

Remarks: See also §3.2.4, example 8, pages 116 till 119

Answer:

b. $1,407 \times 10^9 \text{ mm}^4$

Explanation:

$$\text{a. } I_{zz} = \int z^2 dA = \int_0^{2\pi} (R \cos \varphi)^2 R t d\varphi = R^3 t \underbrace{\int_0^{2\pi} (\cos \varphi)^2 d\varphi}_{\pi}$$

