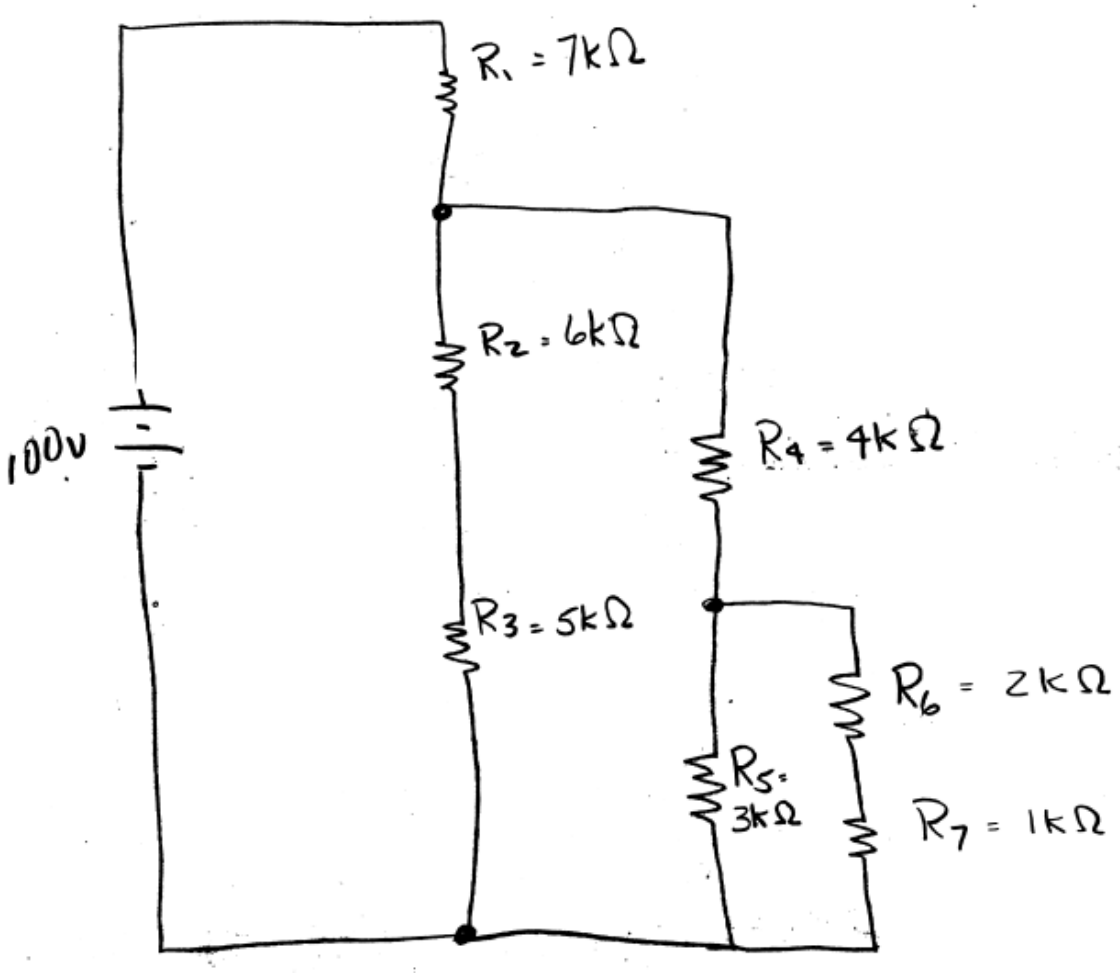
Basic Electricity – Unit 6: Other Basic Circuit Fundamentals

Homework 3

Instructions: Solve the following circuit.



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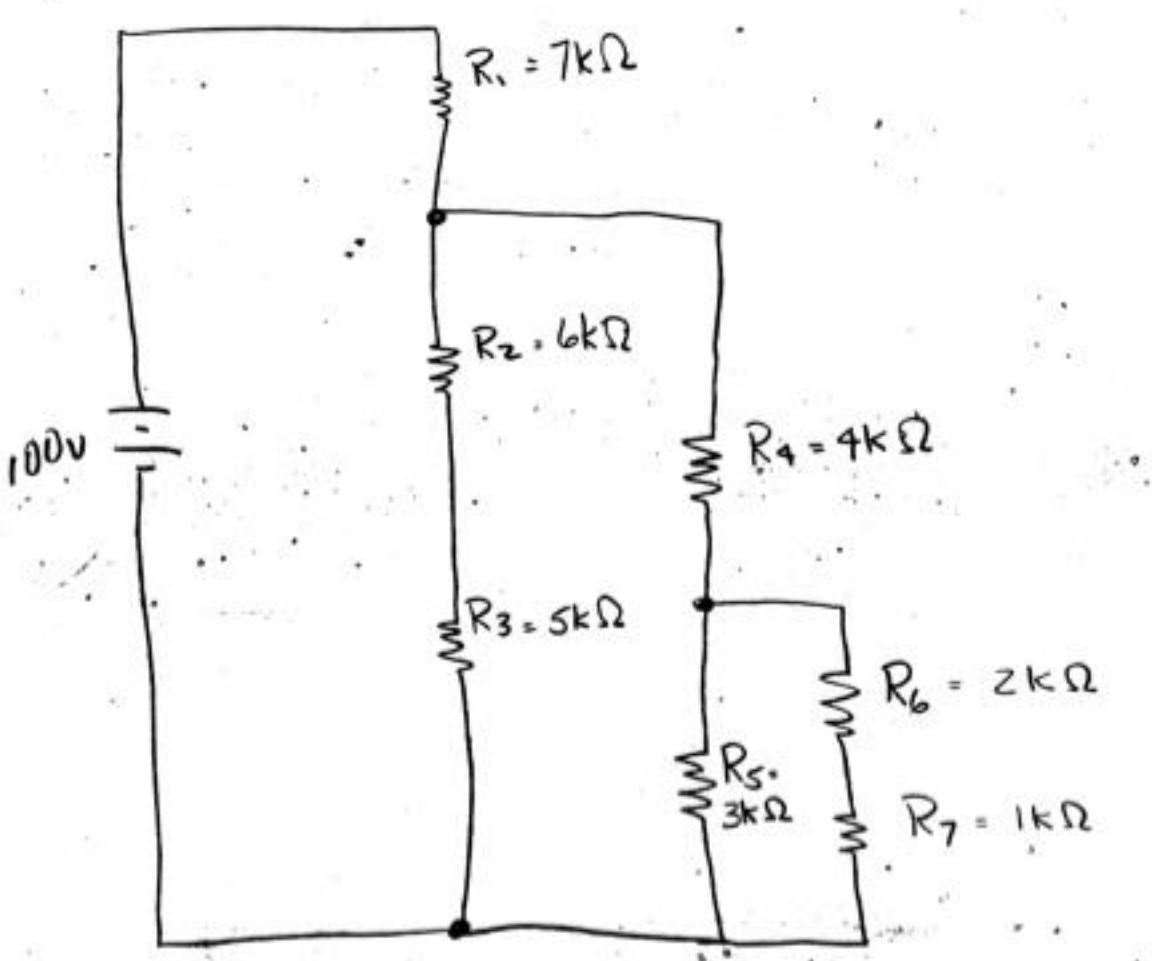
Solution:



$R_T = 10666.66911\ \Omega$

$E_T = 100\ V$

$I_T = \frac{E_T}{R_T} = .009374997\ A$

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(2)

$R_1 = 7k\Omega$

$E_1 = I_1 \times R_1 = 65.624984\,97\ V.$ (b)

$I_1 = I_T = .00937\,4997\ A.$ (a)

$R_2 = 6k\Omega$
$R_3 = 5k\Omega$:

$E_{2,3} = E_T - E_1 = 34.375015\,03\ V$ (c)

$I_{2,3} = \frac{E_{2,3}}{R_{2,3}} = .003125001\ A$ (d)

$E_2 = (I_{2,3}) \times R_2 = 18.750008\,2\ V$ (x)

$E_3 = (I_{2,3}) \times R_3 = 15.625\,00683\ V.$

$R_4 = 4k\Omega$

$I_4 = (I_T) - (I_{2,3}) = .00624999\,6\ A$ (y)

$E_4 = (I_4) \cdot (R_4) = 24.999\,98741\ V.$ (x)

$R_5 = 3k\Omega$

$E_5 = (E_{2,3}) - E_4 = 9.375\,02762\ V$ (a)

$I_5 = \frac{E_5}{R_5} = .003125009\ A$ (b)

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$E_{6,7} = E_5 = 9.37502762\ V$ (a) (3)

$I_{6,7} = \frac{E_{6,7}}{R_{6,7}} = .003125009\ A$ (c)

$E_6 = (I_{6,7})(R_6) = 6.250018413\ V$ (b)

$E_7 = (I_{6,7})(R_7) = 3.125009207\ V$

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