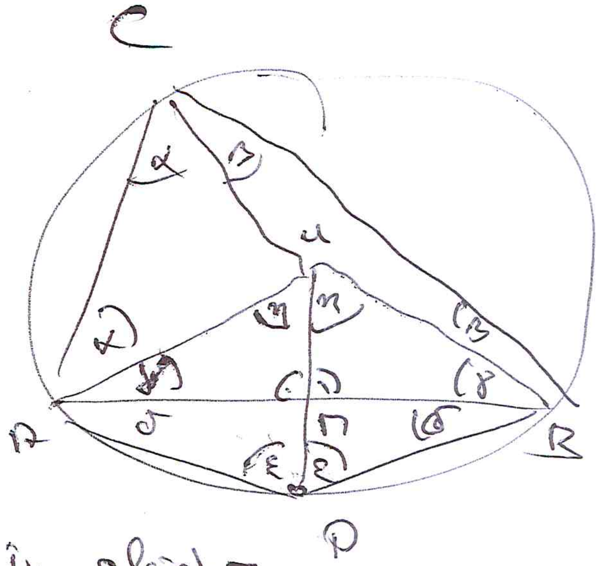
(2.11.) Lösungsskizze



- $\alpha, \beta, \gamma, \delta$ – Basiswinkel in gleichschenkligen $\triangle$

- $\eta = \frac{\pi}{2} - \gamma \quad (\ast) \qquad \varepsilon = \frac{\pi}{2} - \delta$

- Innenwinkelsumme $\triangle ABC$:

$$\pi = 2\alpha + 2\beta + 2\gamma$$

$$\overset{(\ast)}{=} 2\alpha + 2\beta + \pi - 2\eta$$

$$\Rightarrow \quad 2\eta = 2(\alpha + \beta)$$

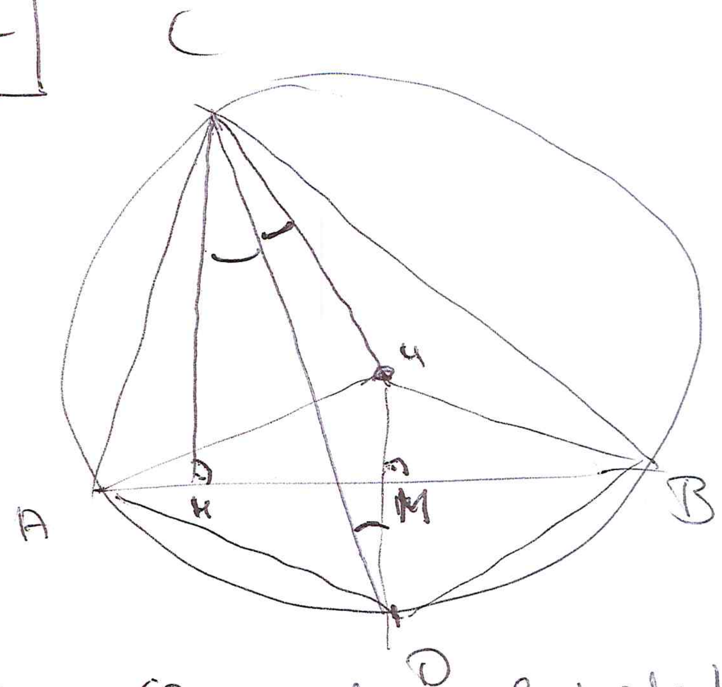
$$\underline{\measuredangle AMB = 2 \measuredangle ACB}$$

- Basiswinkel in $\triangle ADM$: $\quad \gamma + \delta = \varepsilon$
- Innenwinkelsumme in $\triangle ADM$: $\quad \pi = \eta + \gamma + \delta + \varepsilon$

$$= \eta + 2\varepsilon = \measuredangle ACB + 2\varepsilon$$

$$\rightarrow \quad \underline{\pi = \measuredangle ACB + \measuredangle ADB}$$

(2.iv) Lösungsskizze



$\sphericalangle UCD = \sphericalangle UDC$ (Basiswinkel im gleichschenkligen Dreieck)

$\sphericalangle UDC = \sphericalangle DCH$ (Stufenwinkel an Parallelen)

Um z.z. dass g_{CD} den Winkel $\sphericalangle ACB$ halbiert, reicht es zu zeigen, dass $\sphericalangle UCB = \sphericalangle HCA$ ist:

$$\sphericalangle HCA \overset{\triangle AHC}{=} \frac{\pi}{2} - \sphericalangle BAC$$

$$= \frac{\pi}{2} - \sphericalangle BAU - \sphericalangle UAC$$

$$\overset{\text{Basiswinkel}}{=} \frac{\pi}{2} - \sphericalangle BAU - \sphericalangle ACU$$

$$\overset{\triangle AHU}{=} \frac{\pi}{2} - \left(\frac{\pi}{2} - \sphericalangle DUA\right) - \sphericalangle ACU$$

$$= \frac{1}{2} \sphericalangle AUB - \sphericalangle ACU$$

$$\overset{2.(iii)}{=} \sphericalangle ACB - \sphericalangle ACU = \sphericalangle UCB$$