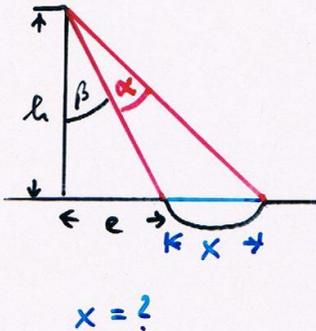


S. 141/17



$$h = 28,6 \text{ m} ; e = 16,0 \text{ m} ; \alpha = 17^\circ$$

$$x = ?$$

$$\tan \beta = \frac{e}{h} = \frac{16}{28,6} \Rightarrow$$

$$\beta = \tan^{-1} \left(\frac{16}{28,6} \right) = 29,224 \dots^\circ \approx 29,2^\circ$$

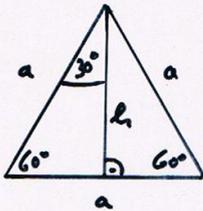
$$\tan(\alpha + \beta) = \frac{x + e}{h} \Rightarrow$$

$$x + e = h \cdot \tan(17^\circ + 29,2^\circ) \Rightarrow$$

$$x = 28,6 \text{ m} \cdot \tan 46,2^\circ - 16,0 \text{ m}$$

$$x = 13,82 \dots \text{ m} = 13,8 \text{ m}$$

Aufgabe: Zeige $\sin 60^\circ = \frac{1}{2} \cdot \sqrt{3}$ und $\sin 30^\circ = \frac{1}{2}$



$$h^2 + \left(\frac{a}{2}\right)^2 = a^2 \Leftrightarrow$$

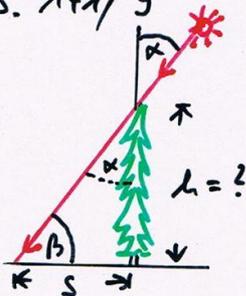
$$h^2 = a^2 - \frac{1}{4} a^2 \Leftrightarrow h^2 = \frac{3}{4} a^2$$

$$\Leftrightarrow h = \frac{\sqrt{3}}{2} a$$

$$\sin 60^\circ = \frac{h}{a} = \frac{\frac{\sqrt{3}}{2} a}{a} = \frac{\sqrt{3}}{2} = \cos 30^\circ$$

$$\cos 60^\circ = \sin 30^\circ = \frac{a/2}{a} = \frac{1}{2}$$

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$$s = 27,5 \text{ m} ; \alpha = 38,5^\circ ; h = ?$$

$$\beta + \alpha = 90^\circ \Rightarrow \beta = 90^\circ - 38,5^\circ = 51,5^\circ$$

$$\tan \beta = \frac{h}{s} \Rightarrow h = s \cdot \tan \beta$$

$$h = 27,5 \text{ m} \cdot \tan 51,5^\circ = 34,57 \dots \text{ m}$$

$$h \approx 34,6 \text{ m}$$