

Answer on question #53450, Physics / Electric Circuits

Question A wire of length 2.0 m, diameter 1.0 mm has 50 m ohm resistance. Calculate resistivity of the material of wire ?

Solution Resistivity ρ is related to resistance R as

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

where $A = \pi r^2$ is the cross-sectional area and l is length of piece of material. Hence, knowing resistance you can find resistivity.

$$\rho = 50 \frac{\pi (\cdot 10^{-3})^2}{2} = 78.5 \cdot 10^{-6} \Omega \cdot m$$