10.17 La résistance R du radiateur ne varie pas

$P = U^2/R \quad \Rightarrow \quad P_{230} = 230^2/R \qquad P_{120} = 120^2/R$

$\Rightarrow \frac{P_{230}}{P_{120}} = \frac{230^2}{R} \cdot \frac{R}{120^2} \cong 3,7$

10.18 $E = P \cdot t = 5,0\,W \cdot 8760 = 4,38 \cdot 10^4\,Wh \mathrel{\hat{=}} 43,8\,kWh$

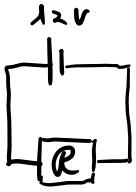
(1 année $= 365 \cdot 24 = 8760\,h$)

Si $1\,kWh \mathrel{\hat{=}} 0,20\,CHF \quad \Rightarrow$ Coût annuel $= 0,2 \cdot 43,8 = 8.76\,CHF$

10.19 (a). $P = U^2/R = 230^2/50 = 1058\,W$

(b). $U = RI \Rightarrow I = \frac{U}{R} = \frac{230}{50} = 4,6\,A$

10.20



(a). $P = \frac{U^2}{R} \Rightarrow R = \frac{U^2}{P} = \frac{12^2}{33} = 4,4\,\Omega$

(b). $I = \frac{U}{R} = \frac{12}{4,4} \cong 2,3\,A$

10.21 (a). $P = \frac{U^2}{R} \Rightarrow U^2 = R \cdot P \Rightarrow U = \sqrt{RP} = (680 \cdot 0,25)^{1/2} \cong 13\,V$

(b). $U = (680 \cdot 2,0)^{1/2} \cong 37\,V$