https://www.physicsforums.com/threads/finding-voltages-in-a-linear-circuit.983021/

V = 5 volts
I = 0.004 amps
R_1 = 100 ohms
R_2 = 200 ohms
R_3 = 350 ohms

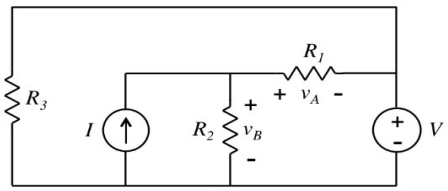

Figure 4-1

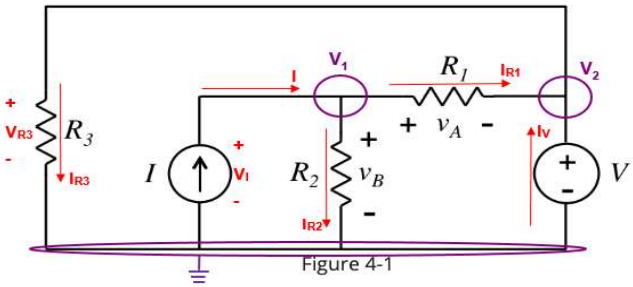

Figure 4-1

Node Voltage Method (Kirchoff's Current Law) :

KCL at Node 1 :

$- I + V_1 / R_2 + (V_1 - V_2) / R_1 = 0$

$V_1 / R_2 + (V_1 - V_2) / R_1 = I$

$R_1 V_1 + R_2 (V_1 - V_2) = I R_1 R_2$

$R_1 V_1 + R_2 V_1 - R_2 V_2 = I R_1 R_2$

$(R_1 + R_2) V_1 - R_2 V_2 = I R_1 R_2$

$300\ V_1 + -200\ V_2 = 80$

KCL at Node 2 : not necessary because $V_2 = V$

$0\ V_1 + 1\ V_2 = 5$

Solving 2 equations with 2 unknowns:

	K1	K2	Constant
Eq. 1	300	-200	80
Eq. 2	0	1	5

Variable	
V_1 =	3.6
V_2 =	5.0

$- I_V - I_{R1} + I_{R3} = 0$

$I_V = - I_{R1} + I_{R3}$

V = 5.0 volts I_V = 0.028 amps

$V_1 = V_1$

V_1 = 3.6 volts I = 0.004 amps

$V_{R1} = V_1 - V_2$ $I_{R1} = V_{R1} / R_1$

V_{R1} = -1.4 volts I_{R1} = -0.014 amps

$V_{R2} = V_1$ $I_{R2} = V_1 / R_2$

V_{R2} = 3.6 volts I_{R2} = 0.018 amps

$V_{R3} = V_2$ $I_{R3} = V_{R3} / R_3$

V_{R3} = 5.0 volts I_{R3} = 0.014 amps

Power Table				
Device	Voltage (volts)	Current (amps)	Power Delivered (watts)	Power Absorbed (watts)
V	5.0	0.028	0.1414	
I	3.6	0.004	0.0144	
R_1	-1.4	-0.014		0.0196
R_2	3.6	0.018		0.0648
R_3	5.0	0.014		0.0714
TOTAL			0.1558	0.1558