Question #58858, Physics / Electric Circuits

Calculate the resistance of 180 m of silver wire having a cross section of 0.33mm^2. The resistivity of silver is 1.6×10−8Ωm

Solution.

The resistance of a conductor:

$$R = \rho \frac{l}{A};$$

where:

ρ – is the resistivity of the given material;

l – is the conductor length;

A – is the conductor cross-sectional area.

$$R = 1.6 \times 10^{-8} \frac{180}{0.33 \times 10^{-6}} = 8.73 \ \Omega$$

Answer: 8.73 Ω.