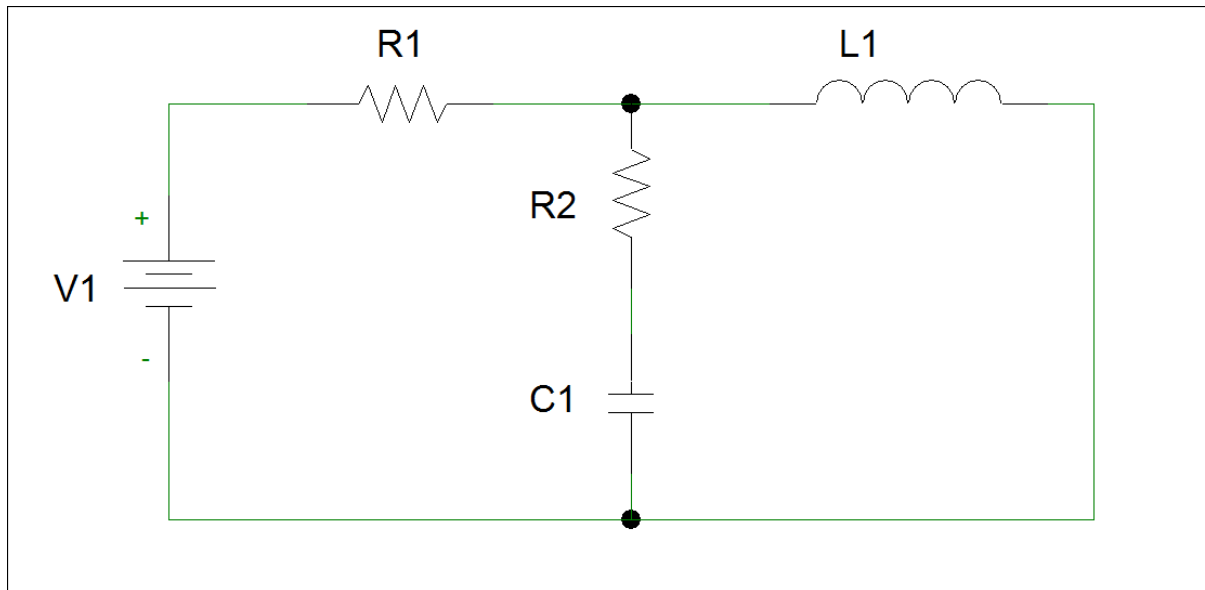


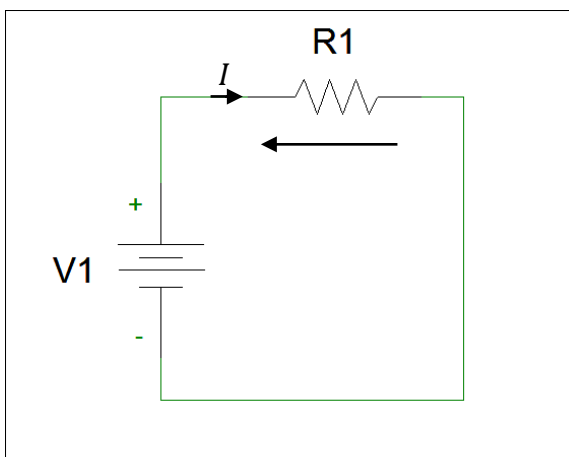
## Application of branch current method to DC circuit.

Branch currents will be calculated for DC electrical circuit. Electric circuits contains in its topology voltage source, two resistors, one inductivity and one capacitor. We apply branch current method for electric circuits in stable state(non-transient). For electric DC current, we treat ideal inductivities and ideal capacitors in special way. Ideal inductivity is a short circuit for DC current. Ideal capacitor is a break for DC current.



Drawing 1. Electrical DC circuit.

In this example we examine electric DC circuit. As is shown on drawing 1 circuit has two meshes, but we have in mind rules mentioned above. That rules give us possibility to simplify circuit. Because inductivity  $L1$  is a short circuit for DC current, we are allowed to replace it with a wire. Because capacitor is a break for DC current, we are allowed to omit branch with capacitor  $C1$  and resistor  $R2$ .



Drawing 2. Electric circuit after simplification.

Kirchhoff's voltage law (*KVL*) equation for simplified circuit.

$$V1 - I \cdot R1 = 0$$

$$I = \frac{V1}{R1}$$