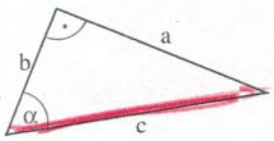
3. Trigonometrische Berechnungen

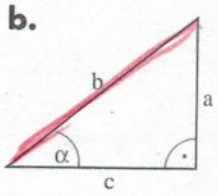
Sinus, Kosinus und Tangens als Streckenverhältnis

1. Färbe die Hypotenuse rot. Ergänze die Tabelle.

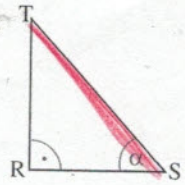
a.



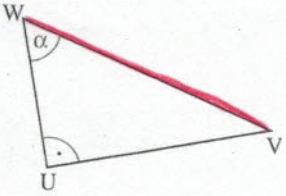
b.



c.



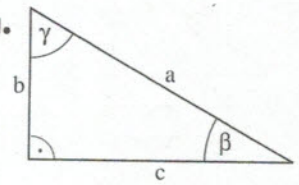
d.



	a.	b.	c.	d.
Hypotenuse	c	b	$\overline{TS}$	$\overline{VW}$
Gegenkathete zu α	a	a	$\overline{TR}$	$\overline{UV}$
Ankathete zu α	b	c	$\overline{RS}$	$\overline{UW}$

2. Gib das entsprechende Streckenverhältnis an!

a.

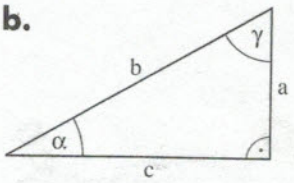


$\sin\beta = \frac{b}{a}$ $\quad \sin\gamma = \frac{c}{a}$

$\cos\beta = \frac{c}{a}$ $\quad \cos\gamma = \frac{b}{a}$

$\tan\beta = \frac{b}{c}$ $\quad \tan\gamma = \frac{c}{b}$

b.

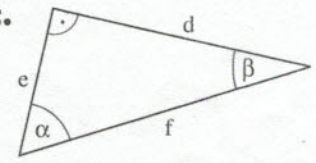


$\sin\alpha = \frac{a}{b}$ $\quad \sin\gamma = \frac{c}{b}$

$\cos\alpha = \frac{c}{b}$ $\quad \cos\gamma = \frac{a}{b}$

$\tan\alpha = \frac{a}{c}$ $\quad \tan\gamma = \frac{c}{a}$

c.



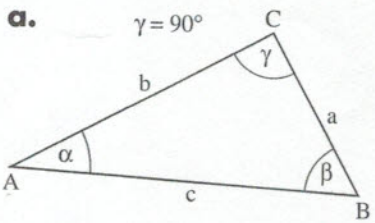
$\sin\alpha = \frac{d}{f}$ $\quad \sin\beta = \frac{e}{f}$

$\cos\alpha = \frac{e}{f}$ $\quad \cos\beta = \frac{d}{f}$

$\tan\alpha = \frac{d}{e}$ $\quad \tan\beta = \frac{e}{d}$

3. Gib für die Streckenverhältnisse den Sinus, Kosinus bzw. Tangens mit dem entsprechenden Winkel an.

a.

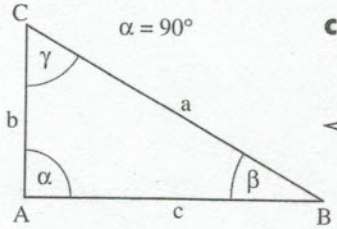


$\frac{a}{c} = \underline{\sin\alpha} = \underline{\cos\beta}$

$\frac{b}{c} = \underline{\cos\alpha} = \underline{\sin\beta}$

$\frac{a}{b} = \underline{\tan\alpha}$

b.

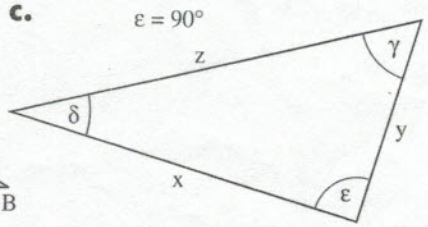


$\frac{b}{a} = \underline{\sin\beta = \cos\gamma}$

$\frac{c}{a} = \underline{\cos\beta = \sin\gamma}$

$\frac{b}{c} = \underline{\tan\beta}$

c.



$\frac{y}{z} = \underline{\sin\delta = \cos\gamma}$

$\frac{x}{z} = \underline{\cos\delta = \sin\gamma}$

$\frac{y}{x} = \underline{\tan\delta}$