



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

Area: Area llena 1 – Area vacía 2:

$$\#2: \left[\begin{array}{l} A1 := b \cdot h \quad A2 := \frac{b \cdot h}{3} \quad A := A1 - A2 \\ Xcg1 := \frac{b}{2} \quad Xcg2 := \frac{3 \cdot b}{4} \quad Xcg := \frac{A1 \cdot Xcg1 - A2 \cdot (b - Xcg2)}{A} \\ Ycg1 := \frac{h}{2} \quad Ycg2 := \frac{3 \cdot h}{10} \quad Ycg := \frac{A1 \cdot Ycg1 - A2 \cdot (h - Ycg2)}{A} \end{array} \right]$$

$$\#3: \left[\begin{array}{l} A1 := b \cdot h \quad A2 := 0.3333333333 \cdot b \cdot h \quad A := 0.6666666666 \cdot b \cdot h \\ Xcg1 := 0.5 \cdot b \quad Xcg2 := 0.75 \cdot b \quad Xcg := 0.625 \cdot b \\ Ycg1 := 0.5 \cdot h \quad Ycg2 := 0.3 \cdot h \quad Ycg := 0.4 \cdot h \end{array} \right]$$

#4:

$$\left[\begin{array}{l} A1 := b \cdot h \quad A2 := \frac{b \cdot h}{3} \quad A := \frac{2 \cdot b \cdot h}{3} \\ Xcg1 := \frac{b}{2} \quad Xcg2 := \frac{3 \cdot b}{4} \quad Xcg := \frac{5 \cdot b}{8} \\ Ycg1 := \frac{h}{2} \quad Ycg2 := \frac{3 \cdot h}{10} \quad Ycg := \frac{2 \cdot h}{5} \end{array} \right]$$

Inercias centroidales de cada subárea:

Ver área 2: <https://michel.udenar.edu.co/wp-content/uploads/2024/06/MediaParabola.pdf>

#5:

$$\left[\begin{array}{l} Im1 := \frac{b \cdot h^3}{12} \quad Im2 := \frac{37 \cdot b \cdot h^3}{2100} \\ In1 := \frac{h \cdot b^3}{12} \quad In2 := \frac{b \cdot h^3}{80} \\ Imn1 := 0 \quad Imn2 := \frac{b^2 \cdot h^2}{120} \end{array} \right]$$

Inercias respecto a los ejes X e Y:

#6:

$$\left[\begin{array}{l} Ix1 := \frac{b \cdot h^3}{3} \quad Ix2 := Im2 + A2 \cdot (h - Ycg2)^2 \quad Ix := \\ Iy1 := \frac{h \cdot b^3}{3} \quad Iy2 := In2 + A2 \cdot (b - Xcg2)^2 \quad Iy := \\ Ixy1 := Imn1 + A1 \cdot \frac{b}{2} \cdot \frac{h}{2} \quad Ixy2 := Imn2 + A2 \cdot (b - Xcg2) \cdot (h - Ycg2) \quad Ixy := \end{array} \right]$$

$$\begin{bmatrix} Ix1 - Ix2 \\ Iy1 - Iy2 \\ Ixy1 - Ixy2 \end{bmatrix}$$

#7:

$$\begin{bmatrix} Ix1 := 0.3333333333*b*h^3 & Ix2 := 0.1809523809*b*h^3 & Ix := 0.1523809523*b*h^3 \\ Iy1 := 0.3333333333*b^3*h & Iy2 := 0.03333333333*b^3*h & Iy := 0.3*b^3*h \\ Ixy1 := 0.25*b^2*h^2 & Ixy2 := 0.06666666666*b^2*h^2 & Ixy := 0.1833333333*b^2*h^2 \end{bmatrix}$$

#8:

$$\begin{bmatrix} Ix1 := \frac{b^3*h^3}{3} & Ix2 := \frac{19*b^3*h^3}{105} & Ix := \frac{16*b^3*h^3}{105} \\ Iy1 := \frac{b^3*h^3}{3} & Iy2 := \frac{b^3*h^3}{30} & Iy := \frac{3*b^3*h^3}{10} \\ Ixy1 := \frac{b^2*h^2}{4} & Ixy2 := \frac{b^2*h^2}{15} & Ixy := \frac{11*b^2*h^2}{60} \end{bmatrix}$$

Inercia centroidal de la figura inicial:

#9:

$$\left[Im := Ix - A*Ycg^2, In := Iy - A*Xcg^2, Imn := Ixy - A*Xcg*Ycg \right]$$

#10:

$$\left[Im := \frac{8*b^3*h^3}{175}, In := \frac{19*b^3*h^3}{480}, Imn := \frac{b^2*h^2}{60} \right]$$