Question 1 [1]

If the voltage (v) and current (i) through a circuit element are given by:

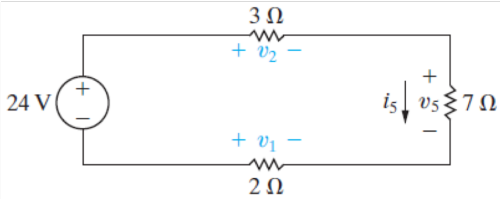
$$v(t) = e^{-t/2}$$
$$i(t) = e^{-t/2},$$

what is the total energy delivered to the element?

(a) 0 J
(b) 1 J
(c) $\frac{1}{4}$ J
(d) ∞

Question 2 [1]

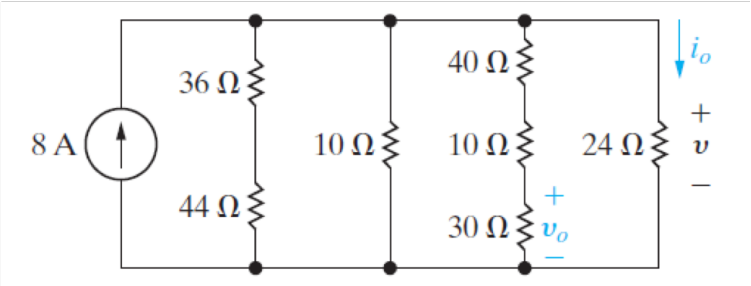
Compute the power delivered to the circuit shown below.



(a) 48 W
(b) 12 W
(c) 288 W
(d) 6 W

Question 3 [1]

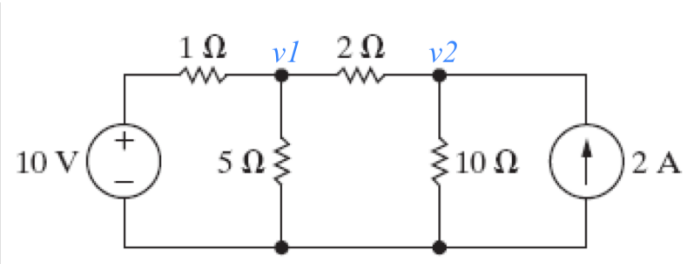
Find the equivalent resistance for the circuit shown below.



(a) 6 Ω
(b) 18 Ω
(c) 24 Ω
(d) 44 Ω

Question 4 [1]

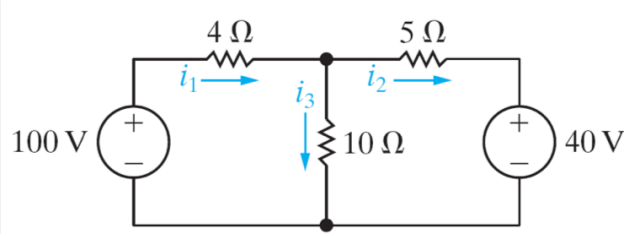
For the following circuit find the sum of the voltages $v1$ and $v2$.



(a) 10 V
(b) 9 V
(c) 20 V
(d) 5 V

Question 5 [1]

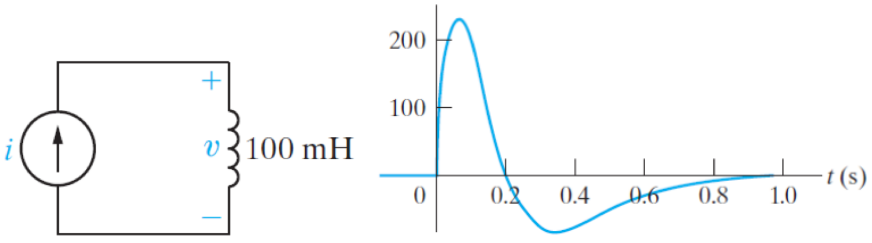
What is the value of i_3 in the circuit shown below?



(a) 10 A
(b) 4 A
(c) 14 A
(d) 6 A

Question 6 [1]

For $t > 0$, the current source generates a current, $i = 10te^{-5t}$ A, in the circuit shown below.

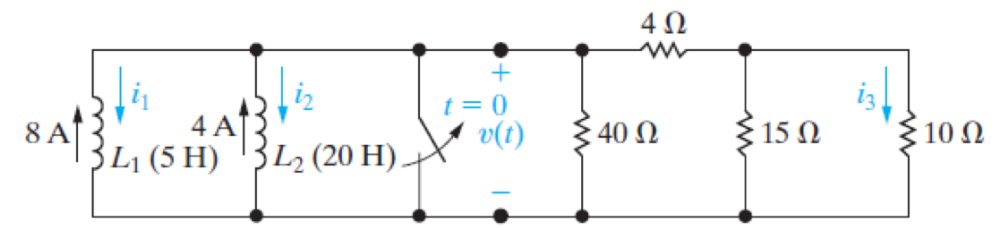


What does the corresponding graph show?

(a) Power
(b) Energy
(c) Current
(d) Voltage

Question 7 [1]

What is the value of the time constant for the RL circuit shown below?



(a) 0.590 s
(b) 3.125 s
(c) 0.500 s
(d) 0.333 s

Question 8 [1]

Consider a parallel RLC circuit. If, $R = 150\Omega$, $L = 50$ mH, and $C = 0.2\mu$F, is the circuit:
(a) Critically Damped
(b) Overdamped
(c) Underdamped

Question 9 [1]

Consider a parallel RLC circuit. If, $R = 250\Omega$, $L = 50$ mH, and $C = 0.2\mu$F, is the circuit:
(a) Critically Damped
(b) Overdamped
(c) Underdamped

Question 10 [1]

Consider a parallel RLC circuit. If, $R = 350\Omega$, $L = 50$ mH, and $C = 0.2\mu$F, is the circuit:
(a) Critically Damped
(b) Overdamped
(c) Underdamped