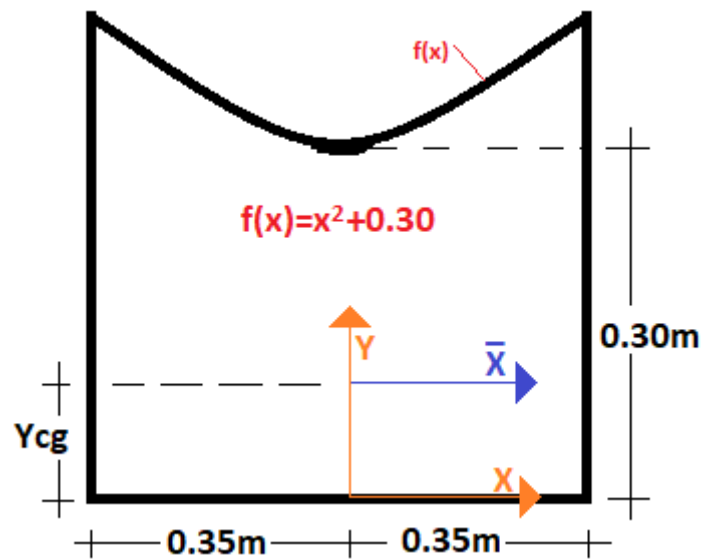


Inercia de la sección de la figura:



#1: [CaseMode := Sensitive, InputMode := Word]

#2: $f(x) := x^2 + 0.3$

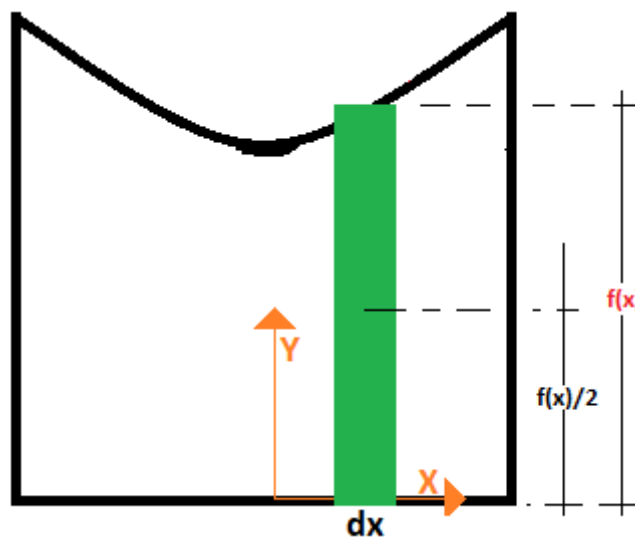
Área:

#3: $A := \int_{-0.35}^{0.35} f(x) \, dx$

#4: $A := 0.2385833333$

#5: $A := \frac{2863}{12000}$

Coordenada Y_{cg} del centroide:



$$\#6: \quad Y_{cg} := \frac{\int_{-0.35}^{0.35} f(x) \cdot \frac{f(x)}{2} dx}{A}$$

$$\#7: \quad Y_{cg} := 0.1723734718$$

$$\#8: \quad Y_{cg} := \frac{282003}{1636000}$$

Inercia del diferencial respecto a su propio centro geométrico:

$$\#9: \quad I_{dxcg} := \frac{1}{12} \cdot f(x)^3 \cdot dx$$

Inercia del diferencial respecto al eje centroidal de la figura que pasa por Y_{cg} (aplica teorema de Steiner):

$$\#10: \quad I_{dxcgf} := I_{dxcg} + f(x) \cdot dx \cdot \left(\frac{f(x)}{2} - Y_{cg} \right)^2$$

$$\#11: \quad I_{dxcgf} := \frac{1}{12} \cdot f(x)^3 \cdot dx + f(x) \cdot \left(\frac{f(x)}{2} - Y_{cg} \right)^2 \cdot dx$$

$$\#12: \quad I_{dxcgf} := \left(\frac{1}{12} \cdot f(x)^3 + f(x) \cdot \left(\frac{f(x)}{2} - Y_{cg} \right)^2 \right) \cdot dx$$

Inercia de la figura respecto al eje centroidal que pasa por Y_{cg} (integración):

$$\#13: \quad I_{xcgf} = \int (I_{dxcgf}, -0.35, 0.35)$$

$$\#14: \quad I_{xcgf} = \int_{-0.35}^{0.35} \left(\frac{1}{12} \cdot f(x)^3 + f(x) \cdot \left(\frac{f(x)}{2} - Y_{cg} \right)^2 \right) dx$$

$$\#15: \quad I_{xcgf} = 0.002475103576$$

$$\#16: \quad I_{xcgf} = \frac{194364933637}{78528000000000}$$

Inercia en cm4:

$$\#17: \quad I_{xcgf} = \int_{-0.35}^{0.35} \left(\frac{1}{12} \cdot f(x)^3 + f(x) \cdot \left(\frac{f(x)}{2} - Y_{cg} \right)^2 \right) dx \cdot 100^4$$

$$\#18: \quad I_{xcgf} = 2.475103576 \cdot 10^5$$

$$\#19: \quad I_{xcgf} = \frac{194364933637}{785280}$$