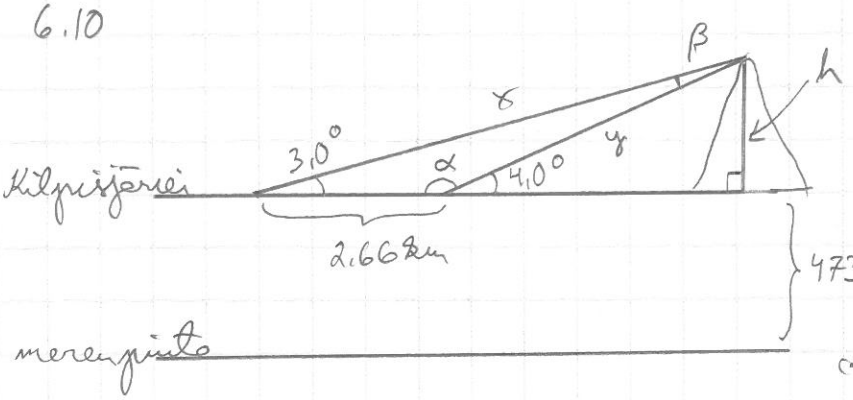
$\Leftrightarrow x = \frac{157\,m \cdot \sin 61^\circ}{\sin 75^\circ} \approx 142{,}159\,m$

$\sin 44^\circ = \frac{h}{x} \quad | \cdot x \quad \Leftrightarrow h = 142{,}159\,m \cdot \sin 44^\circ \approx 98{,}752\,m \approx \underline{99\,m}$

6.10



$\alpha = 180^\circ - 4{,}0^\circ = 176^\circ$

$\beta = 180^\circ - 176^\circ - 3{,}0^\circ = 1^\circ$

Sinilause:

$\frac{y}{\sin 3{,}0^\circ} = \frac{2{,}668\,km}{\sin 1^\circ} \quad | \cdot \sin 3{,}0^\circ$

$\Leftrightarrow y = \frac{2{,}668\,km \cdot \sin 3^\circ}{\sin 1^\circ} \approx 7{,}9778\,km$

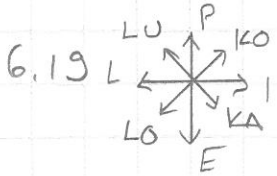
$(x \approx 10{,}632\,km)$

$\sin 4^\circ = \frac{h}{y} \quad | \cdot y$

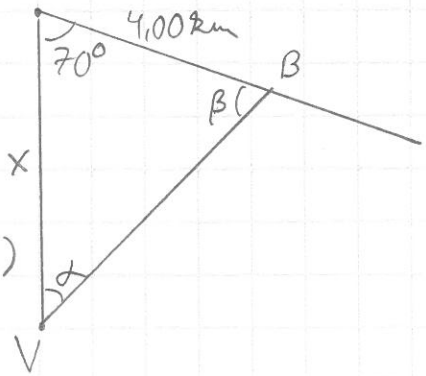
$\Leftrightarrow h = y \sin 4^\circ = 7{,}9778\,km \cdot \sin 4^\circ \approx 0{,}55648\,km$

Korkeus merenpinnasta: $556\,m + 473\,m = 1029\,m \approx \underline{1{,}03\,km}$

6.19



yhkoalta:



$\alpha = 45^\circ$ (ilmansuunnat)

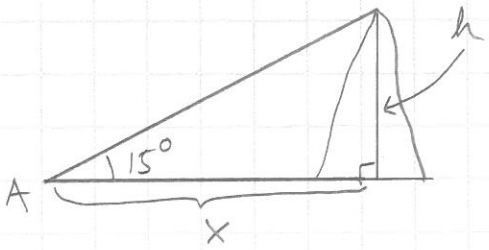
$\beta = 180^\circ - 70^\circ - 45^\circ = 65^\circ$

Sinilause:

$\frac{x}{\sin 65^\circ} = \frac{4{,}00\,km}{\sin 45^\circ} \quad | \cdot \sin 65^\circ$

$\Leftrightarrow x = \frac{4{,}00\,km \cdot \sin 65^\circ}{\sin 45^\circ} \approx 5{,}12685\,km$

sivulta:



$\tan 15^\circ = \frac{h}{x} \quad | \cdot x$

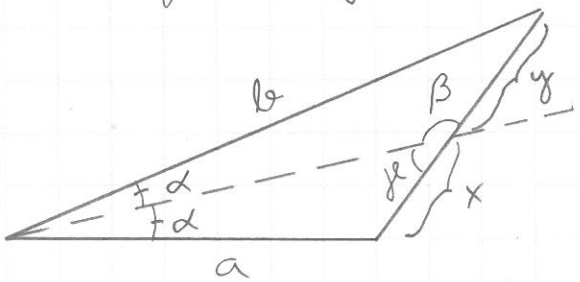
$\Leftrightarrow h = x \tan 15^\circ$

$= 5{,}12685\,km \cdot \tan 15^\circ$

$\approx 1{,}3737\,km$

$\approx \underline{1{,}37\,km}$

Esim. Kulmanpuolittaja:



Sinilause: $| \cdot \frac{\sin\alpha}{a}$

$$\begin{cases} \frac{x}{\sin\alpha} = \frac{a}{\sin\gamma} & \Leftrightarrow \frac{x}{a} = \frac{\sin\alpha}{\sin\gamma} \\ \frac{y}{\sin\alpha} = \frac{b}{\sin\beta} & \Leftrightarrow \frac{y}{b} = \frac{\sin\alpha}{\sin\beta} \end{cases}$$

$\sin\beta = \sin\gamma$

$\Rightarrow \underline{\frac{x}{a} = \frac{y}{b}} \Leftrightarrow \underline{\frac{x}{y} = \frac{a}{b}}$ kulmanpuolittajalause