Leftrightarrow (b+2a)E - b(2ai + a\eta) = Ri(b+2a)$

$\Leftrightarrow i\left(R(2a+b) + 2ab\right) = (2a+b)E - ab\eta$

$\Leftrightarrow \boxed{i = \frac{(2a+b)E - ab\eta}{(2a+b)R + 2ab}}$