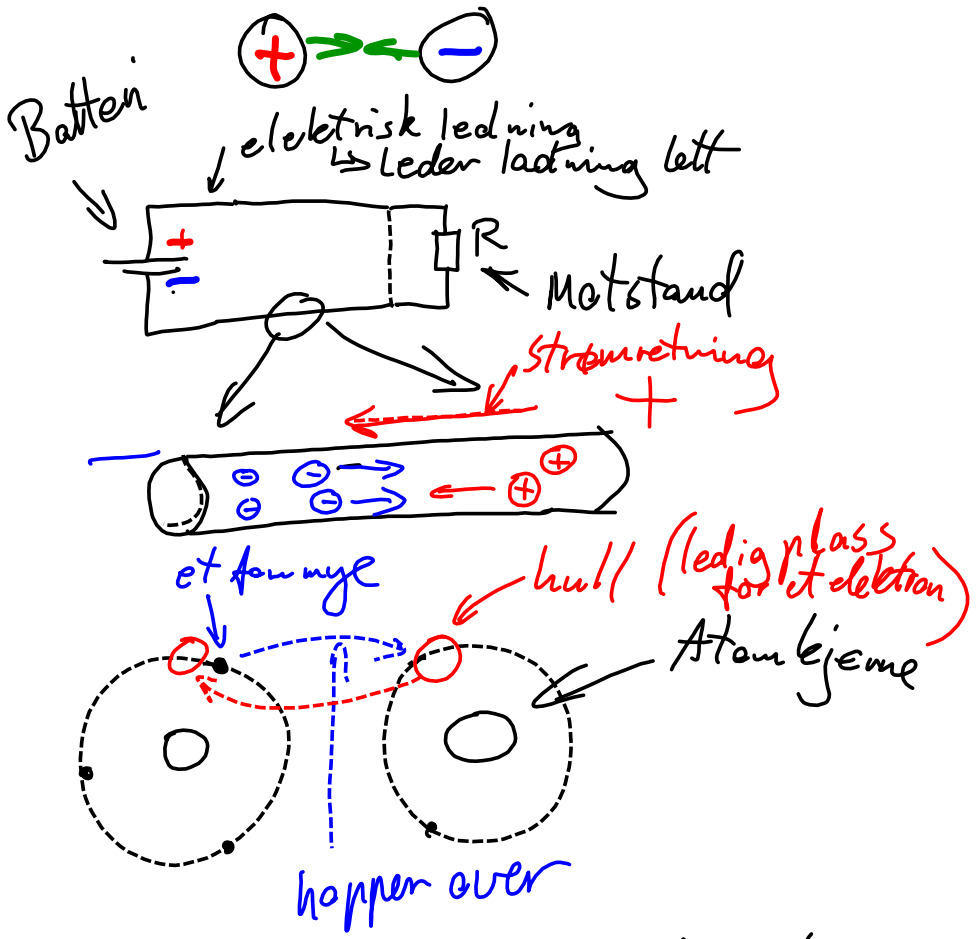
Ladning



Strømretning er definert den veien positiv ladning går

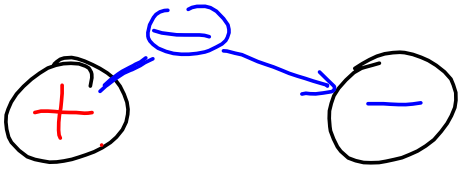
hull

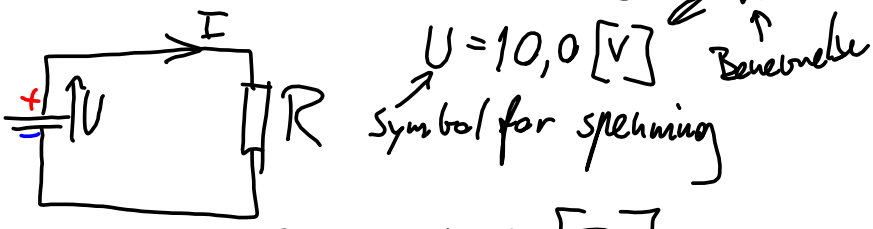
Strøm er ladning i bevegelse

Ladning : Coulomb [C]

Strøm : Ampere [A] benevnelse

Spenning



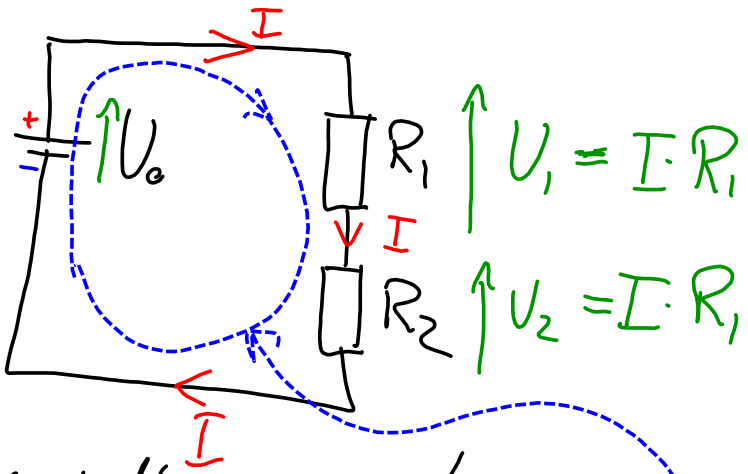


Motstand $R = 100\ [\Omega]$

Symbol

Benevnelse for motstand for ohm

$$I = \frac{U}{R} = \frac{10{,}0\,[V]}{100\,[\Omega]} = 0{,}1\,[A]$$

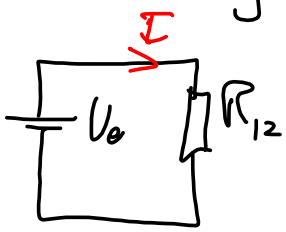


Kirchoff's spenningslov:
Summen av spenninger i en sløyfe er null

$$U_0 - U_1 - U_2 = 0$$

$$U_0 = U_1 + U_2$$

Ekvivalentskjema



Ekvivalent motstand

$$U_0 = I \cdot R_{12}$$

$$U_0 = U_1 + U_2$$

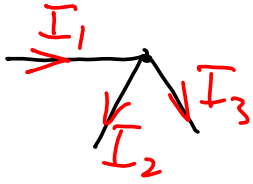
$$= I \cdot R_1 + I \cdot R_2$$

$$= I(R_1 + R_2)$$

Kirchoffs strømlov

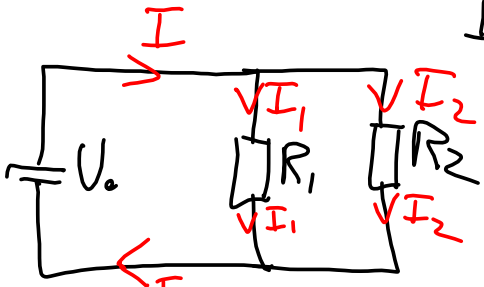
Summen av alle strømmer inn til et punkt er null

Pluss retning inn til punktet (velg selv)



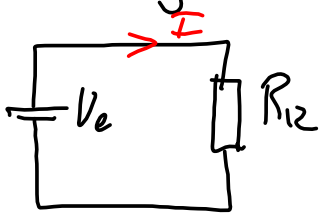
$$I_1 - I_2 - I_3 = 0$$

$$I_1 = I_2 + I_3$$



$$U_0 = I_1 \cdot R_1 = I_2 \cdot R_2$$

Ekvivalentskjema



$$U_0 = I \cdot R_{12} \Rightarrow I = \frac{U_0}{R_{12}}$$

$$I = I_1 + I_2$$

$$\frac{U_0}{R_{12}} = \frac{U_0}{R_1} + \frac{U_0}{R_2}$$

$$\frac{1}{R_{12}} = \frac{1}{R_1} + \frac{1}{R_2} = \frac{R_2 + R_1}{R_1 \cdot R_2}$$

$$R_{12} = \frac{R_1 \cdot R_2}{R_2 + R_1}$$

Effekt

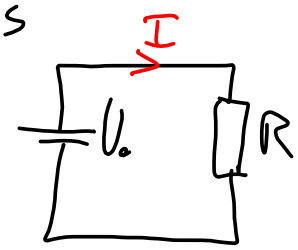
$P = 10\ [W]$ ← Benevnelse

↑ Watt

↑ Symbol

$P = U \cdot I$

Eks



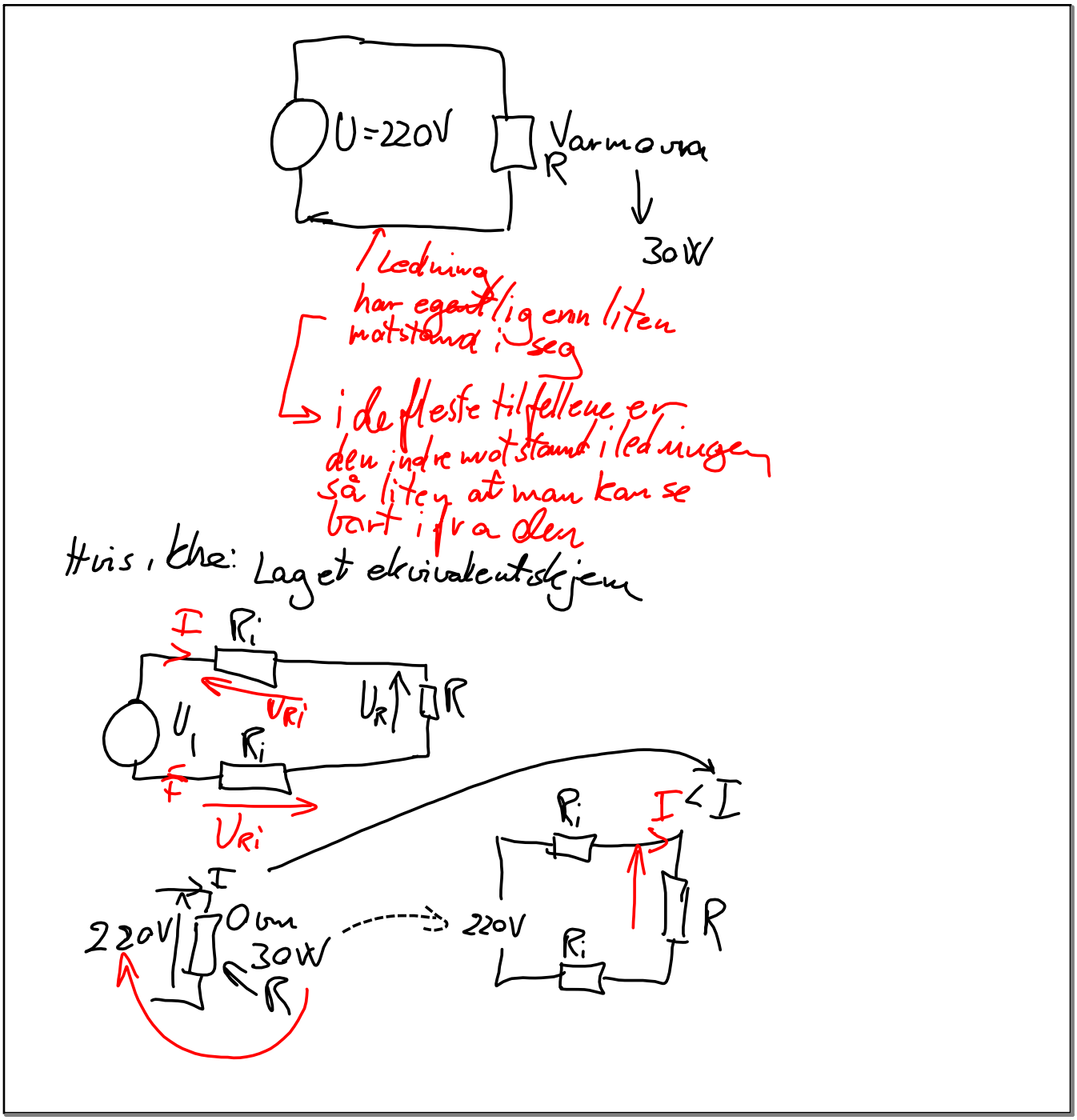
$U_0 = 10\ V$

$R = 100\ \Omega$

$I = \frac{U_0}{R} = \frac{10\ V}{100\ \Omega} = 0{,}1\ A$

$P = U \cdot I = 10\,[V] \cdot 0{,}1\,[A]$

$P = 1{,}0\,[W]$


U=220V
Varmovn
R
30W
Ledning
har egentlig enn liten
motstand i seg
i de fleste tilfellene er
den indre motstanden i ledningen
så liten at man kan se
bort ifra den
Hvis ikke: Laget ekvivalentskjema
I
R_i
U_R
R
U_1
R_i
U_{Ri}
U_{Ri}
I
220V
0hm
30W
R
220V
R_i
R_i
I < I
R