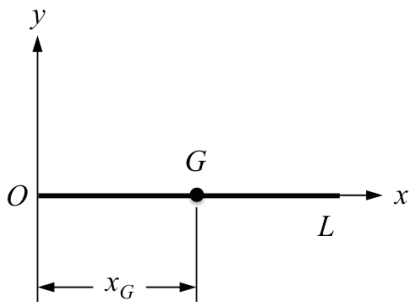
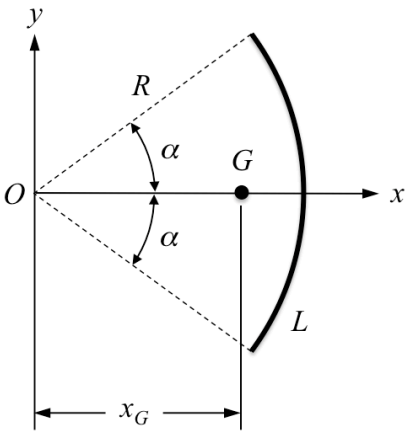
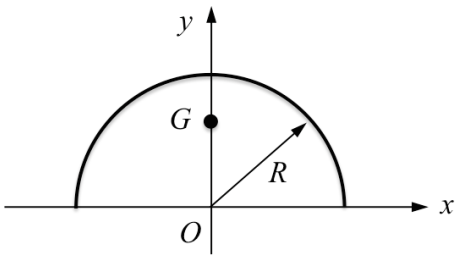
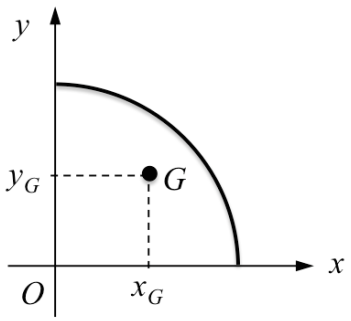
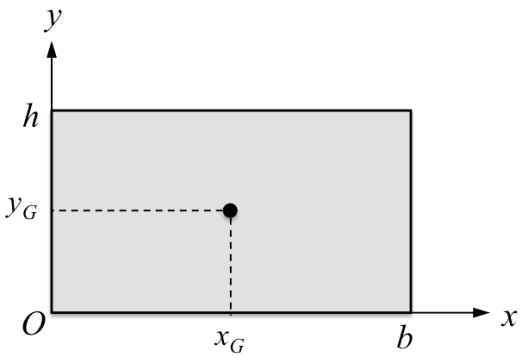
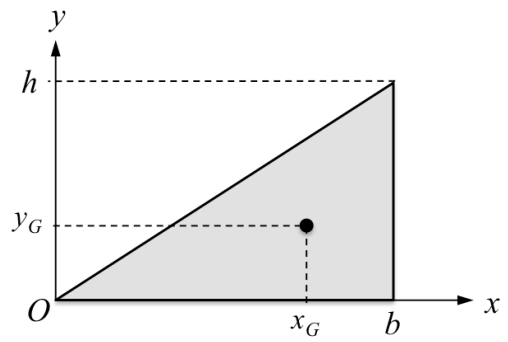
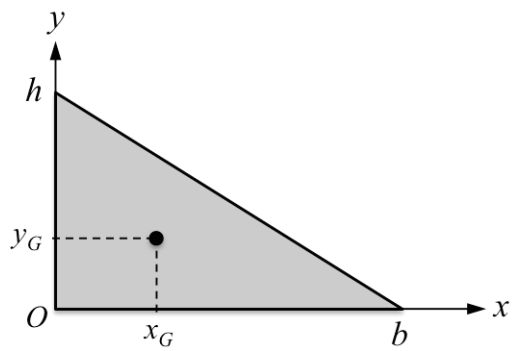
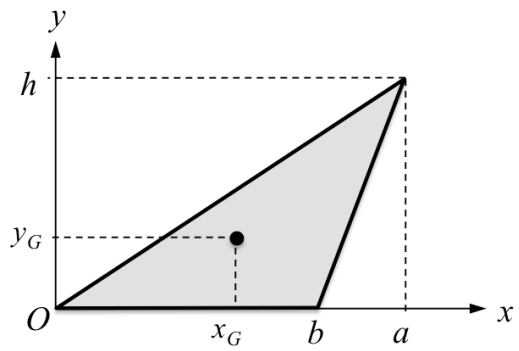
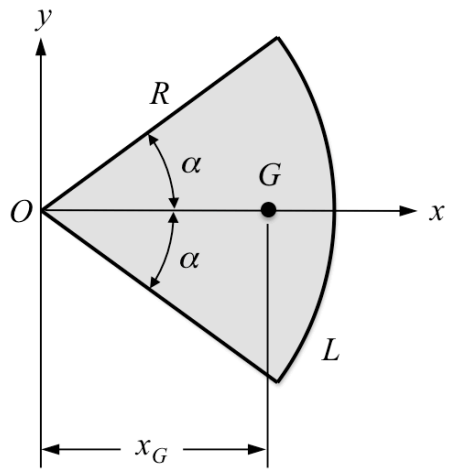
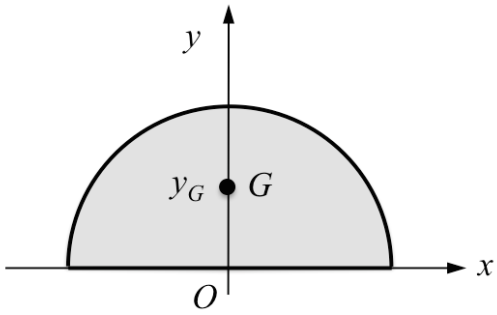
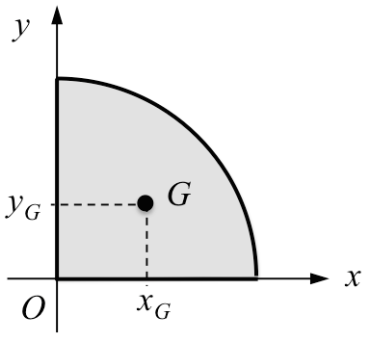
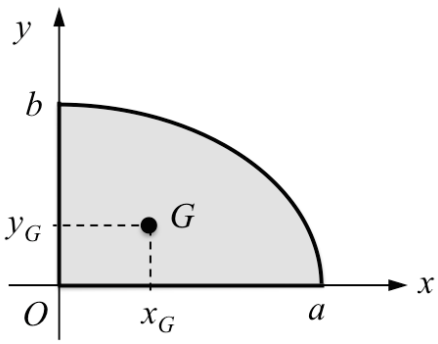
CENTROS DE GRAVEDAD DE FIGURAS GEOMÉTRICAS SIMPLES

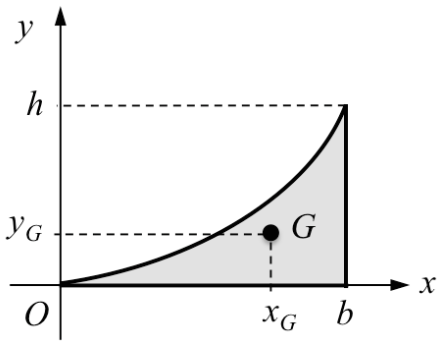
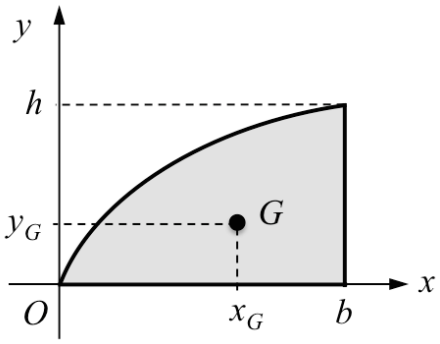
Elementos con densidad lineal de masa λ uniforme

	Varilla delgada de longitud L $x_G = \frac{1}{2}L$ $y_G = 0$
	Arco circular de longitud L y radio R $L = 2R\alpha$ $x_G = \frac{R}{\alpha}\operatorname{sen}\alpha = \frac{2R^2}{L}\operatorname{sen}\left(\frac{L}{2R}\right)$ $y_G = 0$
	Semicircunferencia de radio R $L = \pi R$ $x_G = 0$ $y_G = \frac{2R}{\pi}$
	Cuadrante de radio R $L = \frac{1}{2}\pi R$ $x_G = \frac{2R}{\pi}$ $y_G = \frac{2R}{\pi}$

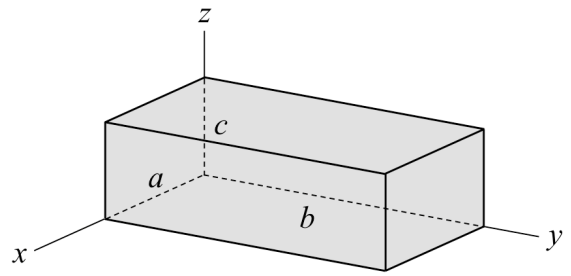
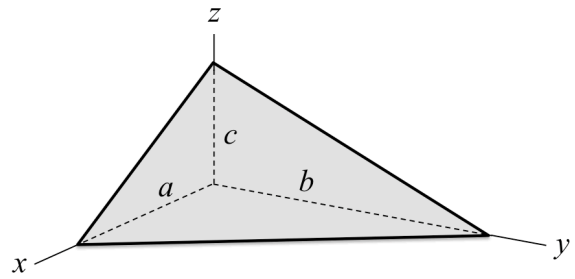
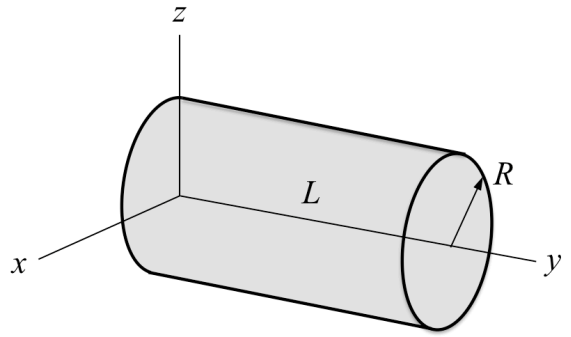
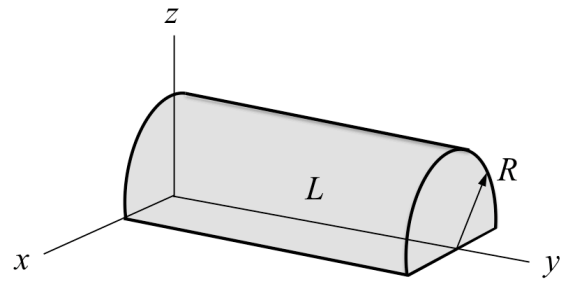
Elementos con densidad superficial de masa σ uniforme

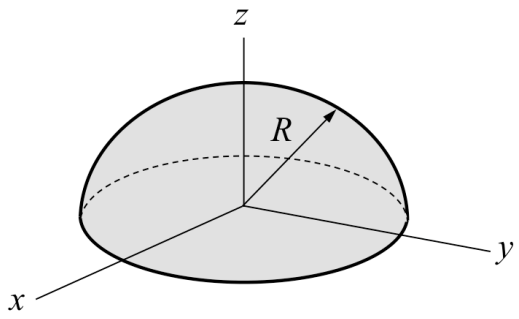
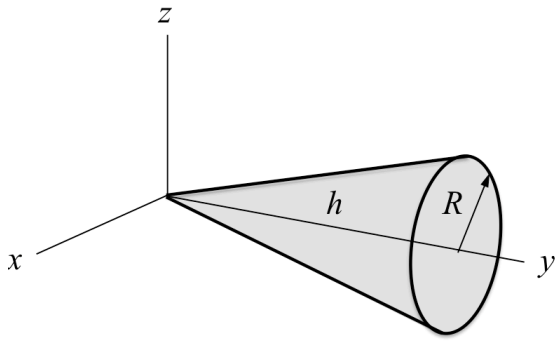
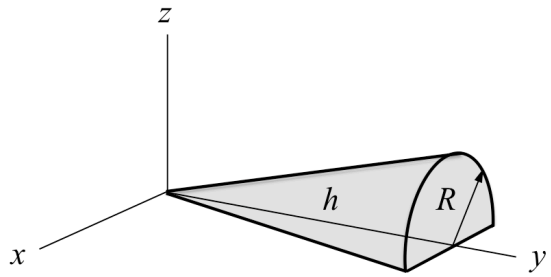
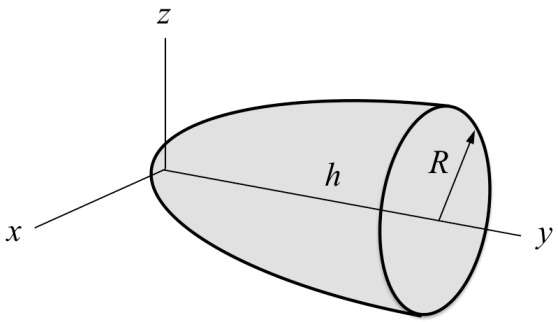
	Rectángulo $S = bh$ $x_G = \frac{b}{2}$ $y_G = \frac{h}{2}$
	Triángulo rectángulo $S = \frac{1}{2}bh$ $x_G = \frac{2}{3}b$ $y_G = \frac{1}{3}h$
	Triángulo rectángulo $S = \frac{1}{2}bh$ $x_G = \frac{1}{3}b$ $y_G = \frac{1}{3}h$
	Triángulo $L = \frac{1}{2}bh$ $x_G = \frac{1}{3}(a+b)$ $y_G = \frac{1}{3}h$

	Sector circular de radio R $S = R^2\alpha$ $x_G = \frac{2R}{3\alpha}\text{sen}\alpha = \frac{2R^3}{3S}\text{sen}\left(\frac{S}{R^2}\right)$ $y_G = 0$
	Semidisco de radio R $S = \frac{1}{2}\pi R^2$ $x_G = 0$ $y_G = \frac{4R}{3\pi}$
	Cuadrante de radio R $S = \frac{1}{4}\pi R^2$ $x_G = \frac{4R}{3\pi}$ $y_G = \frac{4R}{3\pi}$
	Cuadrante de elipse $S = \frac{1}{4}\pi ab$ $x_G = \frac{4a}{3\pi}$ $y_G = \frac{4b}{3\pi}$

	Enjuta parabólica $S = \frac{1}{3}bh$ $x_G = \frac{3}{4}b$ $y_G = \frac{3}{10}h$
	Cuadrante de parábola $S = \frac{2}{3}bh$ $x_G = \frac{5}{8}b$ $y_G = \frac{2}{5}h$

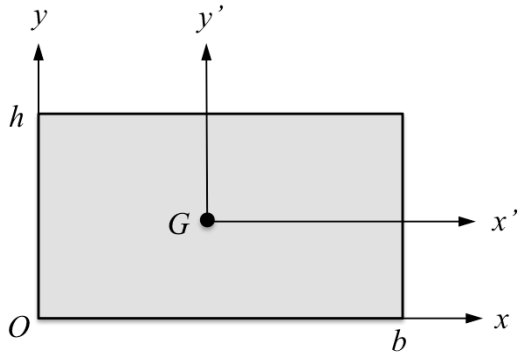
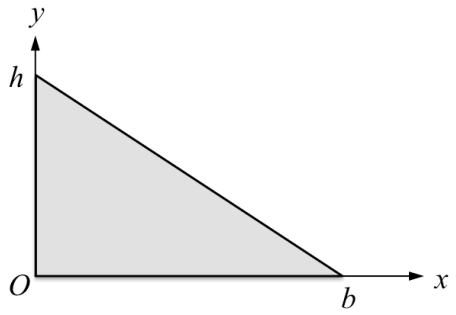
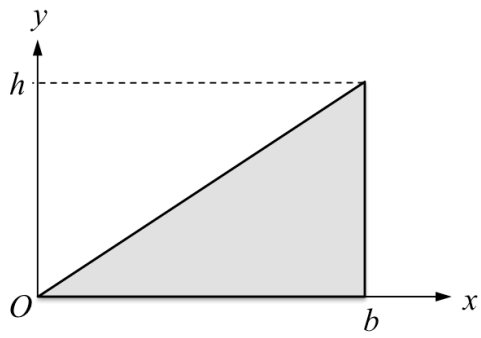
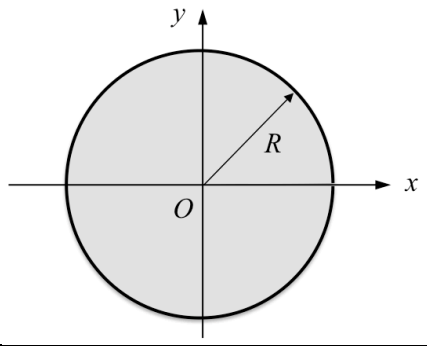
Elementos con densidad volumétrica de masa ρ uniforme

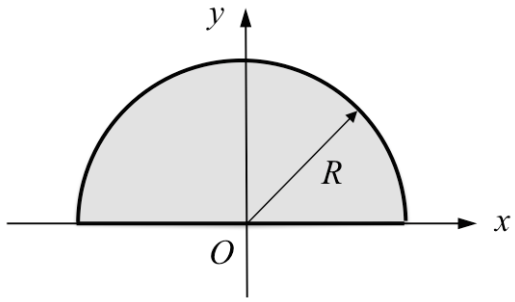
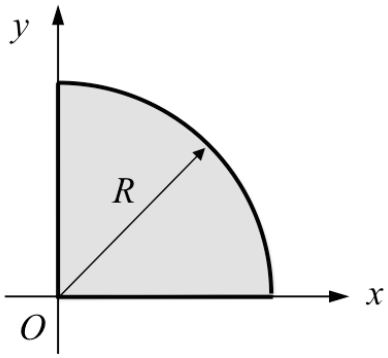
	Paralelepípedo rectangular $V = abc$ $x_G = \frac{a}{2}$ $y_G = \frac{b}{2}$ $z_G = \frac{c}{2}$
	Tetraedro regular $V = \frac{1}{6}abc$ $x_G = \frac{a}{4}$ $y_G = \frac{b}{4}$ $z_G = \frac{c}{4}$
	Cilindro de revolución $V = \pi R^2 L$ $x_G = 0$ $y_G = \frac{L}{2}$ $z_G = 0$
	Semicilindro $V = \frac{\pi R^2 L}{2}$ $x_G = 0$ $y_G = \frac{L}{2}$ $z_G = \frac{4R}{3\pi}$

	Semiesfera $V = \frac{2}{3}\pi R^3$ $x_G = 0$ $y_G = 0$ $z_G = \frac{3}{8}R$
	Cono de revolución $V = \frac{1}{3}\pi R^2 h$ $x_G = 0$ $y_G = \frac{3}{4}h$ $z_G = 0$
	Semicono $V = \frac{1}{6}\pi R^2 h$ $x_G = 0$ $y_G = \frac{3}{4}h$ $z_G = \frac{R}{\pi}$
	Paraboloide $V = \frac{1}{2}\pi R^2 h$ $x_G = 0$ $y_G = \frac{2}{3}h$ $z_G = 0$

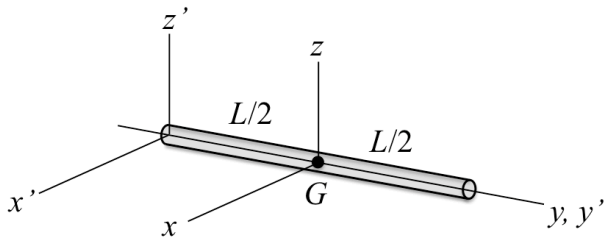
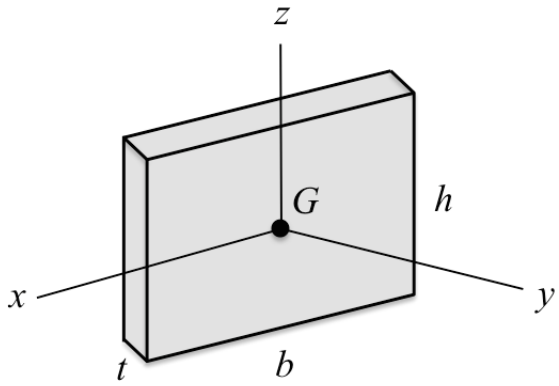
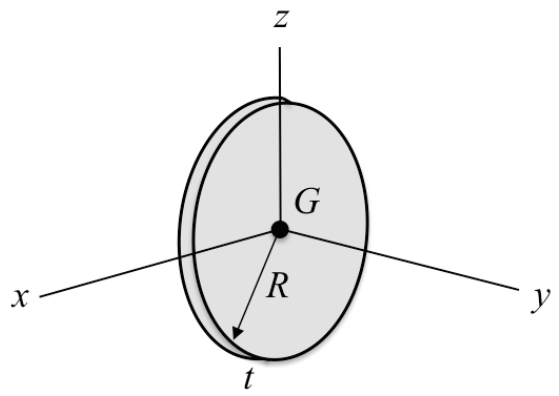
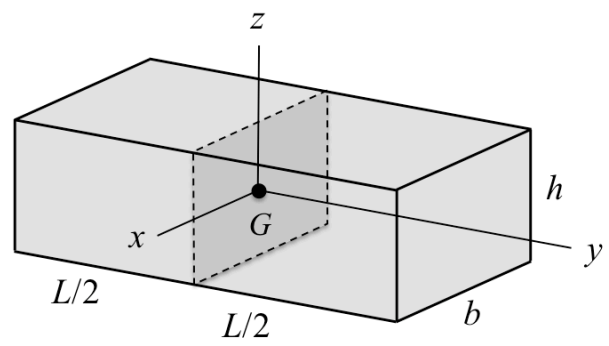
MOMENTOS DE INERCIA DE FIGURAS GEOMÉTRICAS SIMPLES

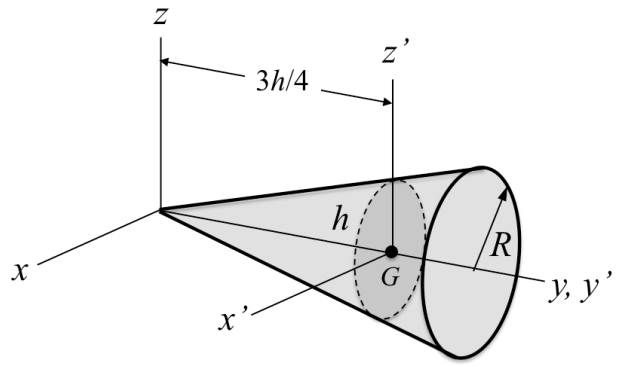
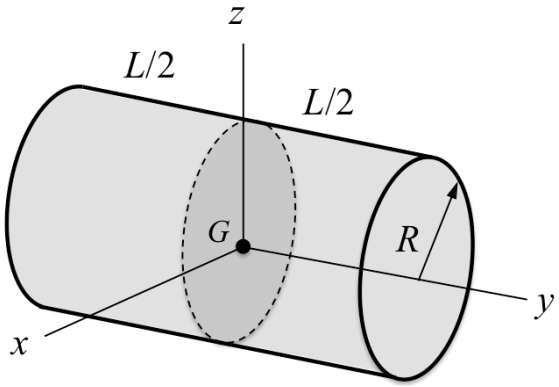
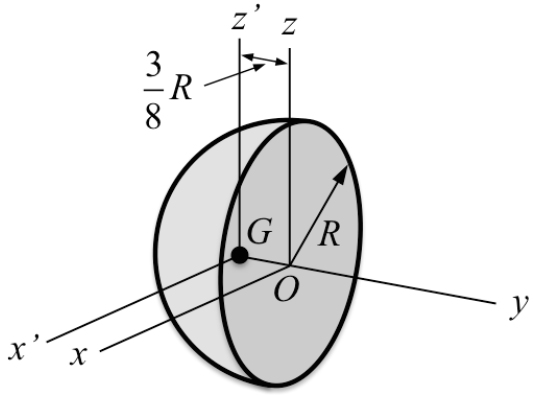
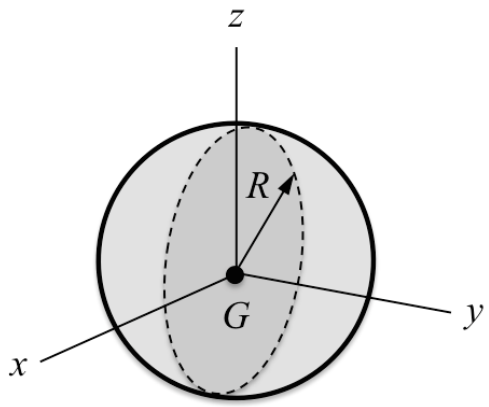
Elementos con densidad superficial de masa σ uniforme

	Rectángulo $I_x = \frac{1}{3}\sigma b h^3 = \frac{1}{3} M h^2 \quad I_y = \frac{1}{3}\sigma h b^3 = \frac{1}{3} M b^2$ $I_{xG} = \frac{1}{12}\sigma b h^3 = \frac{1}{12} M h^2$ $I_{yG} = \frac{1}{12}\sigma h b^3 = \frac{1}{12} M b^2$ $I_{xy} = \frac{1}{4}\sigma b^2 h^2 = \frac{1}{4} M b h \quad I_{xyG} = 0$
	Triángulo rectángulo $M = \frac{1}{2}\sigma b h$ $I_x = \frac{1}{12}\sigma b h^3 = \frac{1}{6} M h^2 \quad I_y = \frac{1}{12}\sigma h b^3 = \frac{1}{6} M b^2$ $I_{xy} = \frac{1}{12}\sigma b^2 h^2 = \frac{1}{6} M b h$
	Triángulo rectángulo $M = \frac{1}{2}\sigma b h$ $I_x = \frac{1}{12}\sigma b h^3 = \frac{1}{6} M h^2 \quad I_y = \frac{1}{4}\sigma h b^3 = \frac{1}{2} M b^2$ $I_{xy} = \frac{1}{8}\sigma b^2 h^2 = \frac{1}{4} M b h$
	Círculo $M = \sigma \pi R^2$ $I_O = \frac{1}{2}\sigma \pi R^4 = \frac{1}{2} M R^2$ $I_x = I_y = \frac{1}{2} I_O = \frac{1}{4}\sigma \pi R^4 = \frac{1}{4} M R^2$

	Semicírculo $M = \frac{1}{2}\sigma\pi R^2$ $I_O = \frac{1}{4}\sigma\pi R^4 = \frac{1}{2}MR^2$ $I_x = I_y = \frac{1}{2}I_O = \frac{1}{8}\sigma\pi R^4 = \frac{1}{4}MR^2$
	Cuadrante circular $M = \frac{1}{4}\sigma\pi R^2$ $I_O = \frac{1}{8}\sigma\pi R^4 = \frac{1}{2}MR^2$ $I_x = I_y = \frac{1}{2}I_O = \frac{1}{16}\sigma\pi R^4 = \frac{1}{4}MR^2$

Volúmenes

	Varilla $I_{yG} = 0 \qquad I_{xG} = I_{zG} = \frac{1}{12} M L^2$ $I_{y'} = 0 \qquad I_{x'} = I_{z'} = \frac{1}{3} M L^2$
	Placa rectangular $I_{xG} = \frac{1}{12} M h^2$ $I_{yG} = \frac{1}{12} M (b^2 + h^2)$ $I_{zG} = \frac{1}{12} M b^2$ $I_{xyG} = I_{yzG} = I_{xzG} = 0$
	Placa circular $I_{yG} = \frac{1}{2} M R^2$ $I_{xG} = I_{zG} = \frac{1}{4} M R^2$
	Prisma rectangular $I_{xG} = \frac{1}{12} M (h^2 + L^2)$ $I_{yG} = \frac{1}{12} M (b^2 + h^2)$ $I_{zG} = \frac{1}{12} M (b^2 + L^2)$

	Cono de revolución $x_G = 0 \quad y_G = \frac{3}{4}h \quad z_G = 0$ $I_x = I_z = \frac{3}{20}M(R^2 + 4h^2) \quad I_y = \frac{3}{10}MR^2$ $I_{xG} = I_{zG} = \frac{3}{80}M(4R^2 + h^2) \quad I_{yG} = \frac{3}{10}MR^2$
	Cilindro de revolución $I_{xG} = I_{zG} = \frac{1}{12}M(3R^2 + L^2)$ $I_{yG} = \frac{1}{2}MR^2$
	Semiesfera $x_G = 0 \quad y_G = -\frac{3}{8}R \quad z_G = 0$ $I_{xG} = I_{zG} = \frac{83}{320}MR^2 \quad I_{yG} = \frac{2}{5}MR^2$
	Esfera $I_{xG} = I_{yG} = I_{zG} = \frac{2}{5}MR^2$