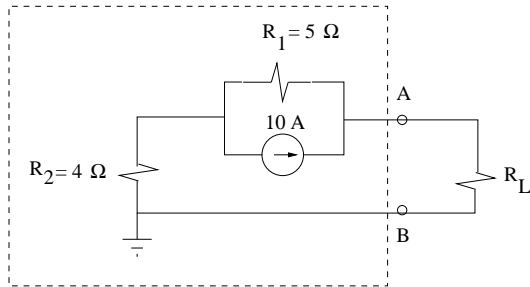


ES 332: Exercises

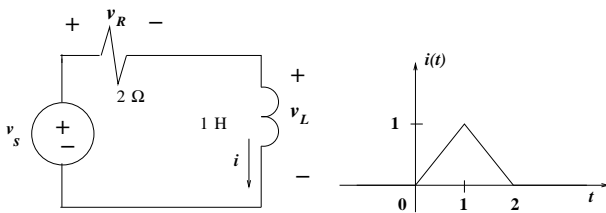
1. Given the circuit below:



- (a) Compute and draw the **Norton** equivalent circuit of the area surrounded by the dashed rectangle.
- (b) Compute and draw the **Thevenin** equivalent circuit of the area surrounded by the dashed rectangle.

2. For the circuit shown in the figure below, suppose that the current through the inductor is as described in the right. Find and sketch:

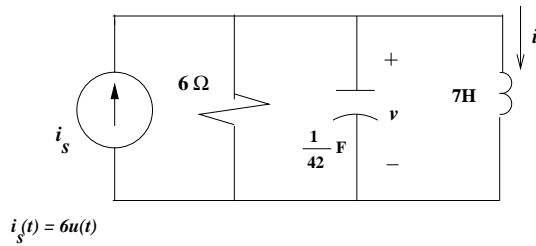
- (a) $v_L(t)$
- (b) $v_R(t)$
- (c) $v_s(t)$



3. For the circuit shown in the figure below, suppose that $i(0) = -4\text{A}$ and $v(0) = 0\text{ V}$. Find

(a) $v(t)$, and

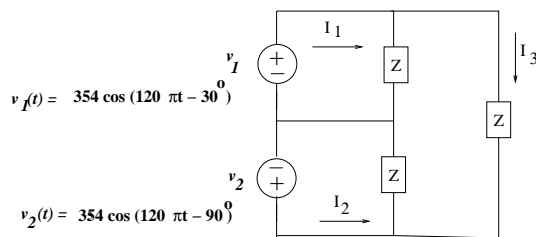
(b) $i(t)$.



4. For the circuit shown in the figure below, the impedance Z is made up of a Resistor $R = 78\Omega$ in series with a capacitor with capacitance $C = 60\mu\text{ F}$. determine the values of

(a) I_3 , and

(b) I_1 .



5. A voltage source $v_s(t) = \cos(2t)\text{ V}$, a $\frac{1}{4}\text{ F}$ capacitor, an inductor L , and a resistor R are all connected in series. Given that the voltage across the resistor is 2 V rms and the resistor absorbs 1 W , find R and L .