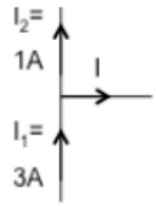
Chapitre 4

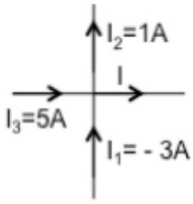
Application 1



$I_1 = I_2 + I$

$I = I_1 - I_2$

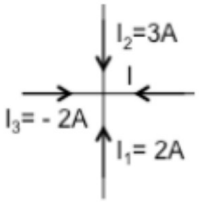
$I = 2A$



$I_3 + I_1 = I_2 + I$

$I = I_3 + I_1 - I_2$

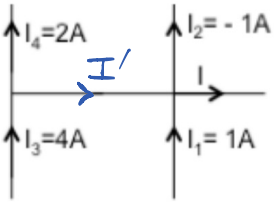
$I = 1A$



$I_1 + I_3 + I_2 + I = 0$

$I = -(I_1 + I_3 + I_2)$

$I = -3A$



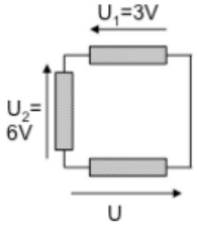
$I' = I_3 - I_4 = 2A$

$I' + I_1 = I_2 + I$

$I = I' + I_1 - I_2$

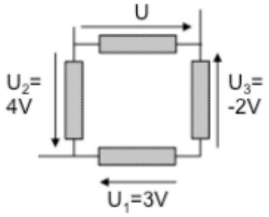
$I = 3A$

Application 2



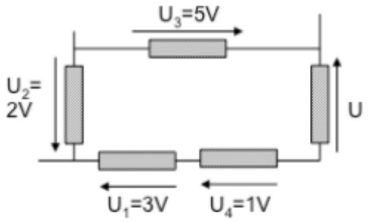
$U = U_2 - U_1$

$U = 3V$



$U = U_2 - U_1 + U_3$

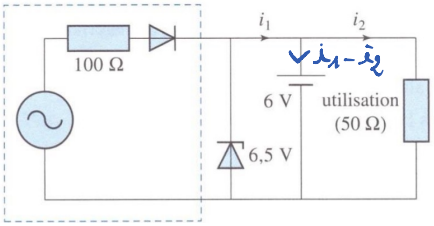
$U = -1V$

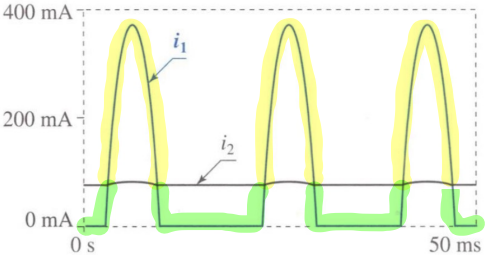


$U = U_4 + U_1 - U_2 + U_3$

$U = 7V$

Application 3

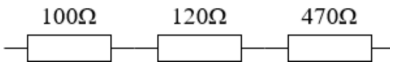




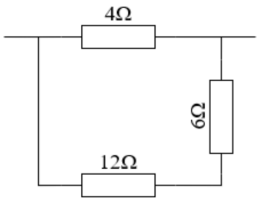
Puissance reçue : $P = 6 \times (i_1 - i_2)$

- > 0 si $i_1 > i_2$ récepteur
- < 0 si $i_1 < i_2$ générateur

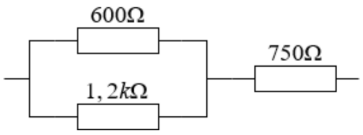
Application 4



$R_{eq} = 100 + 120 + 470 = 690\ \Omega$

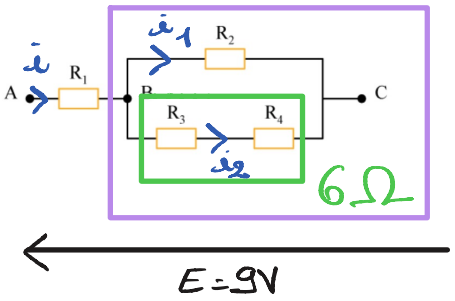


$R_{eq} = \dfrac{(12+6)\times 4}{12+6+4} = \dfrac{36}{11}\ \Omega$



$R_{eq} = \dfrac{600\times 1200}{1800} + 750 = 1150\ \Omega$

Application 5



$\dfrac{6\times 4}{6+4} = \dfrac{12}{5}\ \Omega$

$U_{BC} = E\dfrac{R_{BC}}{R_{AC}} = 9\times\dfrac{12/5}{12/5+4} = \dfrac{27}{8}\ V$

$i = \dfrac{E}{R_{AC}} = \dfrac{9}{32/5} = \dfrac{45}{32}\ A$

$i_1 = i\dfrac{R_2}{R_2+R_3+R_4} = \dfrac{45}{32}\times\dfrac{4}{10} = \dfrac{9}{16}\ A$

$i_2 = i - i_1$ ou $i\dfrac{R_3+R_4}{R_2+R_3+R_4} = \dfrac{45}{32}\times\dfrac{6}{10} = \dfrac{27}{32}\ A$