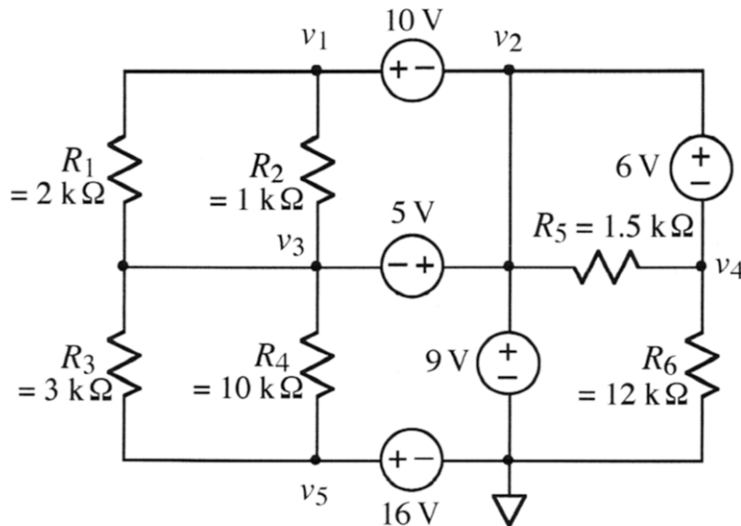


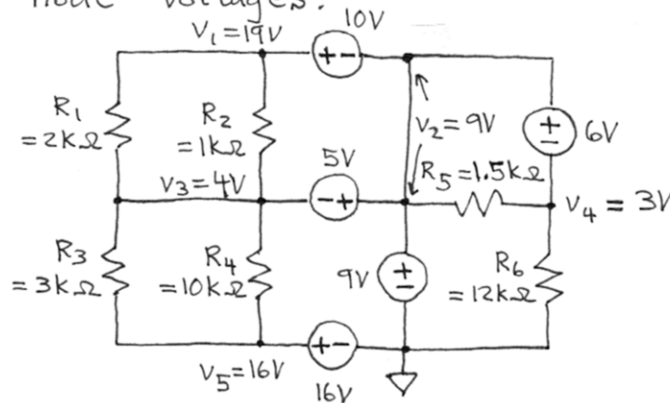
Ex:



Using Ohm's law and the node voltages, find the currents for all the resistors in the above circuit.

SOL'N:

Using the voltage sources directly connecting nodes, we have the following node voltages:



The difference in node voltages gives the voltage drop across each resistor, and Ohm's law gives the current. The following table lists v-drops and currents (measured with arrows pointing down or to the right) of each resistor.

R	Ω	v-drop	$i = v\text{-drop} / R$
R_1	2k	$19V - 4V = 15V$	7.5 mA
R_2	1k	$19V - 4V = 15V$	15 mA
R_3	3k	$4V - 16V = -12V$	-4 mA
R_4	10k	$4V - 16V = -12V$	-1.2 mA
R_5	1.5k	$9V - 3V = 6V$	4 mA
R_6	12k	$3V - 0V = 3V$	0.25 mA