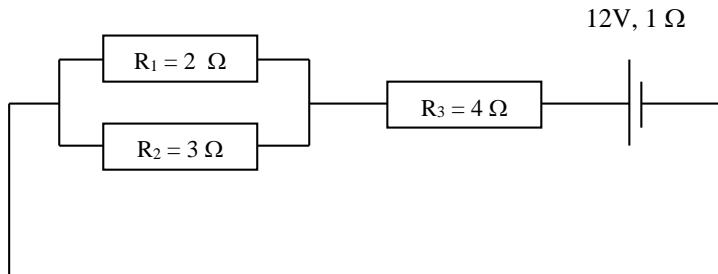


Answer on Question #55604, Physics / Electric Circuits

a 2 ohms resistor and a 3 ohms resistors in parallel are connected to a 4 ohms resistor. the combination is then connected across a 12v battery having internal resistance of 1 ohms. what is the equivalent resistance in the circuit

Solution:



Since R1 and R2 are in parallel, their equivalent resistance is calculated:

$$\frac{1}{R_{12}} = \frac{1}{R_1} + \frac{1}{R_2} ;$$

$$R_{12} = \frac{1}{\frac{1}{R_1} + \frac{1}{R_2}} ;$$

$$R_{12} = \frac{1}{\frac{1}{2} + \frac{1}{3}}$$

$$R_{12} = 1.2 \text{ Ohms}$$

All other connections in circuit are series, thus:

$$R = R_{12} + R_3 + R_v ;$$

$$R = 1.2 + 4 + 1 = 6.2 \text{ Ohms}$$

Answer:

The equivalent resistance of the circuit is 6.2 Ohms.