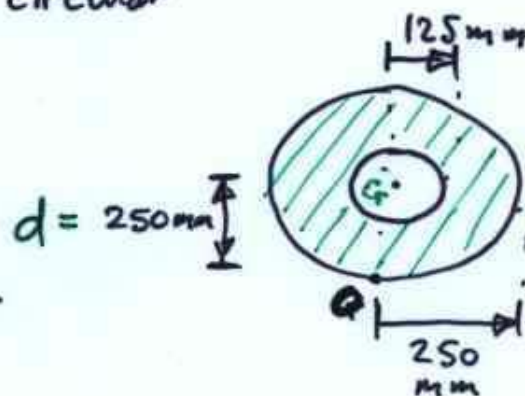


FIND M.O.I of 10mm thick circular plate about axis  $\perp$  to page thru O

PLATE HAS HOLE AS SHOWN.



Composite body ...

$$\text{intact disk } I_G = \frac{1}{2} m r^2$$

$$\parallel \text{ axis thru } O: I_O = I_G + m d^2 = \frac{1}{2} m r^2 + m d^2$$

$$m_{\text{DISK}} = \rho_{\text{DISK}} V_{\text{DISK}} = \overset{\text{Pop of steel}}{8000 \text{ kg/m}^3} [\pi (0.25)^2 (0.01)]$$

$$= 15.71 \text{ kg}$$

$$(I_{\text{DISK}})_O = m_D \left( \frac{1}{2} r_D^2 + d^2 \right)$$

$$= 1.473 \text{ kg m}^2$$

Now ... look @ HOLE

$$m_{\text{HOLE}} = \rho_H V_H = 8000 \text{ kg/m}^3 [\pi (0.125)^2 (0.01)]$$

$$= 3.93 \text{ kg}$$

$$(I_H)_O = m_H \left( \frac{1}{2} r_H^2 + d^2 \right)$$

$$= 0.276 \text{ kg m}^2$$

$$(I_{\text{PLATE}})_O = (I_{\text{DISK}})_O - (I_{\text{HOLE}})_O$$

$$= 1.473 - 0.276$$

$$= 1.20 \text{ kg m}^2$$

