PROPIEDADES DE LAS FIGURAS PLANAS

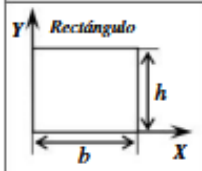
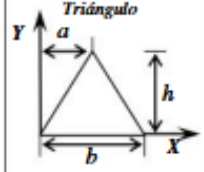
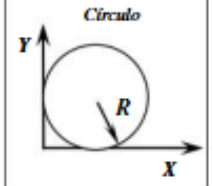
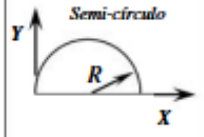
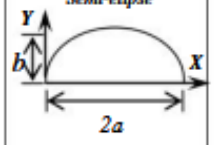
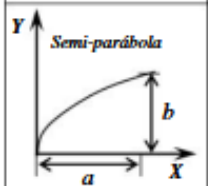
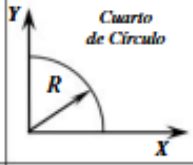
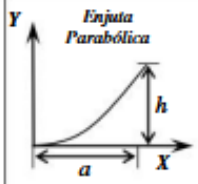
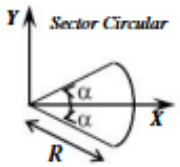
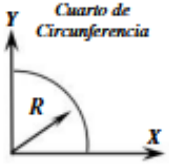
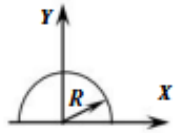
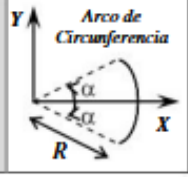
FIGURA	ÁREA Y CENTROIDE	MOMENTO DE INERCIA	PRODUCTO DE INERCIA
Rectángulo 	$A = bh$ $\bar{X} = \frac{b}{2}$ $\bar{Y} = \frac{h}{2}$	$I_X = \frac{bh^3}{3}$; $I_Y = \frac{b^3h}{3}$ $I_{X_C} = \frac{bh^3}{12}$; $I_{Y_C} = \frac{b^3h}{12}$	$I_{XY} = \frac{b^2h^2}{4}$ $I_{X_CY_C} = 0$
Triángulo 	$A = \frac{bh}{2}$ $\bar{X} = \frac{a+b}{3}$ $\bar{Y} = \frac{h}{3}$	$I_X = \frac{bh^3}{12}$; $I_{X_C} = \frac{bh^3}{36}$ $I_Y = \frac{bh}{12}(b^2+ab+a^2)$ $I_{Y_C} = \frac{bh}{36}(b^2-ab+a^2)$	$I_{XY} = \frac{bh^2}{24}(2a+b)$ $I_{X_CY_C} = \frac{bh^2}{72}(2a-b)$
Círculo 	$A = \pi R^2$ $\bar{X} = R$ $\bar{Y} = R$	$I_X = I_Y = \frac{5\pi R^4}{4}$ $I_{X_C} = I_{Y_C} = \frac{\pi R^4}{4}$	$I_{XY} = \pi R^4$ $I_{X_CY_C} = 0$
Semi-círculo 	$A = \frac{\pi R^2}{2}$ $\bar{X} = R$ $\bar{Y} = \frac{4R}{3\pi}$	$I_X = \frac{\pi R^4}{8}$; $I_Y = \frac{5\pi R^4}{8}$ $I_{X_C} = \frac{R^4(9\pi^2-64)}{72\pi}$ $I_{Y_C} = \frac{\pi R^4}{8}$	$I_{XY} = \frac{2R^4}{3}$ $I_{X_CY_C} = 0$
Semi-elipse 	$A = \frac{\pi ab}{2}$ $\bar{X} = a$ $\bar{Y} = \frac{4b}{3\pi}$	$I_X = \frac{\pi ab^3}{8}$; $I_Y = \frac{5\pi a^3b}{8}$ $I_{X_C} = \frac{ab^3}{72\pi}(9\pi^2-64)$ $I_{Y_C} = \frac{\pi a^3b}{8}$	$I_{XY} = \frac{2a^2b^2}{3}$ $I_{X_CY_C} = 0$
Semi-parábola 	$A = \frac{2ab}{3}$ $\bar{X} = \frac{3a}{5}$ $\bar{Y} = \frac{3b}{8}$	$I_X = \frac{2ab^3}{15}$; $I_Y = \frac{2a^3b}{7}$ $I_{xc} = \frac{19ab^3}{480}$; $I_{yc} = \frac{8a^3b}{175}$	$I_{XY} = \frac{a^2b^2}{6}$ $I_{XCYC} = \frac{a^2b^2}{60}$

FIGURA	ÁREA Y CENTROIDE	MOMENTO DE INERCIA	PRODUCTO DE INERCIA
Cuarto de Círculo 	$A = \frac{\pi R^2}{4}$ $\bar{X} = \bar{Y} = \frac{4R}{3\pi}$	$I_X = I_Y = \frac{\pi R^4}{16}$ $I_{X_C} = I_{Y_C} = \frac{R^4}{144\pi}(9\pi^2-64)$	$I_{XY} = \frac{R^4}{8}$ $I_{X_CY_C} = \frac{R^4}{72\pi}(9\pi-32)$
Enjuta Parabólica 	$A = \frac{ah}{3}$ $\bar{X} = \frac{3a}{4}$ $\bar{Y} = \frac{3h}{10}$	$I_X = \frac{ah^3}{21}$ $I_{X_C} = \frac{37ah^3}{2100}$ $I_Y = \frac{a^3h}{5}$ $I_{Y_C} = \frac{a^3h}{80}$	$I_{XY} = \frac{a^2h^2}{12}$ $I_{X_CY_C} = \frac{a^2h^2}{120}$
Sector Circular 	$A = \alpha R^2$ $\bar{X} = \frac{2RSen\alpha}{3\alpha}$ $\bar{Y} = 0$	$I_X = I_{X_C} = \frac{R^4}{4}(\alpha - Sen\alpha\,Cos\alpha)$ $I_Y = \frac{R^4}{4}(\alpha + Sen\alpha\,Cos\alpha)$ $I_{Y_C} = \frac{R^4}{4}(\alpha + Sen\alpha\,Cos\alpha) - \left(\frac{2Rsen\alpha}{3\alpha}\right)^2 \cdot \alpha R^2$	$I_{XY} = 0$ $I_{X_CY_C} = 0$

CENTROIDES DE LINEA

FIGURA	LONGITUD	CENTROIDE
Cuarto de Circunferencia 	$L = \frac{\pi R}{2}$	$\bar{X} = \bar{Y} = \frac{2R}{\pi}$
Semi-circunferencia 	$L = \pi R$	$\bar{X} = 0$ $\bar{Y} = \frac{2R}{\pi}$
Arco de Circunferencia 	$L = 2\alpha R$	$\bar{X} = \frac{R\ Sen\alpha}{\alpha}$ $\bar{Y} = 0$