

Übung 4

Angaben

Ellipsoid: WGS84

Maßstab: 1:2 500 000

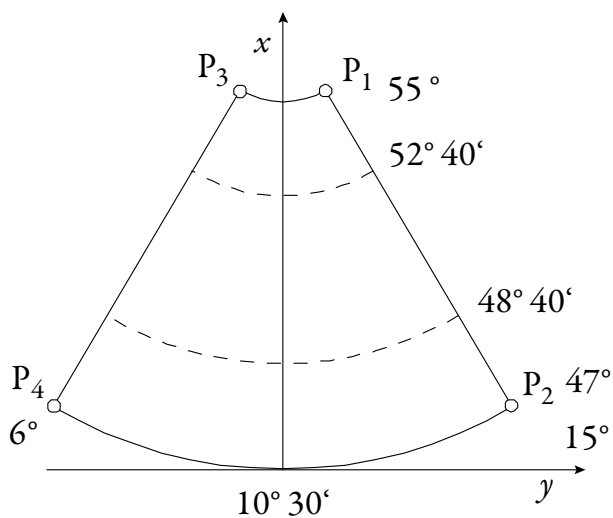
Mittelmeridian: $10^{\circ}30'$ ö.L.

Bezugsmittelpunkt: $10^{\circ}30'$ ö.L., $00^{\circ}00'$ n.Br.

Lamberts winkeltreue Kegelabbildung, ltr.Br $48^{\circ}40'$ und $52^{\circ}40'$

Skizze

4 b)



Berechnung

$$M = 2\,500\,000$$

$$MM = 10,5^{\circ}$$

$$R = 63701 \text{ km (WGS 84)}$$

$$\delta_1 = 41,3^{\circ}$$

$$\varphi_1 = 48,6^{\circ}$$

$$\delta_2 = 37,3^{\circ}$$

$$\varphi_2 = 52,6^{\circ}$$

4 a)

Begrenzungsmeridiane und Breitenkreise

$$\varphi_N = 55^{\circ} \quad \delta_N = 35^{\circ}$$

$$\varphi_S = 47^{\circ} \quad \delta_S = 43^{\circ}$$

$$\lambda_W = 6^{\circ}$$

$$\lambda_O = 15^{\circ} \quad \Delta\lambda = 9^{\circ}$$

4 c)

$$x = m_z - m \cdot \cos \alpha$$

$$y = m \cdot \sin \alpha$$

$$\alpha = n \cdot \lambda$$

$$\begin{aligned} x &= m_{47^\circ} - m_{55^\circ} \cdot \cos \alpha & \alpha &= n \cdot \Delta \frac{\lambda}{2} \\ y &= 2 \cdot (m_{47^\circ} \cdot \sin \alpha) \end{aligned}$$

$$n = 0,77362882$$

$$\alpha = 3,481330$$

$$m_{47^\circ} = 2249,71883 \text{ mm}$$

$$m_{55^\circ} = 1893,81478 \text{ mm}$$

$$x = 359,39833 \text{ mm}$$

$$y = 273,220638 \text{ mm}$$

4 d)

P₁:

$$x = m_{47^\circ} - m_{55^\circ} \cdot \cos\left(n \cdot \frac{\Delta \lambda}{2}\right)$$

$$y = m_{55^\circ} \cdot \sin\left(n \cdot \frac{\Delta \lambda}{2}\right)$$

$$x = 359,39883 \text{ mm}$$

$$y = 114,998655 \text{ mm}$$

P₂:

$$x = 4,15155 \text{ mm}$$

$$y = 136,610319 \text{ mm}$$

P₃, P₄: besitzen gleiche Beträge (y-Wert negativ)

4 e)

| φ | $h = k$ | Φ |
|-----------|------------|------------|
| 47° | 1,00140546 | 1,00281289 |
| 50° | 0,99946094 | 0,99892217 |
| 55° | 1,00233118 | 1,0046678 |