Sähköteho

$P = UI$ $\quad [P] = VA = W$ (Watti)

U = jännite (V)

I = virta (A)

$U = RI$

Joulen laki $P = UI = RI^2$

- "Vastuksen lämpöteho"

Energia

$E = Pt$

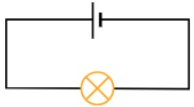
1 kWh = 1000 W · 3600 s

= 3 600 000 J

= 3,6 MJ

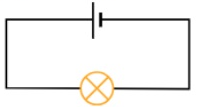
10-8. Mikä hehkulampuista palaa kirkkaimmin? Huomaa, että lamput ovat erilaisia.

a) 4,5 V



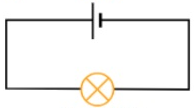
$R = 4{,}0\ \Omega$

b) 4,5 V



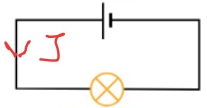
$R = 6{,}0\ \Omega$

c) 9,0 V



$R = 1{,}5\ \Omega$

d) 9,0 V



$R = 7{,}0\ \Omega$

$U = 9{,}0\,V$

d) Sähköteho

$P = UI = U \cdot \frac{U}{R} = \frac{U^2}{R}$

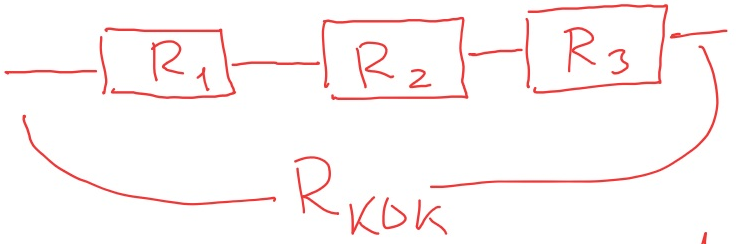
$= \frac{(9{,}0\,V)^2}{7{,}0\,\Omega}$

$U = RI$

$I = \frac{U}{R}$

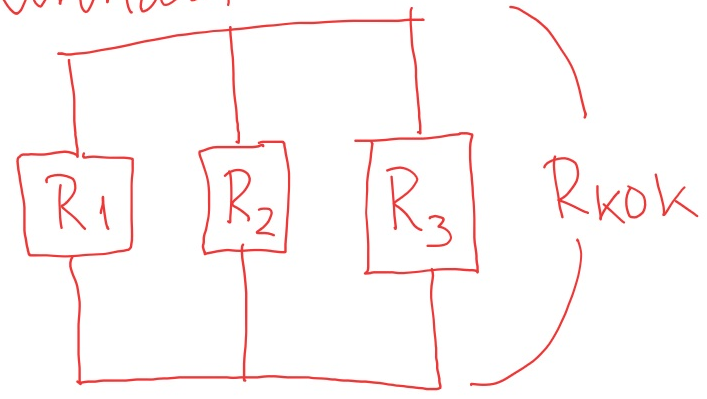
Vastuksen kytkennät

Sarjassa:



$$R_{KOK} = R_1 + R_2 + R_3$$

Rinnan



$$\frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} = \frac{1}{R_{KOK}}$$

$$R_{KOK} = \frac{1}{\frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}}$$