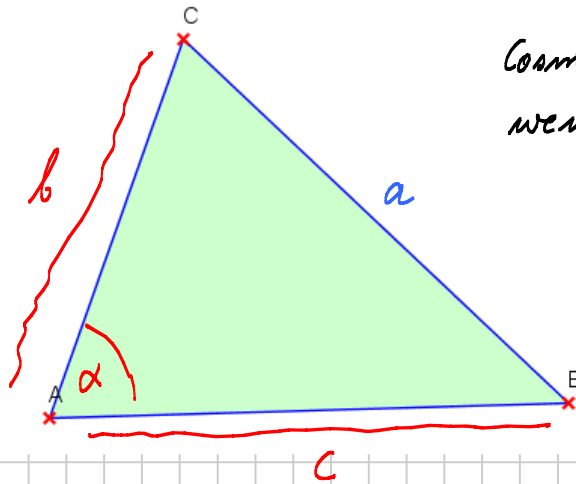


Übungen Buch S150/2

Notiztitel

18.05.2007

$$c = 10 \quad b = 6 \quad \alpha = 40^\circ$$



Cosinussatz immer dann wenn

2 Seiten und den Zwischenwinkel gegeben ist

$$a^2 = b^2 + c^2 - 2bc \cos \alpha$$

$$a^2 = 6^2 + 10^2 - 2 \cdot 6 \cdot 10 \cos 40^\circ$$

$$a^2 = 36 + 100 - 91,92$$

$$a = 6,64$$

$$c^2 = a^2 + b^2 - 2ba \cdot \cos \gamma$$

$$\begin{aligned} 2b \cdot a \cos \gamma &= a^2 + b^2 - c^2 \\ \cos \gamma &= \frac{a^2 + b^2 - c^2}{2 \cdot b \cdot a} \end{aligned}$$

$$\cos \gamma = -0,25$$

manche TR akzeptieren negative Werte

Rechenrechnung

$$\cos \gamma^* = 0,25$$

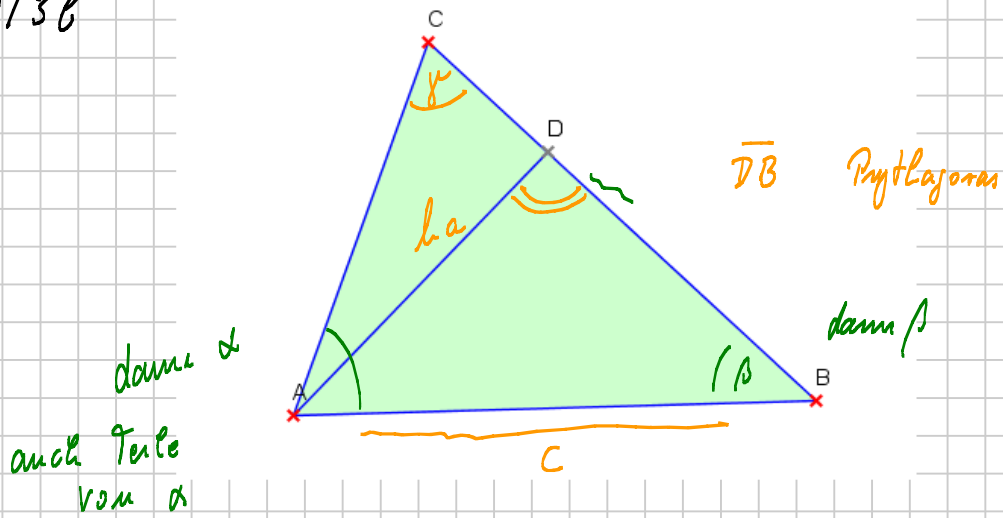
$$\gamma^* = 75,5^\circ$$

$$\gamma = 180^\circ - 75$$

$$\gamma = 105^\circ$$

$$\beta = 180^\circ - 105^\circ - 40^\circ = 35^\circ$$

150/36



$$\sin \beta = \frac{h_a}{c} \rightarrow \sin \beta = \frac{5}{6}$$
$$\alpha = 50,6^\circ \quad \beta = 56,4^\circ$$

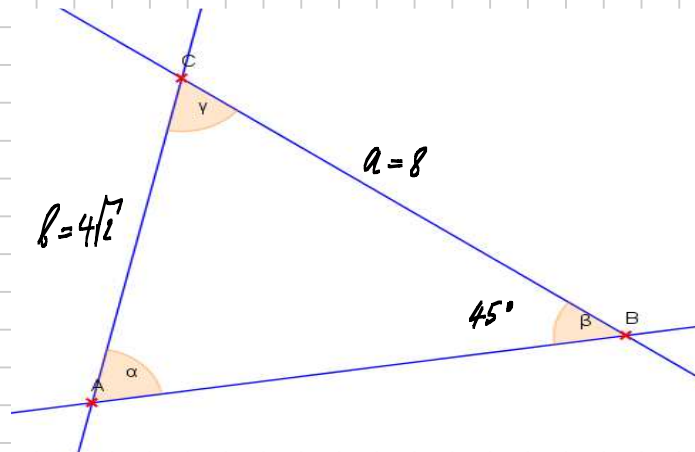
$$\frac{c}{\sin \gamma} = \frac{b}{\sin \beta} \rightarrow b = c \cdot \frac{\sin \beta}{\sin \gamma}$$

$$b = 5,22$$

$$\frac{a}{\sin \alpha} = \frac{c}{\sin \gamma} \rightarrow a = c \cdot \frac{\sin \alpha}{\sin \gamma}$$

$$a = 4,8$$

2d



$$\frac{b}{\sin \beta} = \frac{a}{\sin \alpha}$$

$$\frac{b}{\sin \beta \cdot a} = \frac{1}{\sin \alpha}$$

$$\sin \alpha = \frac{\sin \beta \cdot a}{b}$$

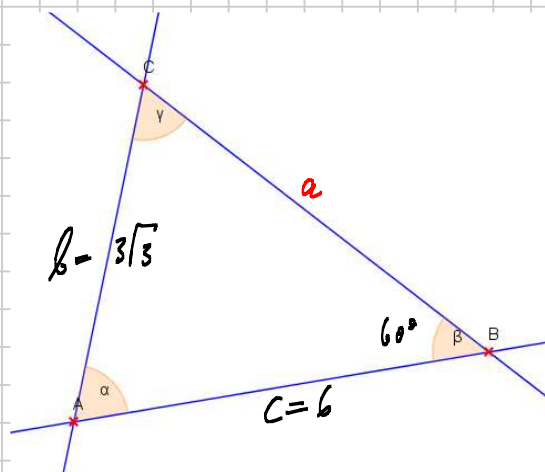
$$\alpha = 90^\circ \quad \rightarrow \quad \gamma = 45^\circ$$

gleichschenkelig !!

$$c = 4\sqrt{2}$$

151/11 a

rechtwinklig bei G $\alpha = 90^\circ - \beta$



1a

$$b^2 = a^2 + c^2 - 2 \cdot a \cdot c \cdot \cos \beta$$

auflösen nach a

$$c^2 (\cos \beta)^2 + b^2 - c^2 = a^2 - a \cdot \boxed{2 \cdot c \cdot \cos \beta} + (c \cdot \cos \beta)^2$$

$$c^2 (\cos \beta)^2 + b^2 - c^2 = (a - c \cdot \cos \beta)^2$$

entweder

$$a - c \cos \beta = + \sqrt{c^2 (\cos \beta)^2 + b^2 - c^2}$$