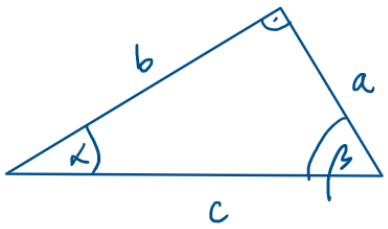
TRIGONOMETRIE DER SPITZEN WINKEL

Rechtwinkliges Dreieck



a : Gegenkathete von α

Ankathete von β

b : Gegenkathete von β

Ankathete von α

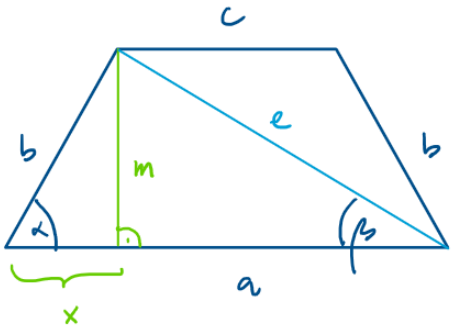
$$\sin\alpha = \frac{\text{Gegenkathete von } \alpha}{\text{Hypotenuse}} = \frac{a}{c} = \frac{\text{Ankathete von } \beta}{\text{Hypotenuse}} = \cos\beta = \cos(90^0 - \alpha)$$

$$\cos\alpha = \frac{\text{Ankathete von } \alpha}{\text{Hypotenuse}} = \frac{b}{c} = \frac{\text{Gegenkathete von } \beta}{\text{Hypotenuse}} = \sin\beta = \sin(90^0 - \alpha)$$

$$\operatorname{tg}\alpha = \frac{\text{Gegenkathete von } \alpha}{\text{Ankathete von } \alpha} = \frac{a}{b} = \frac{\text{Ankathete von } \beta}{\text{Gegenkathete von } \beta} = \operatorname{ctg}\beta = \operatorname{ctg}(90^0 - \alpha)$$

$$\operatorname{ctg}\alpha = \frac{\text{Ankathete von } \alpha}{\text{Gegenkathete von } \alpha} = \frac{b}{a} = \frac{\text{Gegenkathete von } \alpha}{\text{Ankathete von } \alpha} = \operatorname{tg}\beta = \operatorname{tg}(90^0 - \alpha)$$

Sehnentrapez



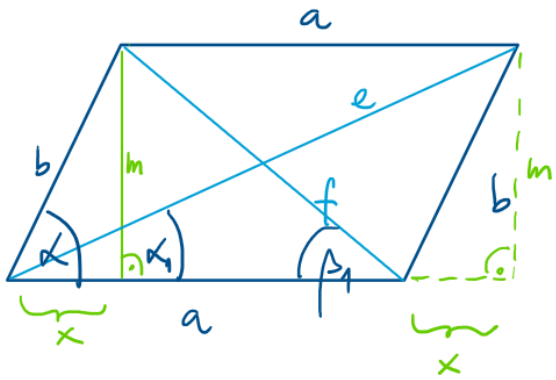
$x^2 + m^2 = b^2$

$a^2 + m^2 = e^2$

$\sin\alpha = \frac{m}{b}$ $\quad \operatorname{tg}\alpha = \frac{m}{x}$ $\quad \sin\beta = \frac{m}{e}$ $\quad \cos\beta = \frac{a-x}{e}$

$\cos\alpha = \frac{x}{b}$ $\quad \operatorname{tg}\beta = \frac{m}{a-x}$

Parallelogram



$$x^2 + m^2 = b^2$$

$$(a-x)^2 + m^2 = f^2$$

$$(a+x)^2 + m^2 = e^2$$

$$\sin\alpha = \frac{m}{b} \qquad \sin\alpha_1 = \frac{m}{e} \qquad \sin\beta_1 = \frac{m}{f}$$

$$\cos\alpha = \frac{x}{b} \qquad \cos\alpha_1 = \frac{a+x}{e} \qquad \cos\beta_1 = \frac{a-x}{f}$$

$$\operatorname{tg}\alpha = \frac{m}{x} \qquad \operatorname{tg}\alpha_1 = \frac{m}{a+x} \qquad \operatorname{tg}\beta_1 = \frac{m}{a-x}$$