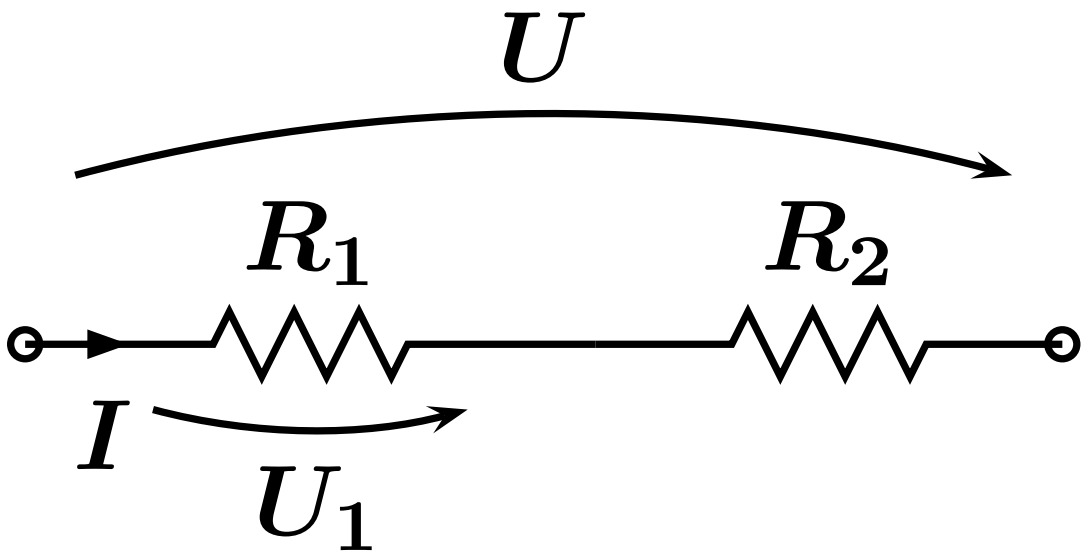
Quiz 3-1

This quiz is about voltage divider circuit.

What is the voltage U_1 across resistance R_1?

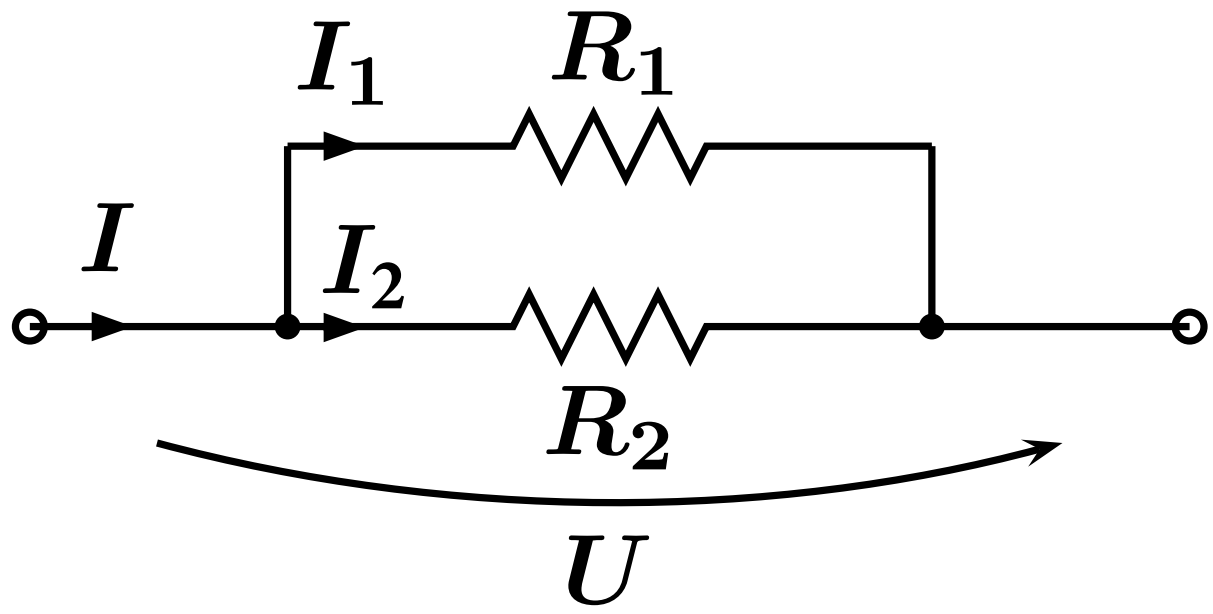


$$U = 3\ \mathrm{V}, R_1 = 2\ \mathrm{k\Omega}, R_2 = 1\ \mathrm{k\Omega}$$

Quiz 3-2

This quiz is about current divider circuit.

What is the current I_2 flowing on resistance R_2?

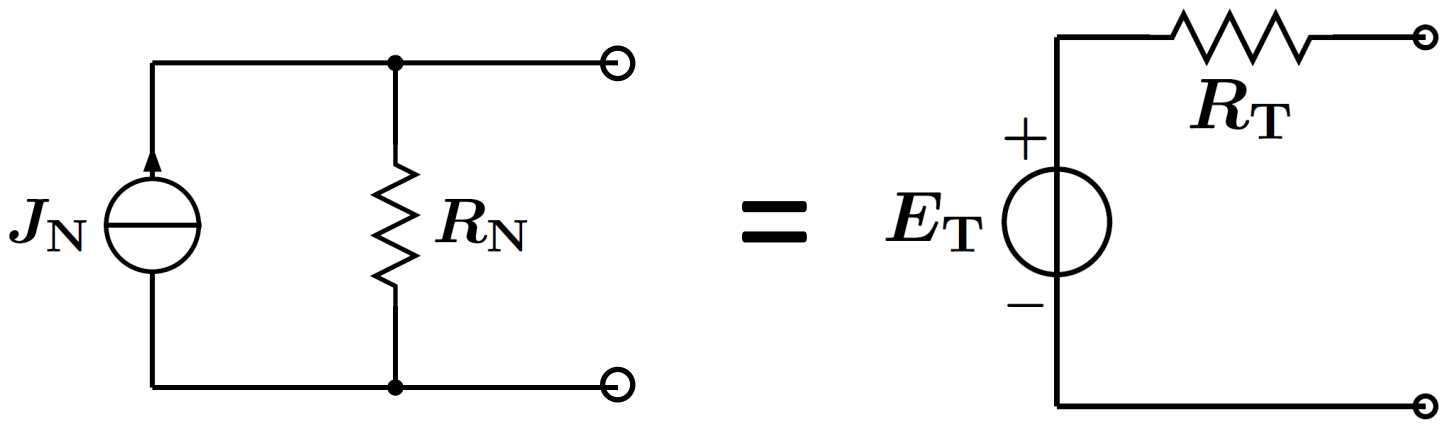


$$I = 3\ \mathrm{mA}, R_1 = 2\ \mathrm{k\Omega}, R_2 = 1\ \mathrm{k\Omega}$$

Quiz 3-3

This quiz is about sources transforms.

Derive the Thevenin's equivalent current source E_{T} and resistance R_{T} of the following circuit.

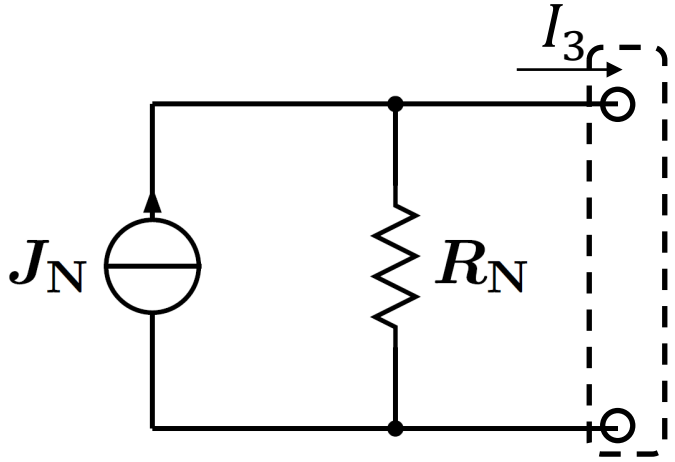


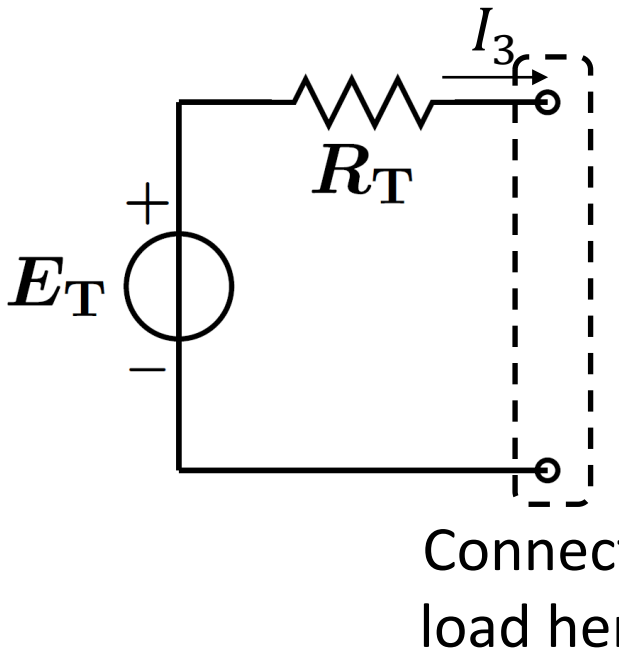
$$J_N = 3\ \mathrm{mA}, R_{\mathrm{N}} = 0.5\ \mathrm{k\Omega}$$

Quiz 3-4

This quiz is about sources transforms.

Connect a resistor $R_3 = 1\ \text{k}\Omega$ as a load of the following two circuits and derive current I_3 for each of the two circuits. Do we get the same I_3 for the two circuits?





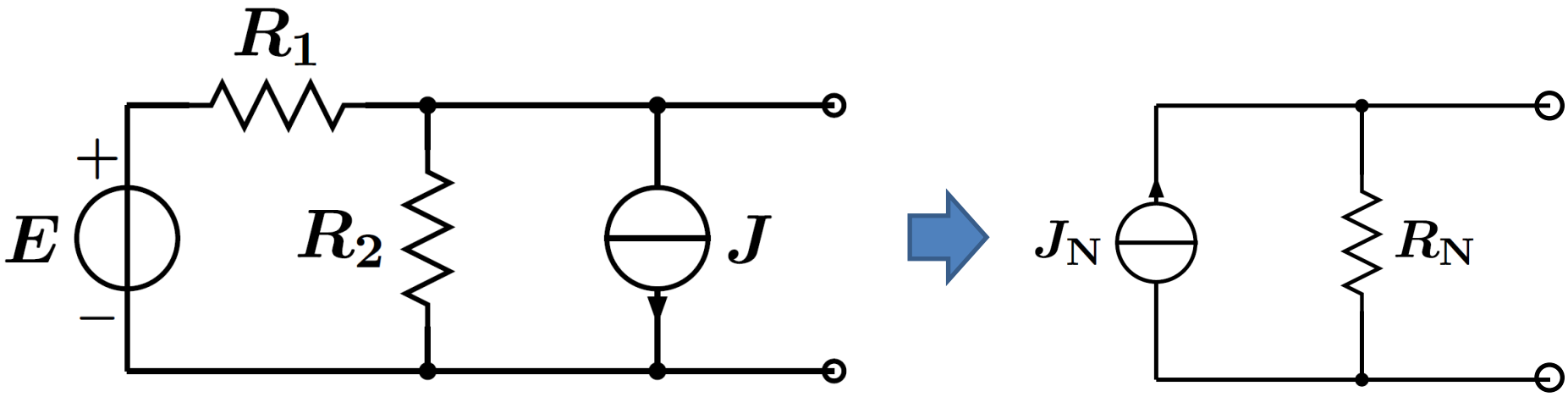
$J_\text{N} = 3\ \text{mA}, R_\text{N} = 0.5\ \text{k}\Omega$

$E_\text{T} = 1.5\ \text{V}, R_\text{T} = 0.5\ \text{k}\Omega$

Quiz 3-5

This quiz is about sources transforms.

Derive the Norton's equivalent current source J_{N} and resistance R_{N} of the following circuit.

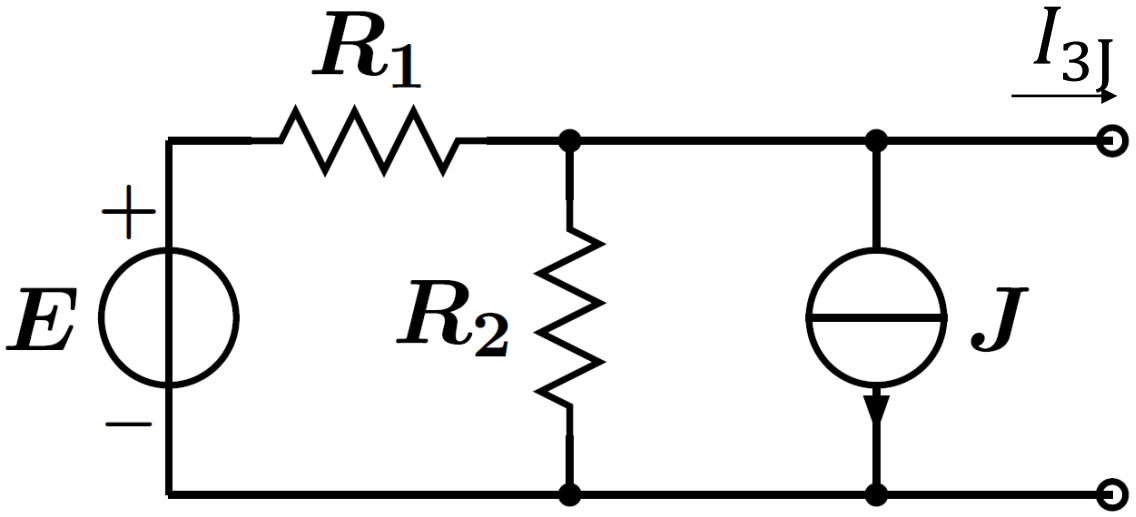


$$E = 4\ \mathrm{V}, J = 1\ \mathrm{mA}, R_1 = R_2 = 1\ \mathrm{k\Omega}$$

This quiz is about superposition.

Quiz 3-6

We analyze the following circuit when a resistor $R_3 = 1\ \mathrm{k\Omega}$ is connected as a load.
What is the current $I_{3\mathrm{J}}$ when turning off the voltage source E?



$$E = 4\ \mathrm{V}, J = 1\ \mathrm{mA}$$

$$R_1 = R_2 = 1\ \mathrm{k\Omega}$$

Answers

- 3-1: 2 V
- 3-2: 2 mA
- 3-3: E_T = 1.5 V, R_N = 0.5 kOhm
- 3-4: 1 mA
- 3-5: J_N = 3 mA, R_N = 0.5 kOhm
- 3-6: -1/3 mA