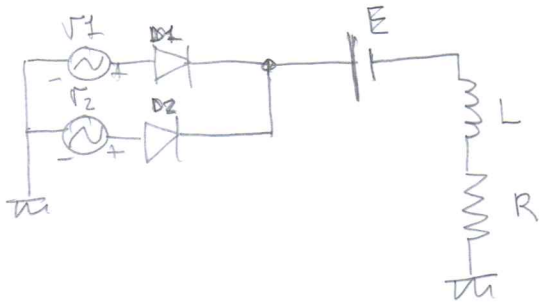
Exercícios CA/CC

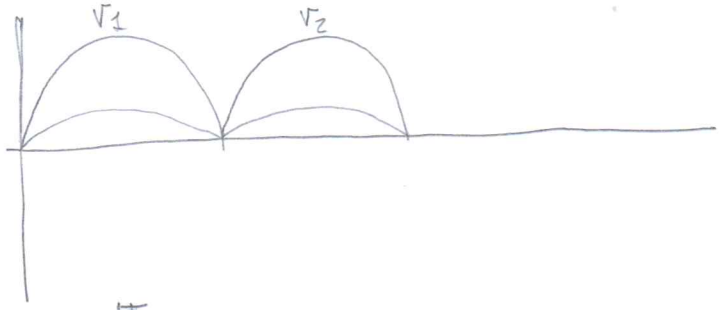
ex 1

$V_1 = V_2 = 230\sqrt{2}\,\text{sen}(100\pi t)$



i) $R = 10 \quad E = 0 \quad L = 0$

a)

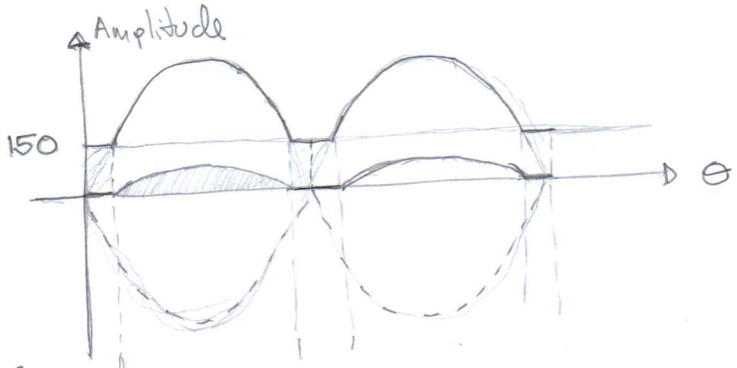


b) $\frac{1}{\pi}\int_0^{\pi} 230\sqrt{2}\,\text{sen}(\theta) = 207,072 = V_{méd}$

$\frac{1}{\pi}\int_0^{\pi} \frac{230\sqrt{2}\,\text{sen}(\theta)}{10} = 20,7077 = I_{méd}$

c) $P = \frac{1}{\pi}\int_0^{\pi} 230\sqrt{2}\,\text{sen}(\theta) \times \frac{230\sqrt{2}\,\text{sen}(\theta)}{10} = 5290\ W$

ii) $R = 10\ \Omega \quad E = 150$



$230\sqrt{2}\,\text{sen}(\theta) = E$

$\text{sen}\,\theta = \frac{E}{230\sqrt{2}} = 0,461156$

$\theta = \text{arcsen}\left(\frac{E}{230\sqrt{2}}\right) = 0,4792$

a) $\frac{1}{\frac{\pi}{2}} = \frac{2}{\pi}$ 0,4792 2,6622

$\pi = 2\pi$

$V_{0\,méd} = \frac{2}{\pi}\left(2\times\int_0^{0,4792} 150 + \int_{0,4792}^{2,6622} 230\sqrt{2}\,\text{sen}(\theta)\right)$

$= 229,499$