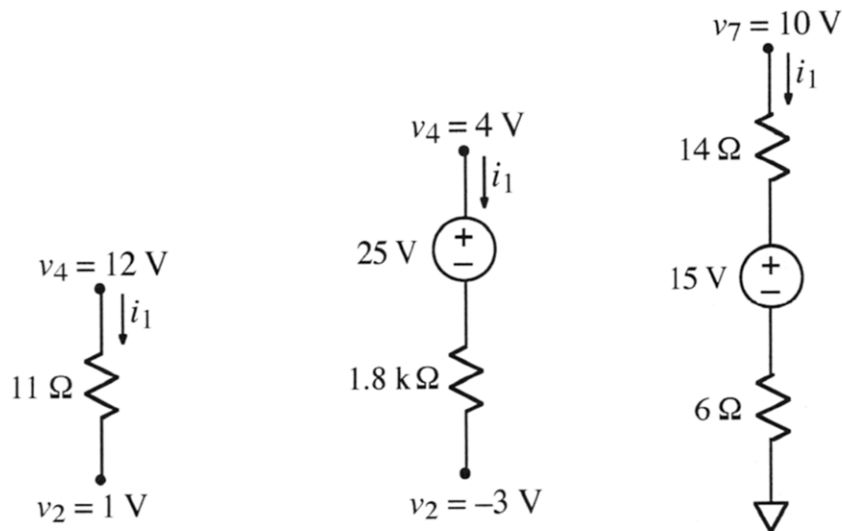


Ex:



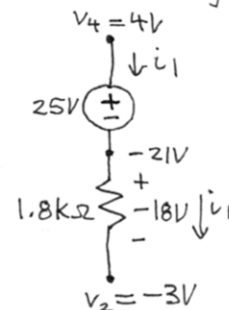
Find the value of current, i_1 , for each of the above circuits.

SOL'N: The current for the circuit on the left is given by Ohm's law:

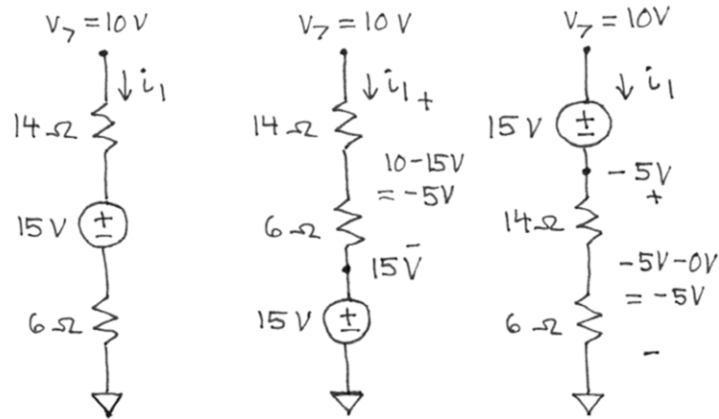
$$i_1 = \frac{12V - 1V}{11\Omega} = \frac{11V}{11\Omega} = 1A$$

For the circuit in the center, the voltage below the 25V source is $4V - 25V = -21V$. The voltage drop across the $1.8k\Omega$ is $-21V - (-3V) = -18V$. By Ohm's law, the current in the $1.8k\Omega$ is the voltage drop over the resistance:

$$i_1 = \frac{-18V}{1.8k\Omega} = -10mA$$



For the circuit on the right, we get the same current, i_1 , if we slide resistors thru the v-source. The following three circuits have the same current, i_1 .



Combining resistors, $6\Omega + 14\Omega = 20\Omega$, we have the current i_1 from Ohm's law:

$$i_1 = \frac{-5V}{20\Omega} = -0,25 A$$