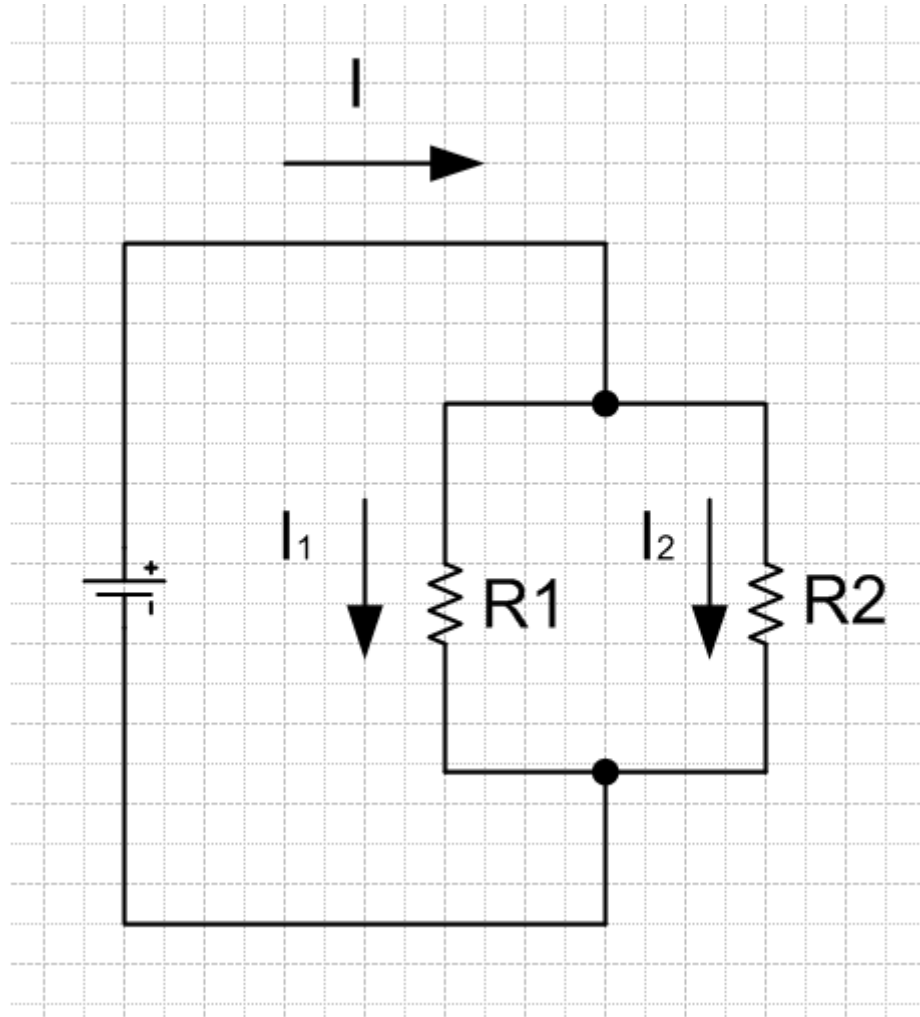


## Answer on Question #85298 - Physics - Mechanics | Electric Circuits

Two resistors of  $4\Omega$  and  $6\Omega$  are connected in parallel circuit. The total amount of current flowing in the circuit is 30 Ampere. Find the current of each resistor.

Solution:



$$I = 30 \text{ A},$$

$$R_1 = 4 \Omega,$$

$$R_2 = 6 \Omega.$$

According to the first Kirchhoff rule:

$$I = I_1 + I_2.$$

According to the second Kirchhoff rule:

$$I_1 R_1 - I_2 R_2 = 0.$$

Solve this system of equations:

$$(I - I_2) R_1 - I_2 R_2 = 0,$$

$$I R_1 = I_2 (R_1 + R_2),$$

$$I_2 = \frac{IR_1}{R_1 + R_2} = \frac{30 \cdot 4}{4 + 6} = 12 \text{ A},$$

$$I_1 = I - I_2 = 30 - 12 = 18 \text{ A}.$$

Answer: The current of first resistor is 18 A, the current of second resistor is 12 A.

Answer provided by <https://www.AssignmentExpert.com>