How would the current in a circuit be changed if you doubled both the resistance and the voltage?

a. I've got my answer

1.5 min

How would the current in a circuit be changed if you doubled both the resistance and the voltage?

$V = I R$

$2 V = I_{new} * 2 R$

$I_{new} = 2 V / 2 R$

The current would not be changed

What is the current in a 225 kΩ resistor if the potential difference across it is 220 V?

a. I've got my answer

1.5 min

What is the current in a 225 kΩ resistor if the potential difference across it is 220 V?

$V = I R$

$220\ V = I * 225 * 10^3\ \Omega$

$I = 220\ V / (225 * 10^3\ \Omega)$ **$9.78 * 10^{-4}$ A**

What is the net resistance of five 750 Ω resistors arranged in parallel?

a. I've got my answer

1.5 min

What is the net resistance of five 750 Ω resistors arranged in parallel?

$$R_{tot} = \frac{1}{5 * (1 / 750\ \Omega)}$$

$$= 750\ \Omega / 5$$

$$= \mathbf{150\ \Omega}$$

A circuit has four 220 Ω resistors in parallel. How much voltage would be required if each resistor were to have 1.5 A of current flow through it?

a. I've got my answer

2 min

A circuit has four 220 Ω resistors in parallel. How much voltage would be required if each resistor were to have 1.5 A of current flow through it?

$V_{tot} = I_{tot} * R_{tot}$

$R_{tot} = 1 / (4 * (1/220))$, or 220/4, 55 Ω

$\mathbf{V_{tot}} = (4 * 1.5\ A) * 55\ \Omega$

$V_{tot} = \mathbf{330\ V}$

NOTE: having the same I flow through all R's in parallel is only possible because all R's have the same value!

Two 150 Ω resistors and two 300 kΩ resistors are arranged in parallel. How much total current passes through the circuit if the voltage is 12 V?

a. I've got my answer

2.5 min

Two 150 Ω resistors and two 300 kΩ resistors are arranged in parallel. How much total current passes through the circuit if the voltage is 12 V?

$$R_{tot} = \frac{1}{[2 * (1 / 150\ \Omega)] + [2 * (1 / 300 \times 10^3\ \Omega)]}$$

$R_{tot} = 74.96\ \Omega$

$V_{tot} = I_{tot} * R_{tot}$

$12\ V = \mathbf{I_{tot}} * 74.96\ \Omega$

$\mathbf{I_{tot}} = 12\ V / 74.96\ \Omega$ **0.16 A**