

1. (1.14) Determine the current  $i(t)$  flowing through a resistor if the cumulative charge that has flowed through it up to time  $t$  is given by:

A)  $q(t) = 3.6t \text{ mC}$

B)  $q(t) = 5 \sin(377t) \mu\text{C}$

2. (2.13) Determine the current  $I$  in the circuit of Fig. P2.13 given that  $I_0 = 0$ .

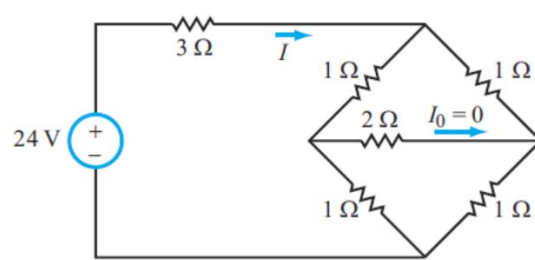


Figure P2.13: Circuit for Problem 2.13.

3. (2.31) Find  $I_0$  in the circuit of Fig. P2.31

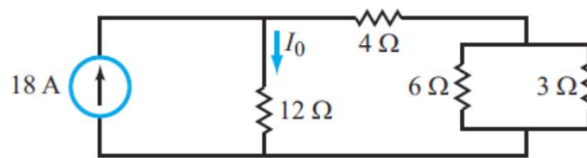


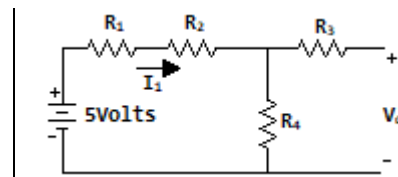
Figure P2.31: Circuit for Problem 2.31.

4. In the circuit below  $R_1 = R_2 = 1\text{K}$  and  $R_3 = R_4 = 4\text{K}$ . Find the value of the following. Show your work for full credit.

$I_1 =$  \_\_\_\_\_

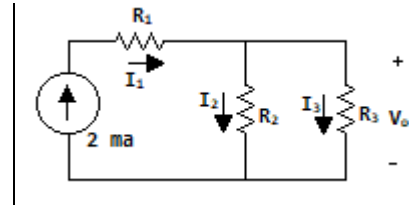
$V_o =$  \_\_\_\_\_

Voltage across  $R_4 =$  \_\_\_\_\_

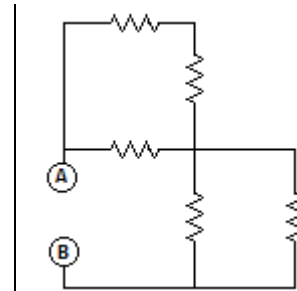


5. In the circuit below  $R_1 = 1\text{K}$ ,  $R_2 = 2\text{K}$  and  $R_3 = 4\text{K}$ . Find the value of the following. Show your work for full credit.

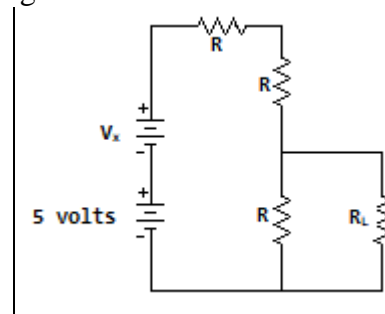
$I_1 =$  \_\_\_\_\_  
 $I_2 =$  \_\_\_\_\_  
 $I_3 =$  \_\_\_\_\_  
 $V_o =$  \_\_\_\_\_



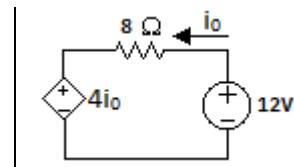
6. All of the resistors in the network below have a value of  $1\text{K}$ . What is the resistance between A-B?



7. In the circuit below  $R = R_L = 1\Omega$ . If  $R_L$  is dissipating 0.5 watts find the value of  $V_x$

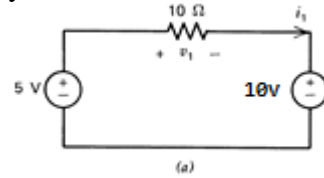


8. Find  $i_o$  in the following circuit.

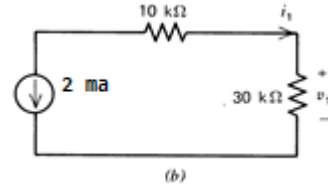


9. For each circuit below find the value of  $v_1$  and  $i_1$ . Show your work.

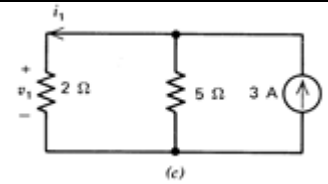
(a)  $v_1 = \underline{\hspace{2cm}}$      $i_1 = \underline{\hspace{2cm}}$



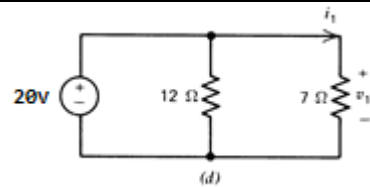
(b)  $v_1 = \underline{\hspace{2cm}}$      $i_1 = \underline{\hspace{2cm}}$



(c)  $v_1 = \underline{\hspace{2cm}}$      $i_1 = \underline{\hspace{2cm}}$



(d)  $v_1 = \underline{\hspace{2cm}}$      $i_1 = \underline{\hspace{2cm}}$



10. The graph below is a plot of the voltage and current for the circuit shown. From the graph estimate the value of  $R_x$  and  $V_x$ .

