Ex:

\[ v_1 = 1 \text{ V} \]
\[ v_2 = -2 \text{ V} \]
\[ v_3 = 4 \text{ V} \]
\[ v_2 = -3 \text{ V} \]

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

\textbf{SOL'N:} a) Since there is an open circuit, the current must be zero.
\[ i_1 = 0 \text{ A} \]

b) If there is a current source in a branch, (components in series), the current everywhere in that branch must be the same as the current source.
\[ i_1 = 5 \mu\text{A} \]

c) The current must match the current source, but the polarity is inverted since the arrow in the current source is in the opposite direction of \( i_1 \).
\[ i_1 = -4 \text{ A} \]