Answer on question #59043, Physics / Electromagnetism — for completion

Question A 0.40 mm diameter copper wire carries a current of 3μA. Find the current density in the wire
15.16A/m2
33.32A/m2
26.17A/m2
23.87A/m2

Solution Current density is

$$j = \frac{I}{S} = \frac{I}{\pi d^2/4} = \frac{3 \cdot 10^{-6}}{3.14 \cdot 0.4^2 \cdot 10^{-6}/4} = 23.87\, A/m^2$$