

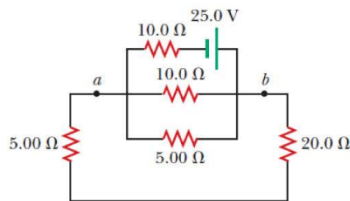
PHYS143

Physics for Engineers

Tutorial - Chapter 28

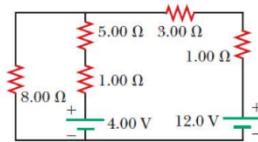
Question 1

Consider the circuit shown in Figure. Find (a) the current in the $20.0\text{-}\Omega$ resistor and (b) the potential difference between points a and b.



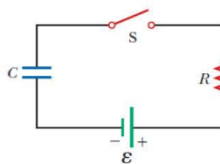
Question 2

The circuit shown in Figure is connected for 2.00 min . (a) Determine the current in each branch of the circuit. (b) Find the energy delivered by each battery.



Question 3

Consider a series RC circuit as in Figure for which $R = 1.00\text{ M}\Omega$, $C = 5.00\text{ }\mu\text{F}$, and $\mathcal{E} = 30.0\text{ V}$. Find (a) the time constant of the circuit and (b) the maximum charge on the capacitor after the switch is thrown closed. (c) Find the current in the resistor 10.0 s after the switch is closed.

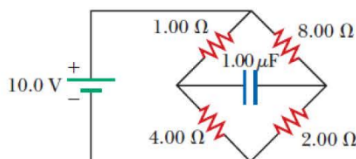


Question 4

A $10.0\text{-}\mu\text{F}$ capacitor is charged by a 10.0-V battery through a resistance R . The capacitor reaches a potential difference of 4.00 V in a time interval of 3.00 s after charging begins. Find R .

Question 5

The circuit in Figure has been connected for a long time. (a) What is the potential difference across the capacitor? (b) If the battery is disconnected from the circuit, over what time interval does the capacitor discharge to one-tenth its initial voltage?



Question 6

A charged capacitor is connected to a resistor and switch as in Figure. The circuit has a time constant of 1.50 s. Soon after the switch is closed, the charge on the capacitor is 75.0% of its initial charge. (a) Find the time interval required for the capacitor to reach this charge. (b) If $R = 250 \text{ k}\Omega$, what is the value of C ?

