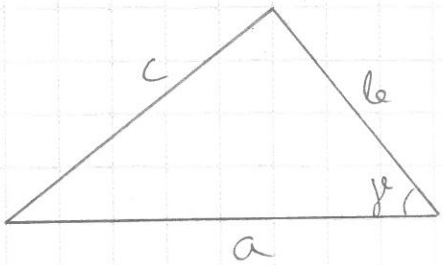
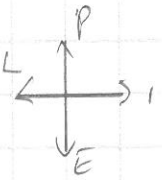
7. Kosinilause

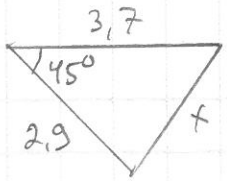


$$c^2 = a^2 + b^2 - 2ab\cos\gamma$$ KOSINILAUSE

Huom. 1° Kosinilause pätee kaikille kolmioille.
2° Kosinilausetta voidaan kokea
- sivun kun tiedetään 2 sivua ja 1 kulma
- kulma — " — 3 sivua

7.6



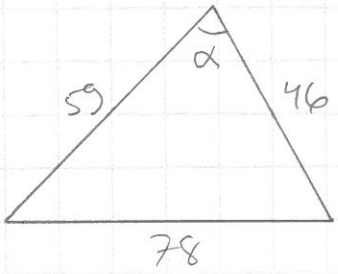


Kosinilause:

$x^2 = 3{,}7^2 + 2{,}9^2 - 2\cdot 3{,}7\cdot 2{,}9\cdot\cos 45°$ |√

$\Leftrightarrow x = \pm 2{,}63163 \approx 2{,}6$ (merkeissä kuk

7.4



Kosinilause:

$78^2 = 46^2 + 59^2 - 2\cdot 46\cdot 59\cdot\cos\alpha$

$\Leftrightarrow 78^2 - 46^2 - 59^2 = -2\cdot 46\cdot 59\cdot\cos\alpha$ |:(-2·46·59)

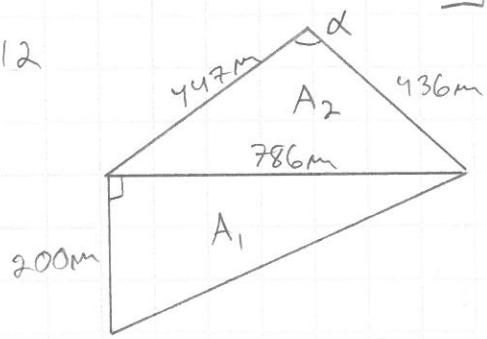
$\Leftrightarrow \cos\alpha = \dfrac{78^2 - 46^2 - 59^2}{-2\cdot 46\cdot 59} \Rightarrow \underline{\alpha \approx 95{,}1°}$

$\Gamma\ 6 = 5 + 4 - 3x$

$\Leftrightarrow 6 - 5 - 4 = -3x$ |:-3

$\Leftrightarrow x = \dfrac{6-5-4}{-3}$ ⌟

7.12



Kosinilause:

$786^2 = 436^2 + 447^2 - 2\cdot 436\cdot 447\cdot\cos\alpha$

$\Leftrightarrow 786^2 - 436^2 - 447^2 = -2\cdot 436\cdot 447\cdot\cos\alpha$

$\Leftrightarrow \cos\alpha = \dfrac{786^2 - 436^2 - 447^2}{-2\cdot 436\cdot 447} \Rightarrow \alpha \approx 125{,}779°$

$A = A_1 + A_2 = \frac{1}{2}\cdot 786\text{m}\cdot 200\text{m} + \frac{1}{2}\cdot 436\text{m}\cdot 447\text{m}\cdot\sin\alpha$

$\approx 157\,656\ \text{m}^2 \approx \underline{15{,}8\ \text{ha}}$



$1\ \text{ha} = (100\text{m})^2 = 10\,000\ \text{m}^2$