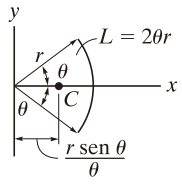
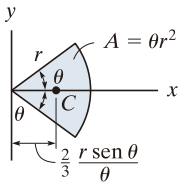
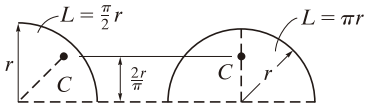
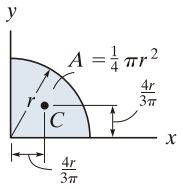
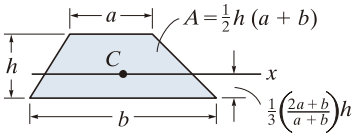
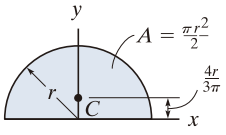
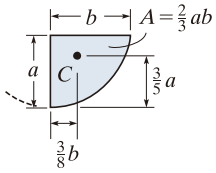
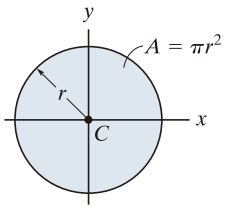
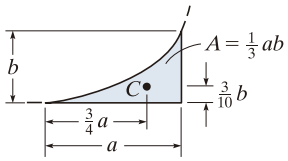
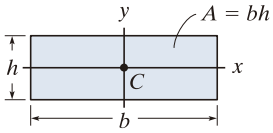
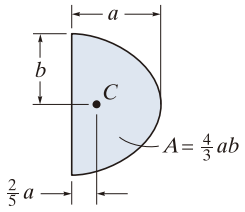
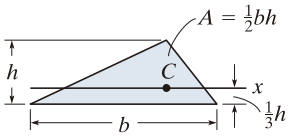
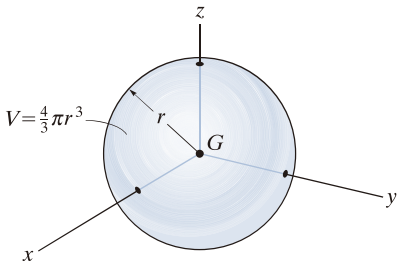
## Propiedades geométricas de elementos lineales y de área

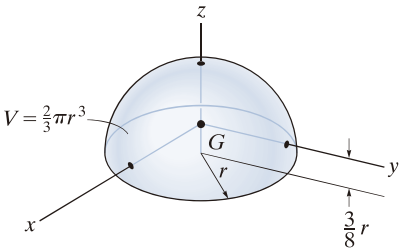
| Ubicación del centroide | Ubicación del centroide | Momento de inercia de área |
|---|---|---|
|  Segmento de arco circular |  Área de un sector circular | $I_x = \frac{1}{4} r^4 (\theta - \frac{1}{2} \operatorname{sen} 2\theta)$<br>$I_y = \frac{1}{4} r^4 (\theta + \frac{1}{2} \operatorname{sen} 2\theta)$ |
|  Arcos de un cuarto de círculo y semicircular |  Área de un cuarto de círculo | $I_x = \frac{1}{16} \pi r^4$<br>$I_y = \frac{1}{16} \pi r^4$ |
|  Área trapezoidal |  Área semicircular | $I_x = \frac{1}{8} \pi r^4$<br>$I_y = \frac{1}{8} \pi r^4$ |
|  Área semiparabólica |  Área circular | $I_x = \frac{1}{4} \pi r^4$<br>$I_y = \frac{1}{4} \pi r^4$ |
|  Área exparabólica |  Área rectangular | $I_x = \frac{1}{12} bh^3$<br>$I_y = \frac{1}{12} hb^3$ |
|  Área parabólica |  Área triangular | $I_x = \frac{1}{36} bh^3$ |

## Centro de gravedad y momento de inercia de masa de sólidos homogéneos



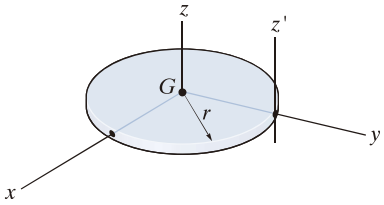

Esfera

$$I_{xx} = I_{yy} = I_{zz} = \frac{2}{5} mr^2$$



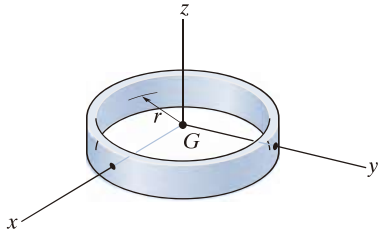

Semiesfera

$$I_{xx} = I_{yy} = 0.259\, mr^2 \quad I_{zz} = \frac{2}{5} mr^2$$



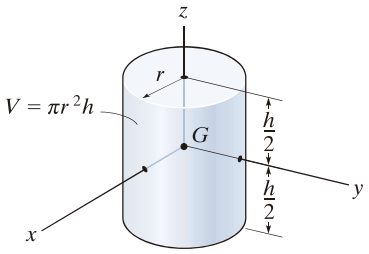

Disco circular delgado

$$I_{xx} = I_{yy} = \frac{1}{4} mr^2 \quad I_{zz} = \frac{1}{2} mr^2 \quad I_{z'z'} = \frac{3}{2} mr^2$$



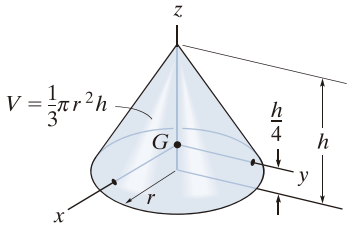

Anillo delgado

$$I_{xx} = I_{yy} = \frac{1}{2} mr^2 \quad I_{zz} = mr^2$$



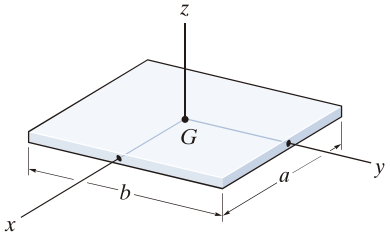

Cilindro

$$I_{xx} = I_{yy} = \frac{1}{12} m(3r^2 + h^2) \quad I_{zz} = \frac{1}{2} mr^2$$



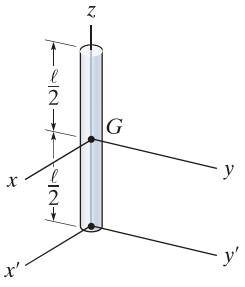

Cono

$$I_{xx} = I_{yy} = \frac{3}{80} m(4r^2 + h^2) \quad I_{zz} = \frac{3}{10} mr^2$$




Placa delgada

$$I_{xx} = \frac{1}{12} mb^2 \quad I_{yy} = \frac{1}{12} ma^2 \quad I_{zz} = \frac{1}{12} m(a^2 + b^2)$$




Varilla delgada

$$I_{xx} = I_{yy} = \frac{1}{12} m\ell^2 \quad I_{x'x'} = I_{y'y'} = \frac{1}{3} m\ell^2 \quad I_{z'z'} = 0$$