

- 3) A cylindrical wire of radius $R = 3 \text{ mm}$ has a current density that varies through a cross section with radial distance r as $J = kr^2$ where $k = 1.5 \times 10^{11} \text{ A/m}^4$. Calculate the current that passes through the outer portion of the wire between the radial distances $R/2$ and R .

- 4) Calculate the resistance of a resistor with length l , radius a at one end & b at the other end and resistivity ρ .

