

## Uzavřený polygonový pořad, orientovaný

V uzavřeném polygonovém pořadu byly měřeny vnitřní vrcholové úhly a vodorovné vzdálenosti. Pořad byl orientován na bod č. 567. Ze zadaných hodnot vypočtete souřadnice bodů polyg. pořadu.

D: 501 [32 000,00; 87 000,00]

567 [31 896,12; 87 474,09]

M:  $\omega_{501} = 131,5755^{\text{g}}$        $s_{501,502} = 44,40 \text{ m}$

$\omega_{502} = 126,3701^{\text{g}}$        $s_{502,503} = 60,00 \text{ m}$

$\omega_{503} = 113,6384^{\text{g}}$        $s_{503,504} = 49,96 \text{ m}$

$\omega_{504} = 113,6370^{\text{g}}$        $s_{504,505} = 66,66 \text{ m}$

$\omega_{505} = 114,7985^{\text{g}}$        $s_{505,501} = 45,38 \text{ m}$

$\alpha_{501} = 77,3980^{\text{g}}$

U: 502 [ ? ; ? ], 503 [ ? ; ? ], 504 [ ? ; ? ], 505 [ ? ; ? ]

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Pořad má pět vrcholů  $\Rightarrow n = 5$

$$1. \quad o_{\omega} = (n - 2) * 2R - \sum_{i=501}^{505} \omega_i = 600 - 600,0195 = -0,0195^{\text{g}}$$

$$|o_{\omega}| \leq \Delta\omega = 100\sqrt{n + 3} \Rightarrow 195^{\text{cc}} \leq 282^{\text{cc}} \Rightarrow o_{\omega} \text{ vyhovuje mezní odchylce}$$

$$2. \quad \delta_{\omega} = \frac{o_{\omega}}{n} = -39^{\text{cc}}$$

$$\omega_i = \omega_i^{\text{puv}} + \delta_{\omega} \Rightarrow \omega_{501} = 131,5755 - 0,0039 = 131,5716^{\text{g}}$$

$$\omega_{502} = \dots = 126,3662^{\text{g}}$$

$$\omega_{503} = \dots = 113,6345 \text{ }^\circ$$

$$\omega_{504} = \dots = 113,6331 \text{ }^\circ$$

$$\omega_{505} = \dots = 114,7946 \text{ }^\circ$$

(kontrola:  $\Sigma\omega_i$  se musí rovnat  $(5-2)*2R$ )

3.  $\sigma_{501,567} = 386,2679 \text{ }^\circ$  (viz Směrník)

$$\sigma_{501,502} = \sigma_{501,567} + \alpha_{501} = 63,6659 \text{ }^\circ$$

$$\sigma_{502,503} = \sigma_{501,502} \pm 2R + \omega_{502} = 390,0321 \text{ }^\circ$$

$$\sigma_{503,504} = \sigma_{502,503} \pm 2R + \omega_{503} = 303,6666 \text{ }^\circ$$

$$\sigma_{504,505} = \sigma_{503,504} \pm 2R + \omega_{504} = 217,2997 \text{ }^\circ$$

$$\sigma_{505,501} = \sigma_{504,505} \pm 2R + \omega_{505} = 132,0943 \text{ }^\circ$$

4.  $\Delta y_{501,502} = s_{501,502} * \sin \sigma_{501,502} = +37,36 \text{ m}$

$$\Delta x_{501,502} = s_{501,502} * \cos \sigma_{501,502} = +23,99 \text{ m}$$

$$\Delta y_{502,503} = s_{502,503} * \sin \sigma_{502,503} = -9,36 \text{ m}$$

$$\Delta x_{502,503} = s_{502,503} * \cos \sigma_{502,503} = +59,27 \text{ m}$$

$$\Delta y_{503,504} = \dots = -49,88 \text{ m}$$

$$\Delta x_{503,504} = \dots = +2,88 \text{ m}$$

$$\Delta y_{504,505} = \dots = -17,89 \text{ m}$$

$$\Delta x_{504,505} = \dots = -64,21 \text{ m}$$

$$\Delta y_{505,501} = \dots = +39,73 \text{ m}$$

$$\Delta x_{505,501} = \dots = -21,92 \text{ m}$$

5.  $o_y = \Delta y_{501,501} - \sum_{i=501}^{501} \Delta y_{i,i+1} = 0 + 0,04 = +0,04 \text{ m}$   $o_x = \Delta x_{501,501} - \sum_{i=501}^{501} \Delta x_{i,i+1} = 0 - 0,01 = -0,01 \text{ m}$

$$o_p = \sqrt{o_y^2 + o_x^2} = 0,04 \text{ m}$$

$$o_p \leq \Delta p = 0,10 + 0,005 \sqrt{\sum s} \Rightarrow 0,04 \text{ m} \leq 0,18 \text{ m} \Rightarrow o_p \text{ vyhovuje mezní odchylce}$$

$$6. \quad \delta y_{i,i+1} = \left| \Delta y_{i,i+1} \right| \frac{o_y}{\sum_{i=501}^{501} \left| \Delta y_{i,i+1} \right|} \Rightarrow \delta y_{501,502} = 37,36 \frac{+0,04}{154,22} = 0,01$$

$$\delta y_{502,503} = 9,36 \frac{+0,04}{154,22} = 0,00$$

$$\delta y_{503,504} = \dots = 0,01$$

$$\delta y_{504,505} = \dots = 0,01$$

$$\delta y_{505,501} = \dots = 0,01$$

$$\delta x_{i,i+1} = \left| \Delta x_{i,i+1} \right| \frac{o_x}{\sum_{i=501}^{501} \left| \Delta x_{i,i+1} \right|} \Rightarrow \delta x_{501,502} = 23,99 \frac{-0,01}{172,27} = -0,00$$

$$\delta y_{502,503} = \dots = -0,00$$

$$\delta y_{503,504} = \dots = -0,00$$

$$\delta y_{504,505} = \dots = -0,01$$

$$\delta y_{505,501} = \dots = -0,00$$

$$7. \quad \Delta y_{501,502} = \Delta y_{501,502} + \delta y_{501,502} = 37,36 + 0,01 = +37,37 \text{ m}$$

$$\Delta y_{502,503} = \dots = -9,36 \text{ m}$$

$$\Delta y_{503,504} = \dots = -49,87 \text{ m}$$

$$\Delta y_{504,505} = \dots = -17,88 \text{ m}$$

$$\Delta y_{505,501} = \dots = +39,74 \text{ m}$$

$$\Delta x_{501,502} = \dots = +23,99 \text{ m}$$

$$\Delta x_{502,503} = \dots = +59,27 \text{ m}$$

$$\Delta x_{503,504} = \dots = +2,88 \text{ m}$$

$$\Delta x_{504,505} = \dots = -64,22 \text{ m}$$

$$\Delta x_{505,501} = \dots = -21,92 \text{ m}$$

(kontrola:  $\Sigma\Delta y_{i,i+1}$  se musí rovnat „0“;  $\Sigma\Delta x_{i,i+1}$  se musí rovnat „0“)

$$\begin{aligned} 8. \quad Y_{502} &= Y_{501} + \Delta y_{501,502} = \mathbf{32\ 037,37\ m} & X_{502} &= X_{501} + \Delta x_{501,502} = \mathbf{87\ 023,99\ m} \\ Y_{503} &= Y_{502} + \Delta y_{502,503} = \mathbf{32\ 028,01\ m} & X_{503} &= X_{502} + \Delta x_{502,503} = \mathbf{87\ 083,26\ m} \\ Y_{504} &= Y_{503} + \Delta y_{503,504} = \mathbf{31\ 978,14\ m} & X_{504} &= X_{503} + \Delta x_{503,504} = \mathbf{87\ 086,14\ m} \\ Y_{505} &= Y_{504} + \Delta y_{504,505} = \mathbf{31\ 960,26\ m} & X_{505} &= X_{504} + \Delta x_{504,505} = \mathbf{87\ 021,92\ m} \\ (Y_{501} &= Y_{505} + \Delta y_{505,501} = \mathbf{32\ 000,00\ m} & X_{501} &= X_{505} + \Delta x_{505,501} = \mathbf{87\ 000,00\ m}) \end{aligned}$$

– kontrola: musí vyjít stejně jako zadané souřadnice b. 501