Ex:

\[
\begin{align*}
\text{Find the value of current, } i_1, \text{ for each of the above circuits.} \\
\text{Sol'n: The current for the circuit on the left is given by Ohm's law:} \\
&i_1 = \frac{|12V - 1V|}{11\Omega} = \frac{11V}{11\Omega} = 1A \\
\text{For the circuit in the center, the voltage below the 25V source is } 4V - 25V = -21V. \text{ The voltage drop across the 1.8k } \Omega \text{ is } -21V - (-3V) = -18V. \text{ By Ohm's law, the current in the 1.8k } \Omega \text{ is the voltage drop over the resistance:} \\
&i_1 = \frac{-18V}{1.8k}\Omega = -10 \text{ mA}
\end{align*}
\]
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:

\[
i_1 = \frac{-5V}{20.2} = -0.25 \text{ A}
\]