



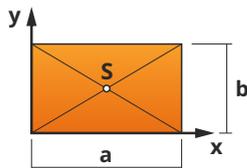
M3

Flächenschwerpunkte

von ausgewählten ebenen Flächen

Rechteck

Seite a, Seite b



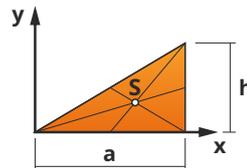
$$A = ab$$

$$x_S = \frac{a}{2}$$

$$y_S = \frac{b}{2}$$

Dreieck

Seite a, Höhe h



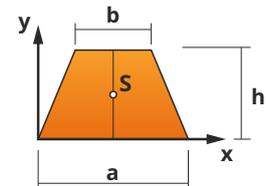
$$A = \frac{ah}{2}$$

$$x_S = \frac{2a}{3}$$

$$y_S = \frac{h}{3}$$

Trapez

Seite a, Seite b, Höhe h



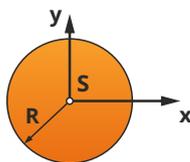
$$A = \frac{h(a+b)}{2}$$

$$x_S = \frac{a}{2}$$

$$y_S = \frac{h(a+2b)}{3(a+b)}$$

Kreis

Radius R



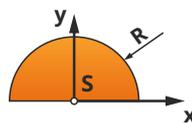
$$A = r^2\pi$$

$$x_S = 0$$

$$y_S = 0$$

Halbkreis

Radius R



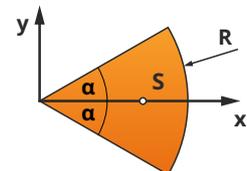
$$A = \frac{r^2\pi}{2}$$

$$x_S = 0$$

$$y_S = \frac{4r}{3\pi}$$

Kreissector

Radius R, Winkel α



$$A = \alpha r^2$$

$$x_S = \frac{2r \sin \alpha}{3\alpha}$$

$$y_S = 0$$

Linienschwerpunkt

allgemein

$$x_S = \frac{1}{l} \int x ds$$

$$y_S = \frac{1}{l} \int y ds$$

Flächenschwerpunkt

allgemein

$$x_S = \frac{1}{A} \int x dA$$

$$y_S = \frac{1}{A} \int y dA$$

Bekannte Flächen

zusammengesetzt

$$x_S = \frac{\sum x_i A_i}{\sum A_i}$$

$$y_S = \frac{\sum y_i A_i}{\sum A_i}$$