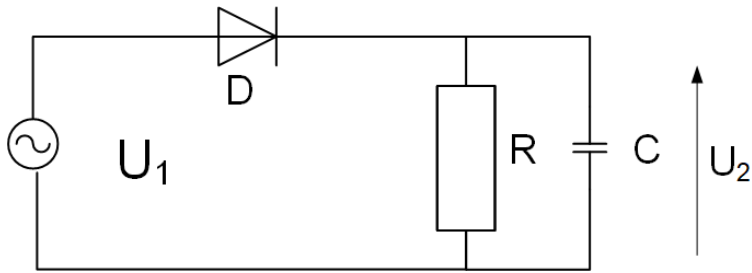
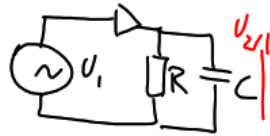
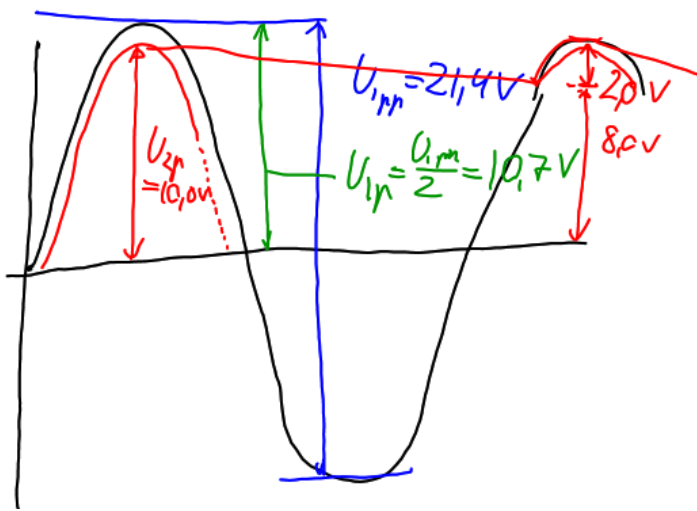


Ripple-spending på en likeretter, med en diode.

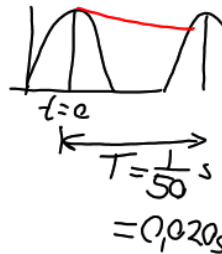


Anta at $U_{1PP} = 21,4$ V, og frekvensen er 50 Hz. Anta at $C = 10 \mu\text{F}$. Hvor stor må R være for at ripple-spendingen skal være maks 2,0 V?



$$U_{R1} = U_{2p} - U_{2p} e^{-\frac{t}{RC}}$$

$$= U_{2p} (1 - e^{-\frac{t}{RC}}) = 2,0 \text{ V}$$



$$U_{2P} = 10,0 \text{ [V]}$$

$$10,0 \text{ [V]} \cdot (1,00 - e^{-\frac{t}{RC}}) = 2,0 \text{ [V]}$$

$$(1,00 - e^{-\frac{t}{RC}}) = \frac{2,0 \text{ [V]}}{10,0 \text{ [V]}} = 0,20$$

$$e^{-\frac{t}{RC}} = 1,00 - 0,20 = 0,80$$

$$-\frac{t}{R \cdot C} \cdot \ln(e) = \ln(0,80) = -0,22$$

$$t = 0,22 \cdot R \cdot C$$

Ved $t = 0,020$ [s], blir:

$$R \cdot C = \frac{0,020}{0,22} = 0,090$$

$$R = \frac{0,090}{C} = \frac{0,090}{10 \cdot 10^{-6}} = 9,0 \cdot 10^3 \text{ [\Omega]}$$

$$R = 9,0 \text{ [k}\Omega\text{]}$$