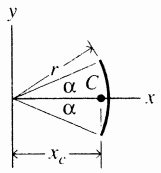
TABLE 5-1 Centroid Locations For A Few Common Line Segments And Areas

Circular arc

$L = 2r\alpha$

$x_C = \dfrac{r \sin \alpha}{\alpha}$

$y_C = 0$

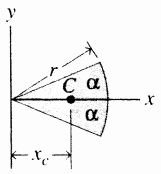


Circular sector

$A = r^2\alpha$

$x_C = \dfrac{2r \sin \alpha}{3\alpha}$

$y_C = 0$

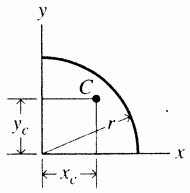


Quarter circular arc

$L = \dfrac{\pi r}{2}$

$x_C = \dfrac{2r}{\pi}$

$y_C = \dfrac{2r}{\pi}$

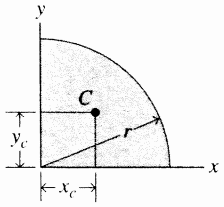


Quadrant of a circle

$A = \dfrac{\pi r^2}{4}$

$x_C = \dfrac{4r}{3\pi}$

$y_C = \dfrac{4r}{3\pi}$

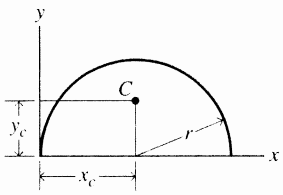


Semicircular arc

$L = \pi r$

$x_C = r$

$y_C = \dfrac{2r}{\pi}$

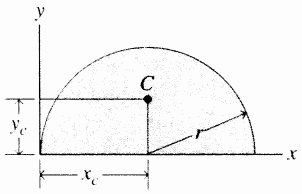


Semicircular area

$A = \dfrac{\pi r^2}{2}$

$x_C = r$

$y_C = \dfrac{4r}{3\pi}$

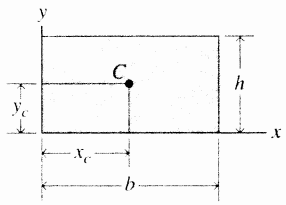


Rectangular area

$A = bh$

$x_C = \dfrac{b}{2}$

$y_C = \dfrac{h}{2}$



Quadrant of an ellipse

$A = \dfrac{\pi ab}{4}$

$x_C = \dfrac{4a}{3\pi}$

$y_C = \dfrac{4b}{3\pi}$

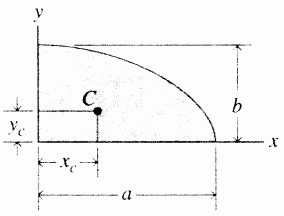


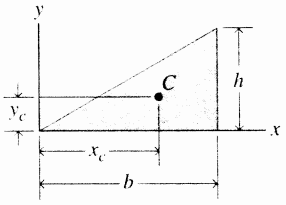
TABLE 5-1 (*Continued*)

Triangular area

$A = \dfrac{bh}{2}$

$x_C = \dfrac{2b}{3}$

$y_C = \dfrac{h}{3}$

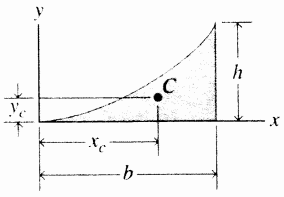


Parabolic spandrel

$A = \dfrac{bh}{3}$

$x_C = \dfrac{3b}{4}$

$y_C = \dfrac{3h}{10}$

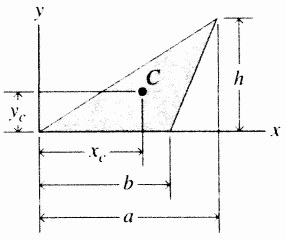


Triangular area

$A = \dfrac{bh}{2}$

$x_C = \dfrac{a + b}{3}$

$y_C = \dfrac{h}{3}$



Quadrant of a parabola

$A = \dfrac{2bh}{3}$

$x_C = \dfrac{5b}{8}$

$y_C = \dfrac{2h}{5}$