

6. Similause

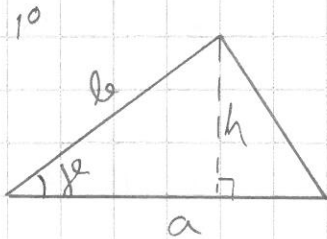
Esim. $\begin{cases} \sin 10^\circ \approx 0,174 \\ \sin 170^\circ \approx 0,174 \end{cases}$

$\begin{cases} \sin 50^\circ \approx 0,766 \\ \sin 130^\circ \approx 0,766 \end{cases}$

Yleist.

$$\sin \alpha = \sin (180^\circ - \alpha)$$

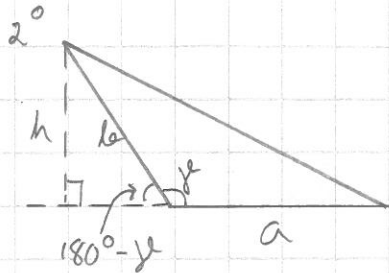
SININ SYMMETRIALAUSE



$$\sin \gamma = \frac{h}{b} \quad | \cdot b$$

$$\Rightarrow h = b \sin \gamma$$

$$A = \frac{1}{2} \cdot a \cdot h = \frac{1}{2} a b \sin \gamma$$



$$\sin (180^\circ - \gamma) = \frac{h}{b} \quad | \cdot b$$

$$\Rightarrow h = b \sin (180^\circ - \gamma)$$

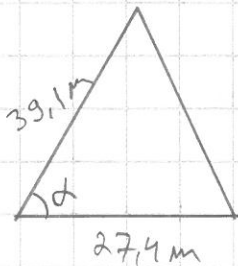
$$A = \frac{1}{2} \cdot a \cdot h = \frac{1}{2} a b \sin (180^\circ - \gamma) = \frac{1}{2} a b \sin \gamma$$

1° ja 2° $\Rightarrow$

$$A = \frac{1}{2} a b \sin \gamma$$

KOLMION ALAN TRIGONOMETRINEN KAAVA

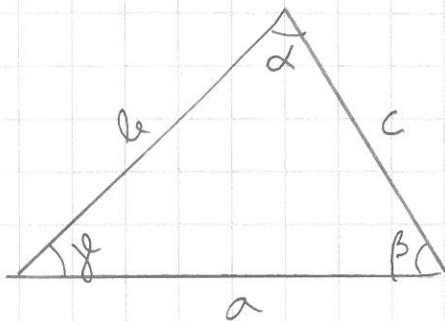
6.2 b)



$$A = \frac{1}{2} \cdot 27,4 \text{ m} \cdot 39,1 \text{ m} \cdot \sin \alpha = 346 \text{ m}^2 \quad | \cdot \frac{2}{27,4 \text{ m} \cdot 39,1 \text{ m}}$$

$$\Rightarrow \sin \alpha = \frac{346 \text{ m}^2 \cdot 2}{27,4 \text{ m} \cdot 39,1 \text{ m}} \quad \Rightarrow \alpha \approx 40,2^\circ$$

$$\underline{\underline{\text{tai } \alpha \approx 180^\circ - 40,2^\circ = 139,8^\circ}}$$



$$A = \frac{1}{2} a b \sin \gamma = \frac{1}{2} a c \sin \beta = \frac{1}{2} b c \sin \alpha \quad | \cdot \frac{2}{a b c}$$

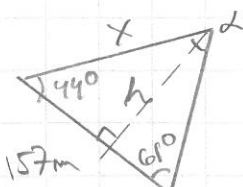
$$\Rightarrow \frac{\sin \gamma}{c} = \frac{\sin \beta}{b} = \frac{\sin \alpha}{a} \quad | ()^{-1}$$

$$\Rightarrow \boxed{\frac{a}{\sin \alpha} = \frac{b}{\sin \beta} = \frac{c}{\sin \gamma}} \quad \text{SINILAUSE}$$

Huom. 1° Similause pätee kaikille kolmioille.

2° Similauselta voidaan käyttää kun tunnetaan 4 suureesta: sinin ja vastainen kulma 3 suureelta.

6.9



$$\alpha = 180^\circ - 44^\circ - 61^\circ = 75^\circ$$

$$\text{Similause: } \frac{x}{\sin 61^\circ} = \frac{152 \text{ m}}{\sin 75^\circ} \quad | \cdot \sin 61^\circ$$