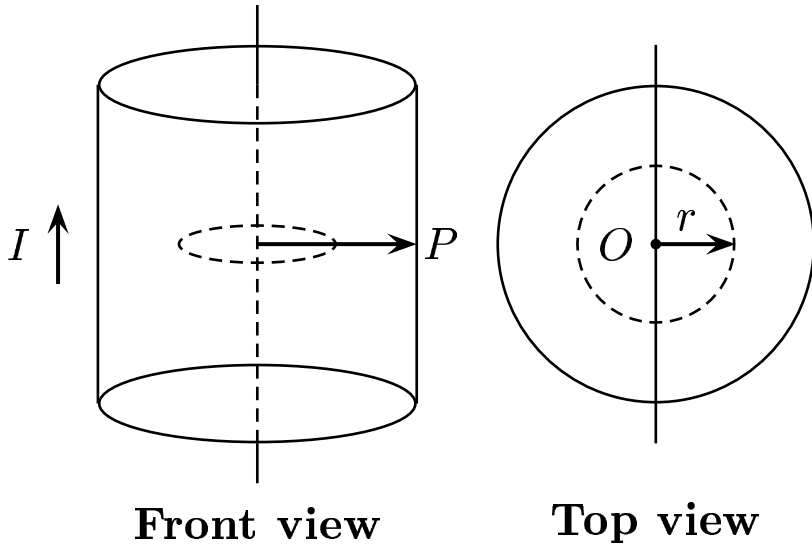


Given: Current density $J = br^2$. M is defined by the Ampere's law:

$$M \equiv \oint_l \vec{B} \cdot d\vec{S} = \mu_0 I_{enc}, \text{ where the loop } l \text{ is circular with radius } a.$$



Find out M at the surface of the conductor

A) $M = \frac{\pi a B}{2}.$

B) $M = \pi a B.$

C) $M = 2\pi a B.$

D) $M = 4\pi a B.$

E) $M = 0.$

$$M = B \oint ds = B (2 \pi a).$$

Answer **C**.

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