Question

Given

$$V = 8 \text{ V}$$
$$I = 0.2 \text{ A}$$
$$R_1 = R_2 = R$$

Need to find: resistance R.

Solution:

If two resistors connected in series then their common resistance equal to the sum of their resistance. So, we have that the resistance of the circuit is $R_c = R_1 + R_2 = R + R = 2R$. So, as we know that the voltage is $V = 8 \text{ V}$ and the current is $I = 0.2 \text{ A}$ we can find the resistance:

$$I = \frac{V}{R_c} = \frac{V}{2R} \Rightarrow V = 2IR \Rightarrow R = \frac{V}{2I} = \frac{8}{2 \cdot 0.2} = 20 \text{ Ohm}.$$ So, the value of each resistance is 20 Ohm.

Answer: 20 Ohm.