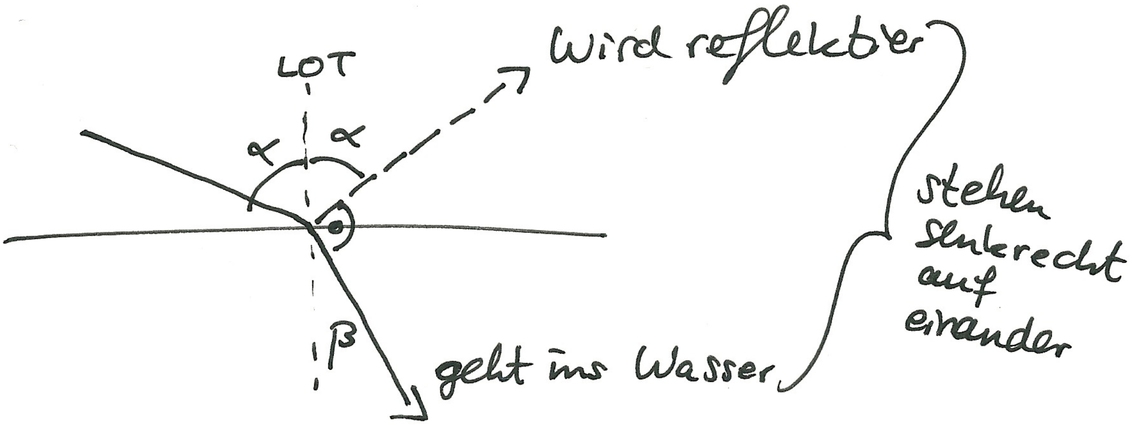
5.122



$$\alpha + \beta = \frac{\pi}{2}$$

$$\frac{\sin\alpha}{\sin\beta} = 1{,}33 \Rightarrow \frac{\sin\alpha}{\sin(\frac{\pi}{2}-\alpha)} = 1{,}33 \Rightarrow \frac{\sin(\alpha)}{\cos(\alpha)} = 1{,}33$$

also, $\tan(\alpha) = 1{,}33 \quad \Rightarrow \alpha \cong 53^\circ$

6.06 (a) $x = R \cdot \cos(60^\circ) = 5 \cdot \cos(60^\circ)$
$y = 5 \cdot \sin(60^\circ)$

(b) $x = 8 \cdot \cos(75^\circ)$ TR!
$y = 8 \cdot \sin(75^\circ)$

6.07 (a) $\varphi = \arctan(\frac{4}{3}) \approx 53^\circ$
$r = \sqrt{x^2+y^2} = 5$

(b) $\varphi = \arctan(\frac{5}{12}) = \ldots$ TR ...
$r = \sqrt{5^2+12^2} = 13$

6.17
$\sin 0^\circ = 0$ $\quad \sin 90^\circ = 1$ $\quad \sin 180^\circ = 0$ $\quad \sin 270^\circ = -1$.
$\cos 0^\circ = 1$ $\quad \cos 90^\circ = 0$ $\quad \cos 180^\circ = -1$ $\quad \cos 270^\circ = 0$.

6.21
a) $\sin\varphi > 0$ $\quad 0^\circ < \varphi < 180^\circ$
b) $\cos\varphi > 0$ $\quad -90^\circ < \varphi < 90^\circ$
c) $\sin\varphi < 0$ $\quad 180^\circ < \varphi < 360^\circ$
d) $\cos\varphi < 0$ $\quad 90^\circ < \varphi < 270^\circ$
e) $\sin\varphi = 0$ $\quad 0^\circ, 180^\circ, 360^\circ, \ldots$
f) $\cos\varphi = 0$ $\quad 90^\circ, 270^\circ, \ldots$

g) $\tan\varphi > 0$ $\quad 0^\circ < \varphi < 90^\circ$ und $180^\circ < \varphi < 270^\circ$
h) Komplement von g)
i) $\tan\varphi = 0 \Rightarrow \sin\varphi = 0 \Rightarrow$ e)
j) dann $\cos\varphi = 0 \Rightarrow$ (f)