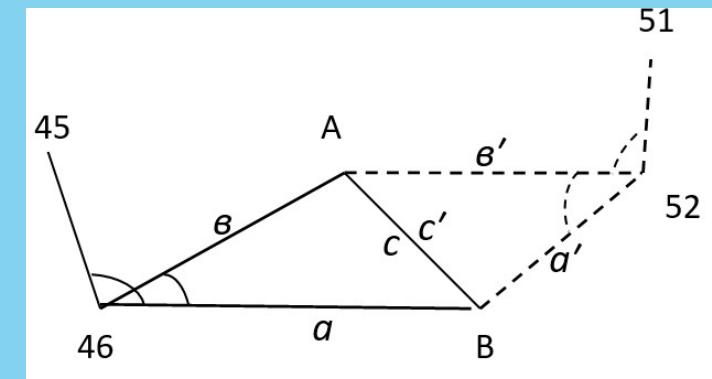
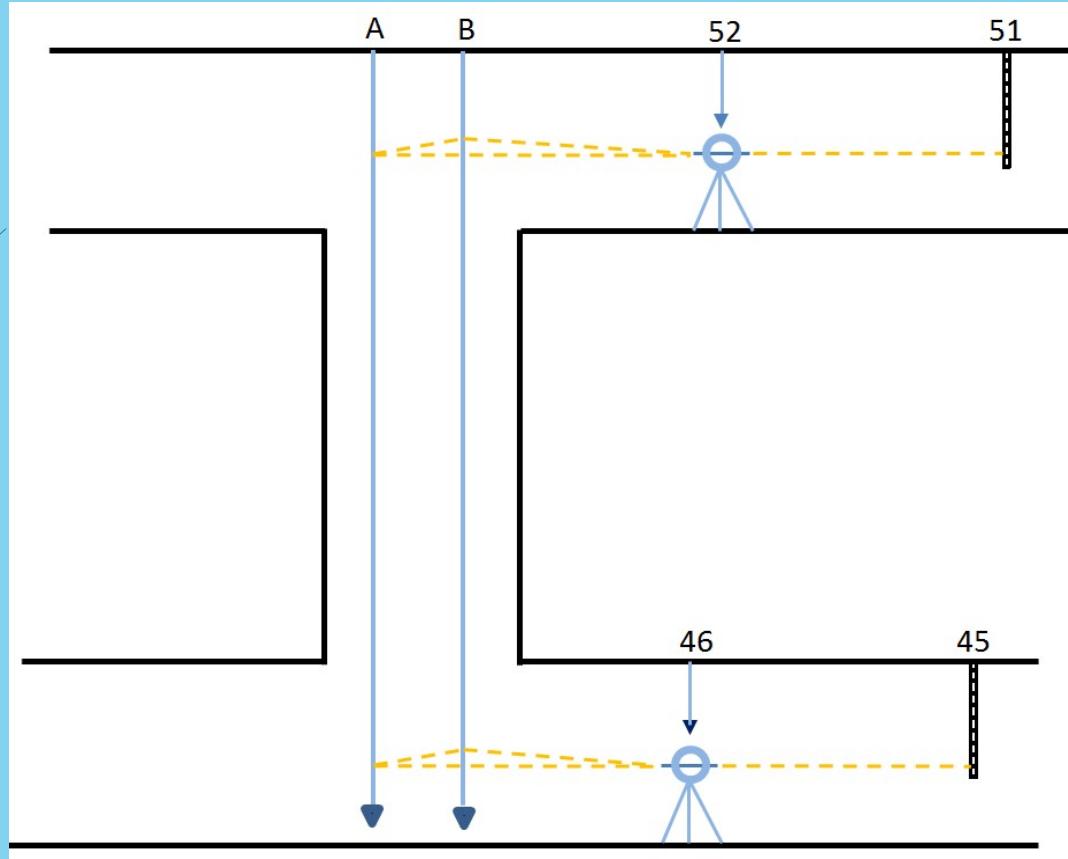


# Ориентирование подземных горных выработок

По данным полевых измерений выполнить камеральную обработку ориентирования вышележащего горизонта с примыканием к отвесу соединительным треугольником.  
Вычислить координаты т.52



$$\alpha_{46-45} = 65^\circ 17' 43''; \quad X_{46} = 128,450 \text{ м}; \quad Y_{46} = 298,340 \text{ м.}$$

$$\beta_{45-46-B} = 111^\circ 10' 15''$$

$$\gamma = 0^\circ 25' 10''$$

$$a = 9,345 \text{ м}$$

$$b = 6,056 \text{ м}$$

$$c = 3,290 \text{ м}$$

$$\beta_{A-52-51} = 176^\circ 52' 10''$$

$$\gamma' = 1^\circ 10' 30''$$

$$a' = 3,388 \text{ м}$$

$$b' = 6,675 \text{ м}$$

$$c' = 3,289 \text{ м}$$

$$A = \frac{a}{c} \gamma = \frac{9,345}{3,290} 0^\circ 25' 10'' = 1,191401$$

$$A = 1^\circ 11' 29''$$

$$A = 180^\circ - 1^\circ 11' 29'' = 178^\circ 48' 31''$$

$$B = \frac{b}{c} \gamma = \frac{6,056}{3,290} 0^\circ 25' 10'' = 0,772084$$

$$B = 0^\circ 46' 19''$$

$$\sum \beta = A + B + \gamma = 178^\circ 48' 31'' + 0^\circ 46' 19'' + 0^\circ 25' 10'' = 180^\circ 00' 00''$$

$$A' = \frac{a'}{c'} \gamma' = \frac{3,388}{3,289} 1^\circ 10' 30'' = 1,210368$$

$$A' = 1^\circ 12' 37''$$

$$B' = \frac{b'}{c'} \gamma' = \frac{6,675}{3,289} 1^\circ 10' 30'' = 2,384653$$

$$B' = 2^\circ 23' 05''$$

$$B' = 180^\circ - 2^\circ 23' 05'' = 177^\circ 36' 55''$$

$$\sum \beta = A' + B' + \gamma' = 1^\circ 12' 37'' + 177^\circ 36' 55'' + 1^\circ 10' 30'' = 180^\circ 00' 02''$$

Вводим поправки и получаем исправленные горизонтальные углы

$$\sum \beta = A' + B' + \gamma' = 1^\circ 12' 37'' + 177^\circ 36' 53'' + 1^\circ 10' 30'' = 180^\circ 00' 00''$$

$$\alpha_{46-A} = \alpha_{46-45} + \beta_{45-46-B} - \gamma = 65^\circ 17' 43'' + 111^\circ 10' 15'' - 0^\circ 25' 10'' = 176^\circ 02' 48''$$

$$\alpha_{A-52} = \alpha_{46-A} - (A + A') \pm 180^\circ = 176^\circ 02' 48'' - (178^\circ 48' 31'' + 1^\circ 12' 37'') \pm 180^\circ = 176^\circ 01' 40''$$

$$\alpha_{52-51} = \alpha_{A-52} + \beta'_{A-52-51} \pm 180^\circ = 176^\circ 01' 40'' + 176^\circ 52' 10'' \pm 180^\circ = 172^\circ 53' 50''$$

$$\alpha_{46-B} = \alpha_{46-45} + \beta_{45-46-B} = 65^\circ 17' 43'' + 111^\circ 10' 15'' = 176^\circ 27' 58''$$

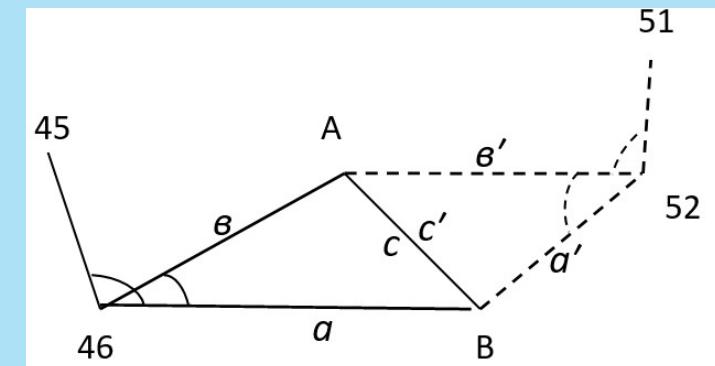
$$\alpha_{B-52} = \alpha_{46-B} + (B + B') \pm 180^\circ = 176^\circ 27' 58'' + (0^\circ 46' 19'' + 177^\circ 36' 53'') \pm 180^\circ = 174^\circ 51' 10''$$

$$\alpha_{52-51} = \alpha_{B-52} + (\beta'_{A-52-51} + \gamma') \pm 180^\circ = 174^\circ 51' 10'' + (176^\circ 52' 10'' + 1^\circ 10' 30'') \pm 180^\circ = 172^\circ 53' 50''$$

$$\alpha_{46-45} = 65^\circ 17' 43'';$$

$$\beta_{45-46-B} = 111^\circ 10' 15''$$

$$\beta_{A-52-51} = 176^\circ 52' 10''$$



$$x_A = x_{46} + l_{46-A} \cos \alpha_{46-A} = 128,450 + 6,056 \cos 176^\circ 02' 48'' = 128,450 - 6,042 = 122,408 \text{ m}$$

$$y_A = y_{46} + l_{46-A} \sin \alpha_{46-A} = 298,340 + 6,056 \sin 176^\circ 02' 48'' = 298,340 + 0,418 = 298,757 \text{ m}$$

$$x_{52} = x_A + l_{A-52} \cos \alpha_{A-52} = 122,408 + 6,675 \cos 176^\circ 01' 40'' = 122,408 - 6,659 = 115,749 \text{ m}$$

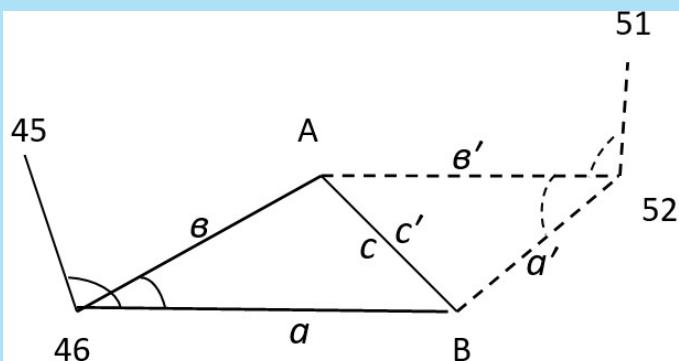
$$y_{52} = y_A + l_{A-52} \sin \alpha_{A-52} = 298,757 + 6,675 \sin 176^\circ 01' 40'' = 298,757 + 0,462 = 299,219 \text{ m}$$

$$x_A = x_{46} + l_{46-B} \cos \alpha_{46-B} = 128,450 + 9,345 \cos 176^\circ 27' 58'' = 128,450 - 9,327 = 119,123 \text{ m}$$

$$y_A = y_{46} + l_{46-B} \sin \alpha_{46-B} = 298,340 + 9,345 \sin 176^\circ 27' 58'' = 298,340 + 0,576 = 298,916 \text{ m}$$

$$x_{52} = x_B + l_{B-52} \cos \alpha_{B-52} = 119,123 + 3,388 \cos 174^\circ 51' 10'' = 119,123 - 3,374 = 115,749 \text{ m}$$

$$y_{52} = y_B + l_{B-52} \sin \alpha_{B-52} = 298,916 + 3,388 \sin 174^\circ 51' 10'' = 298,916 + 0,304 = 299,219 \text{ m}$$



$$\alpha_{46-45} = 65^\circ 17' 43''; \quad X_{46} = 128,450 \text{ m}; \quad Y_{46} = 298,340 \text{ m}.$$

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$$\gamma = 0^\circ 25' 10''$$

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