

Exercice 1

- (a) $U \approx 35\text{V}$
- (b) $i = 0.123\text{ A}$. $U_1 = 18.36\text{ V}$ $U_2 = 21.64\text{ V}$.

Exercice 2

- (a)
- (b) $L = 25\text{ mH}$

Exercice 3

- (a) $L = 1.1\text{ mH}$
- (b) $i = 1.36\text{ mA}$
- (c) $W_L = 1\text{ nJ}$

Exercice 4

- (a) $U_L(t) = 0.4\text{ V}$
- (b) $U_L(t) = 0.16\text{ V}$
- (c) $\phi_t = 0.08\text{ Wb}$

Exercice 5

$$i = \frac{20}{20 + 20} 12 = 6\text{ A}$$

Exercice 6

- (a) $i_{\max} = 2\text{ A}$.
- (b) $i(t) = 0.4 \exp\left(-t \frac{R}{L}\right)\text{ A}$, pour $t > 0$.
- (c) $\frac{di}{dt} = -100\text{ A/s}$
- (d) $Q = 1.6\text{ mJ}$

Exercise 7

$$i(t) = U_0 \sqrt{\frac{C}{L}} \sin\left(\frac{1}{\sqrt{LC}} t\right)$$

$$U(t) = L \frac{di(t)}{dt} = U_0 \cos\left(\frac{1}{\sqrt{LC}} t\right)$$

Exercise 8

(a) $\frac{di(t)}{dt} + \frac{R_{eq}}{L_{eq}} i_L(t) = \frac{R_{eq}}{L_{eq}} i_S$

(b) $\tau_c = 300 \text{ ns}$