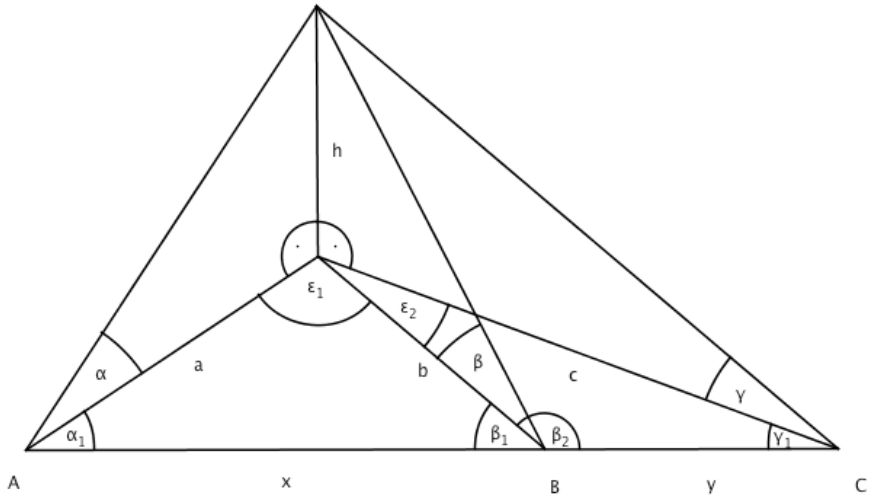
LÖSUNG ZU 804:



h = 75 m α = 9° ε_1 = 60° β = 6° ε_2 = 20°

tan(α) = $\frac{h}{a}$ → a = $\frac{h}{\tan(\alpha)} = \frac{75}{\tan(9^o)} \approx$ 473,53 m

tan(β) = $\frac{h}{b}$ → b = $\frac{h}{\tan(\beta)} = \frac{75}{\tan(6^o)} \approx$ 713,58 m

x = $\sqrt{a^2 + b^2 - 2ab \cdot \cos(\varepsilon_1)}$ → x ≈ 628,91 m

$\frac{\sin(\alpha_1)}{b} = \frac{\sin(\varepsilon_1)}{x}$ → $\sin(\alpha_1) = \frac{\sin(\varepsilon_1)}{x} \cdot b$ → $\alpha_1 \approx 79{,}30°$

$\beta_1 = 180° - (\alpha_1 + \varepsilon_1)$ → $\beta_1 \approx 40{,}70°$

$\beta_2 = 180° - \beta_1$ → $\beta_2 \approx 139{,}30°$

$\gamma_1 = 180° - (\beta_2 + \varepsilon_2)$ → $\gamma_1 \approx 20{,}70°$

$\frac{y}{\sin(\varepsilon_2)} = \frac{b}{\sin(\gamma_1)}$ → $y = \frac{b}{\sin(\gamma_1)} \cdot \sin(\varepsilon_2) \approx$ 690,53 m

$\frac{c}{\sin(\beta_2)} = \frac{b}{\sin(\gamma_1)}$ → $c = \frac{b}{\sin(\gamma_1)} \cdot \sin(\beta_2) \approx$ 1 316, 50 m

tan(γ) = $\frac{h}{c}$ → $\gamma = \tan^{-1}(\frac{75}{1316{,}50}) \approx 3{,}26°$