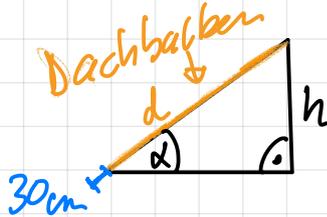


# S. 139 Anwendungsaufgaben

! 1) Planfigur mathematische Skizze  
mit Beschriftung

A 6 ; A 9 Rest HA für Donnerstag

A 6 |



$$\sin \alpha = \frac{h}{d}$$

$$\sin 35^\circ = \frac{4,2}{d} \quad | \cdot 4,2$$

$$\frac{\sin 35^\circ}{4,2} = \frac{1}{d} \quad | \curvearrowright$$

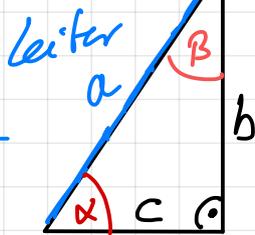
$$d = \frac{4,2}{\sin 35^\circ} = 7,3$$

$$d + 0,3 = 7,6 \text{ (m)}$$

Der Dachbalken ist 7,6 m lang.

A9]

a)



$\alpha = 70^\circ$

Fensterbrett  
(3m)

Hauswand

Winkelsumme

$$\beta = 180^\circ - 90^\circ - 70^\circ = 20^\circ$$

$$\cos \beta = \frac{b}{a}$$

$$\cos 20^\circ = \frac{b}{3,7} \quad | \cdot 3,7$$

$$\cos(20^\circ) \cdot 3,7 = b$$

$$b = 3,48 > 3$$

Ja, denn sie reicht bis zu 3,48 m.

b)

Abstand c

$$\cos(\alpha) = \frac{c}{a} \Rightarrow \cos(70^\circ) = \frac{c}{3,7} \quad | \cdot 3,7$$

...

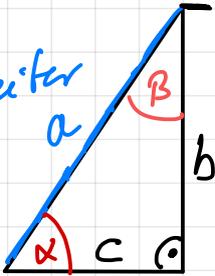
$$c = 1,27 \text{ m}$$

Die Entfernung ... 1,27 m.

A9]

c)

Leiter  
a



$a = 3,7$

Fensterbrett  
(3m)

Hauswand

$\alpha = 65^\circ \dots b = 3,35 \text{ m}$

$\alpha = 75^\circ \dots b = 3,57 \text{ m}$

Die Höhe liegt zwischen 3,35 m  
und 3,57 m.

d)

$b = 3,5 \text{ m}$

$\sin(\alpha) = \frac{b}{a} = \frac{3,5}{3,7} \quad | \sin^{-1}()$

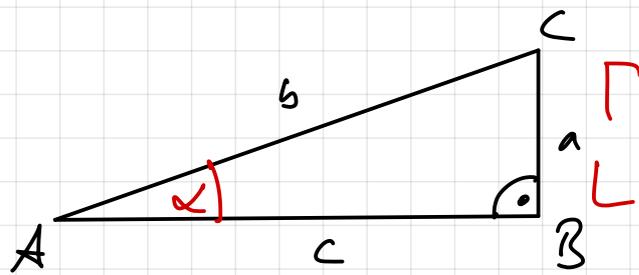
$\alpha = \sin^{-1}\left(\frac{3,5}{3,7}\right) = 71^\circ$

oooo  $71^\circ$

S. 141

Tangens

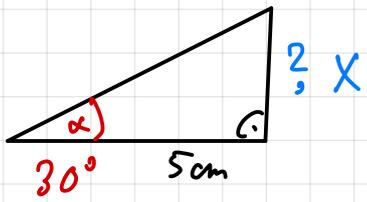
Merksatz ins Heft



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

 $\left[ \begin{array}{l} \text{Gegenkathete} \\ \text{Ankathete} \end{array} \right]$

Bsp. :

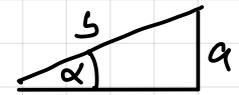


$\tan(30^\circ) = \frac{x}{5} \quad | \cdot 5$

$\tan(30^\circ) \cdot 5 = x$

$x \approx 2,89 \text{ cm}$

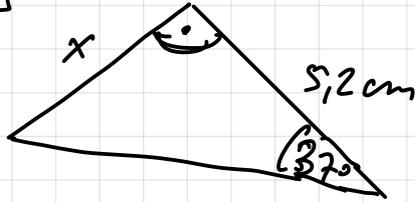
Mathematischer :  $\tan(\alpha) = \frac{\sin(\alpha)}{\cos(\alpha)}$



$\frac{a}{c} = \tan(\alpha) = \frac{\sin(\alpha)}{\cos(\alpha)} = \frac{\frac{a}{c}}{\frac{b}{c}} = \frac{a}{\cancel{c}} \cdot \frac{\cancel{c}}{b} = \frac{a}{b}$

S.142

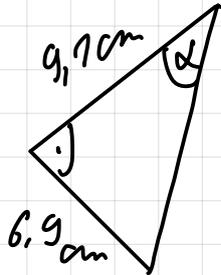
A2a]



$$\tan(37^\circ) = \frac{x}{5,2} \quad | \cdot 5,2$$

$$\tan(37^\circ) \cdot 5,2 = 3,9 \text{ (cm)}$$

A3a]



$$\tan \alpha = \frac{6,9}{9,1} \quad | \tan^{-1}$$

$$\alpha = \tan^{-1}\left(\frac{6,9}{9,1}\right)$$

$$\alpha = 37,2^\circ$$