

LESSON 16

2 resistors in Parallel

Watch video Lesson 16



If you put **two resistors in parallel**, the total resistance in the circuit is calculated by the formula:
 $R(\text{total}) = (R1 \times R2) / (R1 + R2)$

(So, the total equivalent resistance of two resistors in parallel is R1's value in ohms multiplied by R2's value in ohms **divided** by the sum of R1 and R2.)

If R1 is 100 ohms and
 R2 is 330 ohms then:

$$R(\text{total}) = (100 \times 330) / (100 + 330) \\ = 33,000 / 430 = 76.7 \text{ ohms}$$

Ohm's Law says:
 $I = E / R(\text{total})$

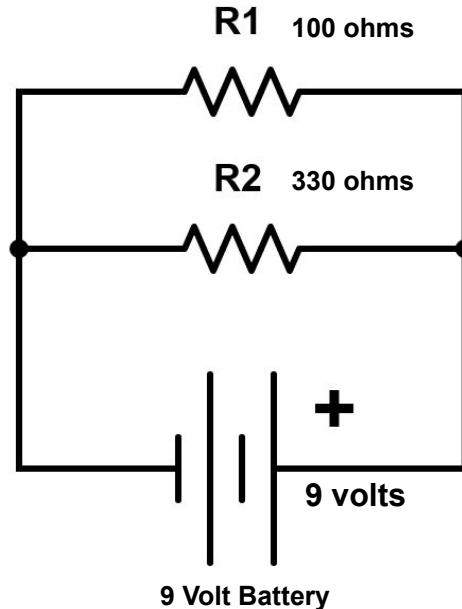
$$I = 9 / 76.7 = 0.117 \text{ Amps or} \\ \mathbf{117 \text{ mAmps.}}$$



Practice Quiz

#1

Schematic Diagram of two resistors, R1 and R2, in **PARALLEL** with a 9-volt battery



$$R(\text{total}) = (R1 \times R2) / (R1 + R2)$$

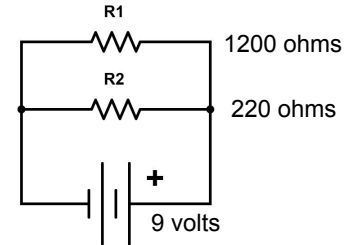
$$\text{Then } I = E / R(\text{total})$$

How many milliamps of current are flowing in this circuit? _____

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#2

Here is a schematic of two parallel resistors and a battery. Calculate the **R(total)** and the **current**.



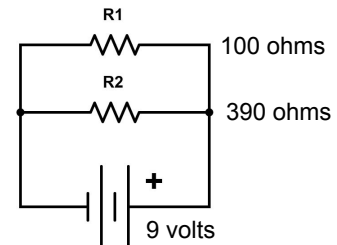
$$R(\text{total}) = (1200 \times 220) / (1200 + 220) = 185.92$$

$$I = 9 / 185.92$$

$$I = 0.0484 \text{ Amps or } \mathbf{48 \text{ mAmps}}$$

#3

Here is a schematic of two parallel resistors and a battery. Calculate the **R(total)** and the **current**.



$$R(\text{total}) = (100 \times 390) / (100 + 390) = 79.59$$

$$I = 9 / 79.59$$

$$I = 0.113 \text{ Amps or } \mathbf{113 \text{ mAmps}}$$

Solve the following problems using Ohm's Law

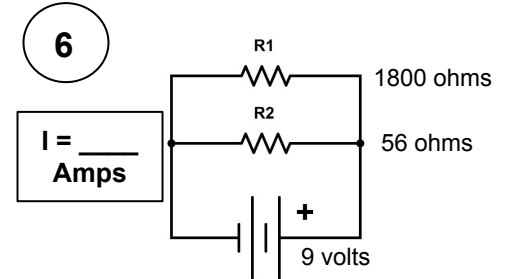
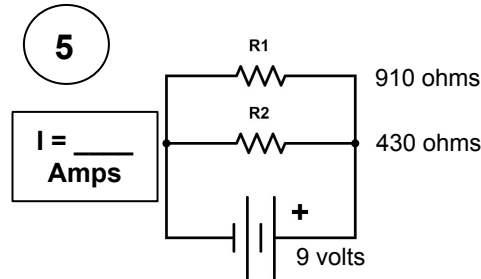
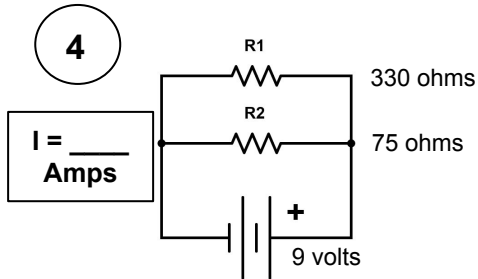
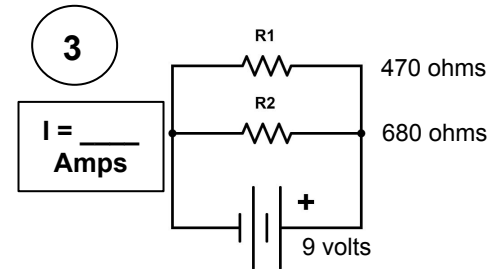
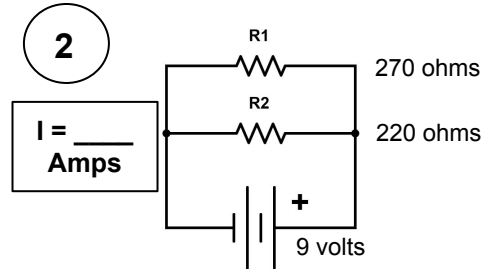
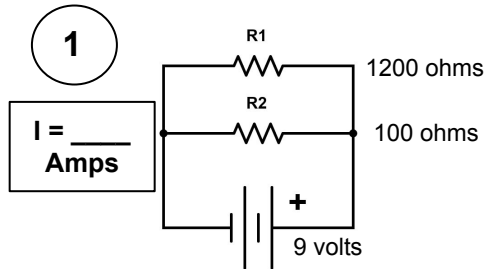
Activity Page

2 resistors in Parallel With Ohm's Law

16b

Here are circuits with 2 resistors in Parallel. With Ohm's Law, calculate the **current** flowing in each circuit.

(Round your answer to the nearest thousandth.)



Ans: 0.098, 0.074, 0.032, 0.147, 0.031, 0.166

