Ex:

$v_7 = 10$ V

$\downarrow i_1$

$v_4 = 4$ V

$14\ \Omega$

$\downarrow i_1$

$v_4 = 12$ V

25 mA $\downarrow$

15 A $\uparrow$

$\downarrow i_1$

$1.8\ k\Omega$

$6\ \Omega$

$v_2 = 1$ V

$v_2 = -3$ V
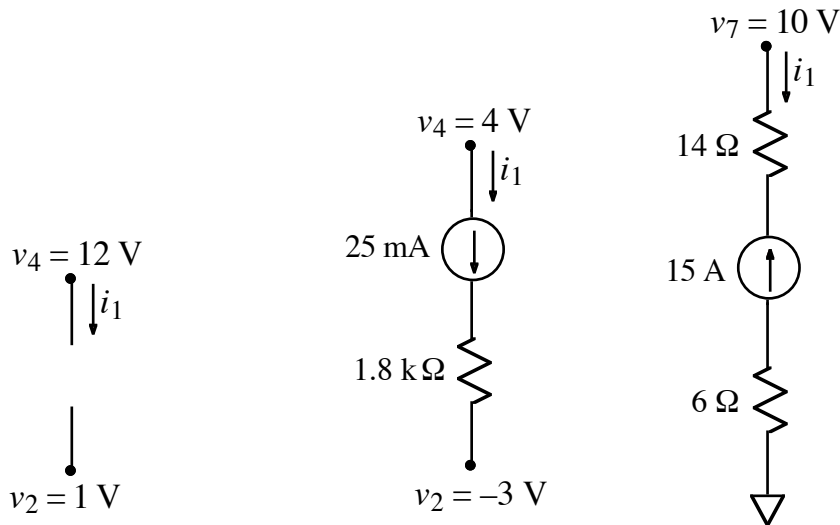
Find the value of current, i_1, for each of the above circuits.

SOL'N: For the circuit on the left, the current thru the open circuit is zero.

$$i_1 = 0\ A$$

Whenever there is a current source in series with the other components, regardless of what they are, the current in that circuit branch is equal to the value of the current branch. Thus, we have the following values for i_1 in the center and right circuits.

$$i_1 = 25\ mA$$

$$i_1 = -15\ A$$