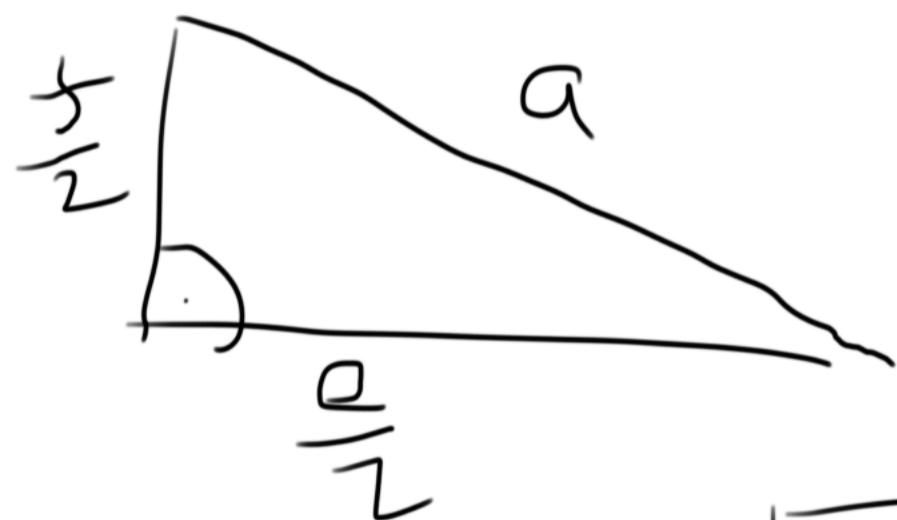


$$S = a \cdot \sqrt{a^2 - a^2 \sin^2 \alpha}$$

$$S = a \cdot b \cdot \sin \alpha$$

kosodélník



$$S = h \cdot S_{\Delta}$$

$$S_{\Delta} = \frac{1}{2} \cdot \frac{a+b}{2} \cdot \frac{h}{2} = \frac{e \cdot f}{8}$$

$$\boxed{S = \frac{e \cdot f}{8}}$$

Kosočtverec, $S = 54 \text{ cm}^2$,
 jedna strana je o 12 cm
 delší než ta druhá.

$$a = ? \quad e = ? \quad f = ?$$

$$S = \frac{e+f}{2} = 54 \quad e = f + 12$$

$$54 = \frac{?}{2} (f + 12)$$

$$108 = f^2 + 12f$$

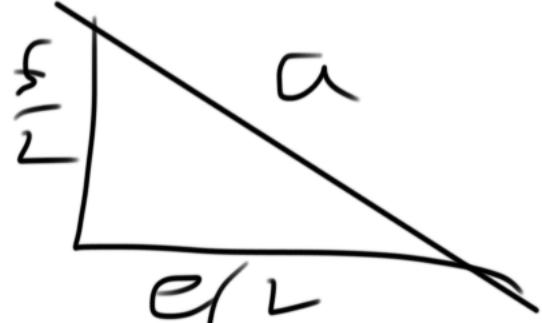
$$0 = f^2 + 12f - 108$$

$$f_{1,2} = \frac{-12 \pm \sqrt{144 + 4 \cdot 108}}{2} = \frac{-12 \pm 24}{2} = \begin{cases} 6 \\ -18 \end{cases}$$

$$D = 144 + 432 = 576 \\ = 4 \cdot 144$$

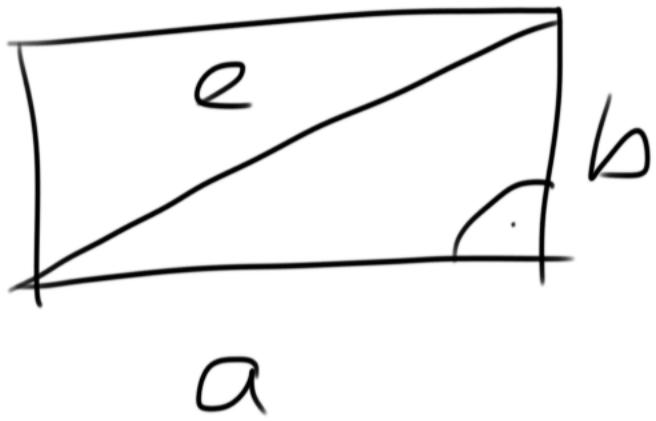
$$f = 6 \text{ cm}$$

$$\sqrt{D} = 2 \cdot 12 \quad e = 18 \text{ cm}$$



$$a = \sqrt{9^2 + 3^2} = \sqrt{90} = 3\sqrt{10} \text{ cm}$$

2)  $O = 46 \text{ cm}$, $e = 17 \text{ cm}$
 $S = ?$



$$O = a + b + a + b \\ = 2(a + b)$$

$$e^2 = a^2 + b^2$$

$$46 = 2 \cdot (a + b)$$

$$a + b = 23$$

$$b = 23 - a$$

$$17^2 = a^2 + (23 - a)^2$$

$$17^2 = a^2 + 23^2 - 46a + a^2$$

$$\hookrightarrow 289 = 2a^2 - 46a + 529$$

$$D = 2a^2 - 46a + 240$$

$$J = a^2 - 23a + 120$$

$$\begin{array}{r} 17 \\ 17 \\ \hline 179 \end{array}$$

$$\begin{array}{r} 23 \\ 23 \\ \hline 69 \\ 46 \\ \hline 529 \end{array}$$

$$D = 23^2 - 480$$

$$= 529 - 480 = 49$$

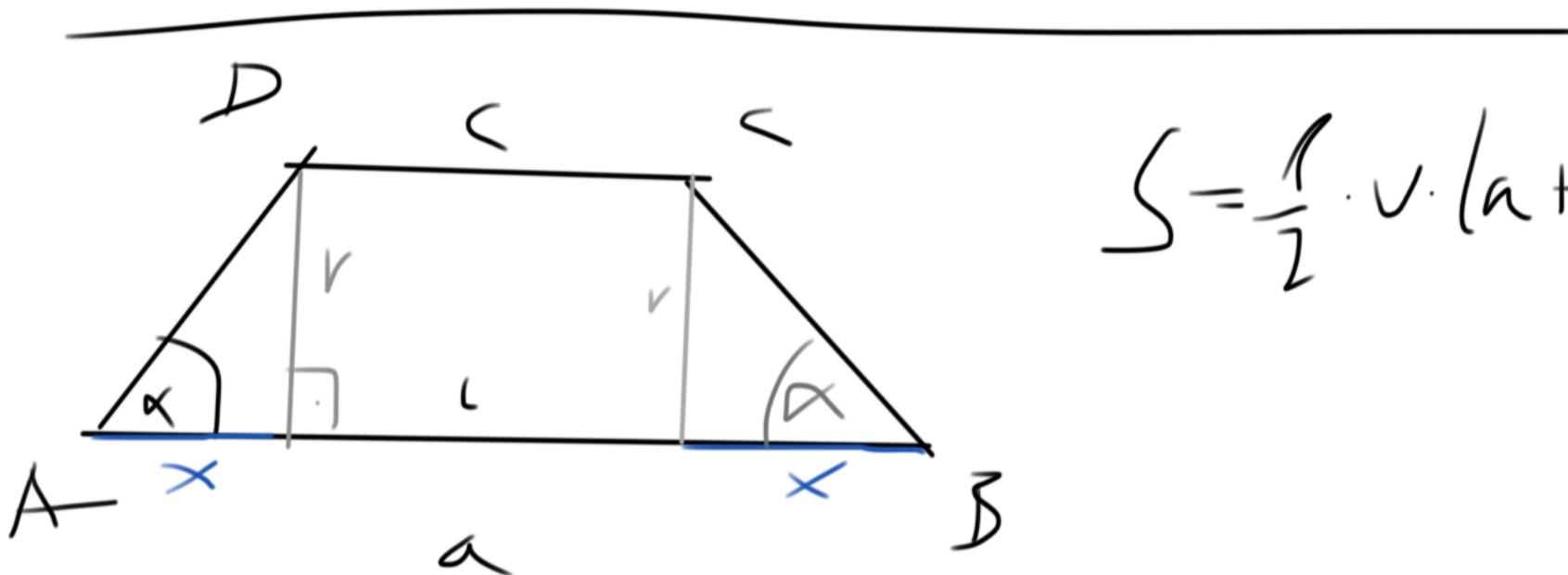
$$a_{\text{I}, \text{L}} = \frac{23 \pm \sqrt{49}}{2} = 15 \text{ or } 8$$

$$a = 15 \quad a = 8 \\ b = 8 \quad b = 15$$

$$S = 8 \cdot 15 = 120 \text{ cm}^2$$

3) Розв'язати кількості

$$a = 20 \text{ cm}, r = 6 \text{ cm}, \alpha = 45^\circ, S = ?$$



$$S = \frac{1}{2} \cdot v \cdot (a + c)$$



$$\cot \alpha = \frac{x}{v}$$

$$x = r \cdot \cot \alpha$$

$$\alpha = 45^\circ \Rightarrow \cot \alpha = 1$$

$$\underline{x = v}$$

$$c = a - 2 \cdot x$$

$$= a - 2 \cdot v$$

$$= 20 - 2 \cdot 6 = 8 \text{ cm}$$

$$S = \frac{1}{2} \cdot r \cdot (a + c) = \frac{1}{2} \cdot 6 \cdot 28 = 84 \text{ cm}^2$$

4) Vysíla a rozhubézne' trany súm
v polohu

$$r:a:c = 2:3:5 \quad S=571 \text{ cm}^2$$

$$\underline{a=? \quad r=? \quad c=?}$$

$$\begin{aligned} r &= 2 \\ a &= 3 \\ \underline{c} & \end{aligned} \quad \frac{r}{a} = \frac{2}{3} = \frac{2}{3}$$

$$\frac{a}{c} = \frac{3}{5}$$

$$S = \frac{1}{2} r(a+c) \quad \frac{r}{c} = \frac{2}{5} \Rightarrow r = \frac{2}{5} c$$

$$\frac{a}{c} = \frac{3}{5} \Rightarrow a = \frac{3}{5} c$$

$$\begin{aligned} S &= \frac{1}{2} \cdot \frac{2}{5} c \cdot \left(\frac{3}{5} c + c \right) = \frac{1}{5} c^2 \left(\frac{3}{5} + 1 \right) \\ &= \frac{8}{25} c^2 \end{aligned}$$

$$S = 512 \text{ cm}^2 \quad 512 = \frac{8}{25} c^2$$

$$c^2 = \frac{25 \cdot 512}{4 \cdot 2} = 256$$

$$\underline{c = \frac{5 \cdot 16}{2} = 40 \text{ cm}}$$

$$\begin{cases} r = \frac{2}{5} \cdot 40 = 16 \text{ cm} \\ a = \frac{3}{5} \cdot 40 = 24 \text{ cm} \end{cases}$$

$$5) \quad \boxed{}, \quad e = 34 \text{ cm}$$

pohud se zvětší strany \square o 4 cm,
 jeho obvod se zvětší o 100 cm^2 .
 $a = ? \quad b = ?$

$$\begin{aligned} S &= a \cdot L & a' &= a + 4 & S' &= a' \cdot b' \\ && b' &= b + 4 && \\ && & & S' &= S + 200 \end{aligned}$$

$$a' \cdot b' = S + 200$$

$$(a+4) \cdot (b+4) = S + 200$$

~~$$ab + 4a + 4b + 16 = S + 200$$~~

$$4(a+b) = 184$$

$$\underline{a+b=46} \quad \rightarrow b = 46 - a$$

$$34^2 = a^2 + (46-a)^2$$

$$34^2 = a^2 + 4b^2 - 92ab + a^2$$

$$0 = 2a^2 - 92a + 46^2 - 34^2$$

$$0 = 2a^2 - 92a + 46^2 - 34^2$$

$$46^2 - 34^2 = (46+34)(46-34) = 80 \cdot 12 = \underline{960}$$

$$A^2 - B^2 = (A+B)(A-B)$$

$$0 = 2a^2 - 92a + 960 \quad | :2$$

$$0 = a^2 - 46a + 480$$

$$D = 46^2 - 4 \cdot 480 = 4 \cdot (23^2 - 480)$$

$$46 = 2 \cdot 23$$

$$46^2 = 4 \cdot \underline{23}^2 = 4 \cdot 49$$

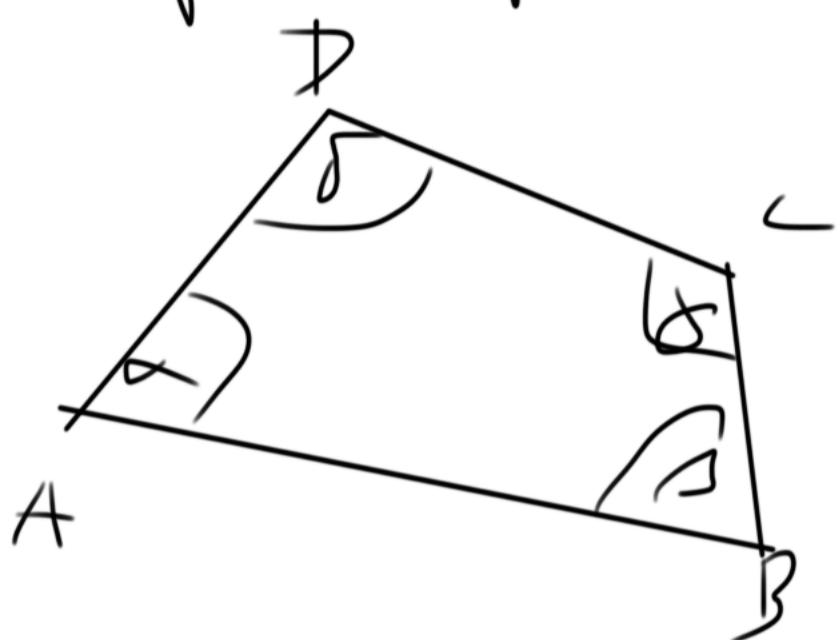
$$\sqrt{D} = L \cdot 7 = 14$$

$$a_{1,2} = \frac{46 \pm 14}{2} = \begin{cases} 30 \\ 16 \end{cases} \quad \left. \begin{array}{l} \\ \end{array} \right\} \oplus \underline{46}$$

$$a = 30, b = 16 \text{ cm}$$

6) Jak velké jsou uhlý v čtyřúhelníku
jehož hrany v poměru $8:9:10:13$?

$$\alpha : \beta : \gamma : \delta = 8 : 9 : 10 : 13$$



$$\alpha + \beta + \gamma + \delta = 360^\circ$$

$$\alpha = 8$$

$$\beta = 9$$

$$8 + 9 + 10 + 13 = 40$$

$$\begin{array}{r} 40 \\ \times 1 \\ \hline 40 \end{array} \quad \begin{array}{r} 360^\circ \\ - x^\circ \\ \hline x \end{array}$$

$$x = \frac{1}{40} \cdot 360^\circ = 9^\circ$$

$$\alpha = 8 \cdot 9^\circ = 72^\circ$$

$$\beta = 9 \cdot 9^\circ = 81^\circ$$

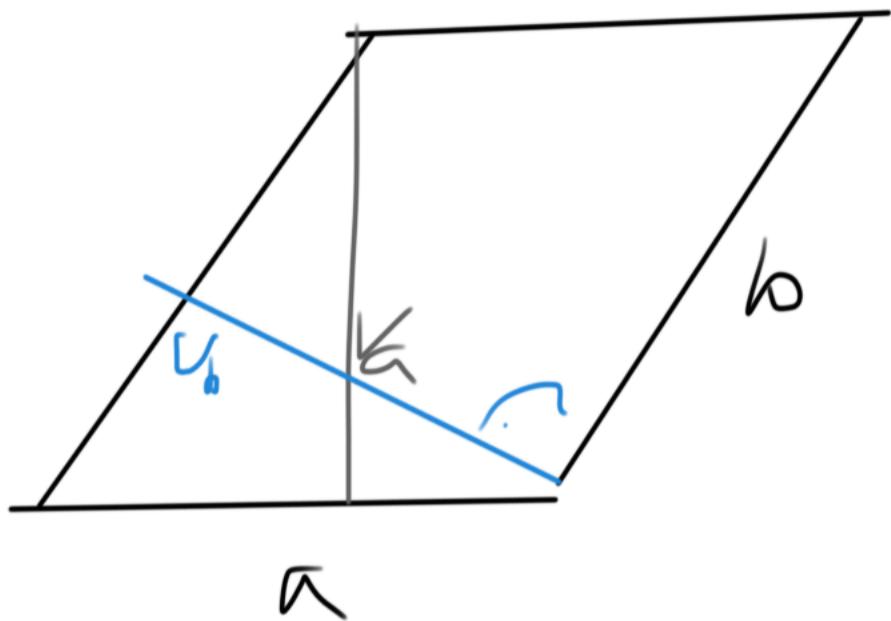
$$\gamma = 10 \cdot 9^\circ = 90^\circ$$

$$\delta = 13 \cdot 9^\circ = 117^\circ$$

$\{ 360^\circ$

Vypočítejte objvod obdélníku druhu krytu
římskoběžníku, žeže - i:

$$a = 5 \text{ cm}, b = 7 \text{ cm}, v_a = 7 \text{ cm}$$



$$S = a \cdot v_a \\ = 35 \text{ cm}$$

$$S = b \cdot v_b$$

$$v_b = \frac{5}{b} = \frac{35}{7} = 5 \text{ cm}$$

Plechová střecha \square $2,5 \text{ m} \times 4 \text{ m}$.

Kolik kg barvy potřebujete,
ještěži třídy vystačí se 8 m^2 ?

$$S = 30 \text{ m}^2$$

$$\begin{array}{ccc} \uparrow 1 \text{ kg} & \cdots & 8 \text{ m}^2 \uparrow \\ \times \quad \downarrow & \cdots & 30 \text{ m}^2 \downarrow \\ \hline \end{array}$$

$$x = \frac{30}{8} = 3 \frac{3}{4} = 3,750 \text{ kg}$$

$\tilde{\text{ctverec}} \circ \text{stran}\bar{e} R.$ $a' = ?$
 $S' = 2 \cdot S$

$$a' = k \cdot a, \quad k \in \mathbb{R}$$

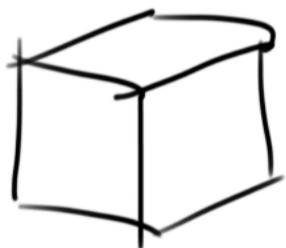
$$S = a^2 \quad S' = a'^2 \quad S' = 2 \cdot S$$

$$(a')^2 = 2 \cdot a^2$$

$$k^2 \cdot a^2 = 2 \cdot a^2$$

$$k = \sqrt{2}$$

$$(a' = \sqrt{2} \cdot a)$$



$$a' = k \cdot a \Rightarrow a' = \sqrt[3]{2} a$$

$$V' = 2 \cdot V$$

Je název, abych jednou ctverec měl:

a) $S = 49 \text{ cm}^2$ b) $a = 5 \text{ cm}$ $e = \sqrt{2} \cdot 5 \text{ cm}$
 $D = 35 \text{ cm}$

$$O = 4 \cdot a \Rightarrow a = 7 \text{ cm}$$

$$S = a^2 \Rightarrow a = 7 \text{ cm}$$

$\Rightarrow NE$

$$\begin{array}{l} \text{square} \quad e = \sqrt{a^2 + a^2} \\ \qquad \qquad \qquad = \sqrt{2a^2} = \sqrt{2} a \end{array}$$

$$e = \sqrt{2} \cdot 5 = \sqrt{2} \cdot a$$

ANO

c) Číselné čtežny' obvod a obsah.

$$O = S$$

$$O = 4 \cdot a$$

$$S = a^2$$

$$4a = a^2$$

$$O = a^2 - 4a$$

$$O = a(a - 4)$$

$$O = 4 \cdot 4 = 16 \text{ m}$$

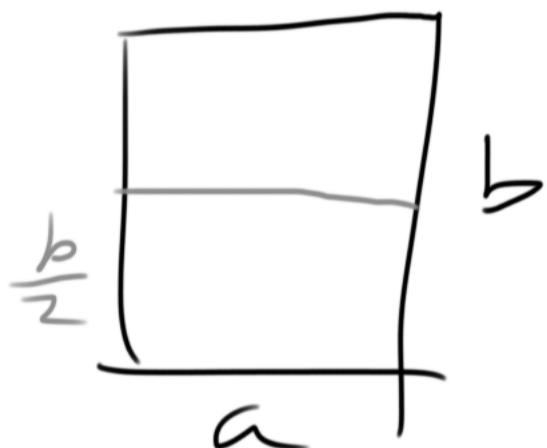
$$S = 4^2 = 16 \text{ m}^2$$

FIRNATPAPÍKU

A, B, C

A4.

A:



$$\frac{b}{a} = \frac{a}{\frac{b}{2}}$$

$$b = 2a$$

$$b = \sqrt{2}a$$

$$A_0: S = 1 \text{ m}^2$$

$$S = a \cdot b$$

$$b = \sqrt{2}a = \frac{\sqrt{2}}{\sqrt{4}}$$

$$1 = a \cdot \sqrt{2} \cdot a$$

$$= \frac{2}{2} = 2 = \sqrt{2}$$

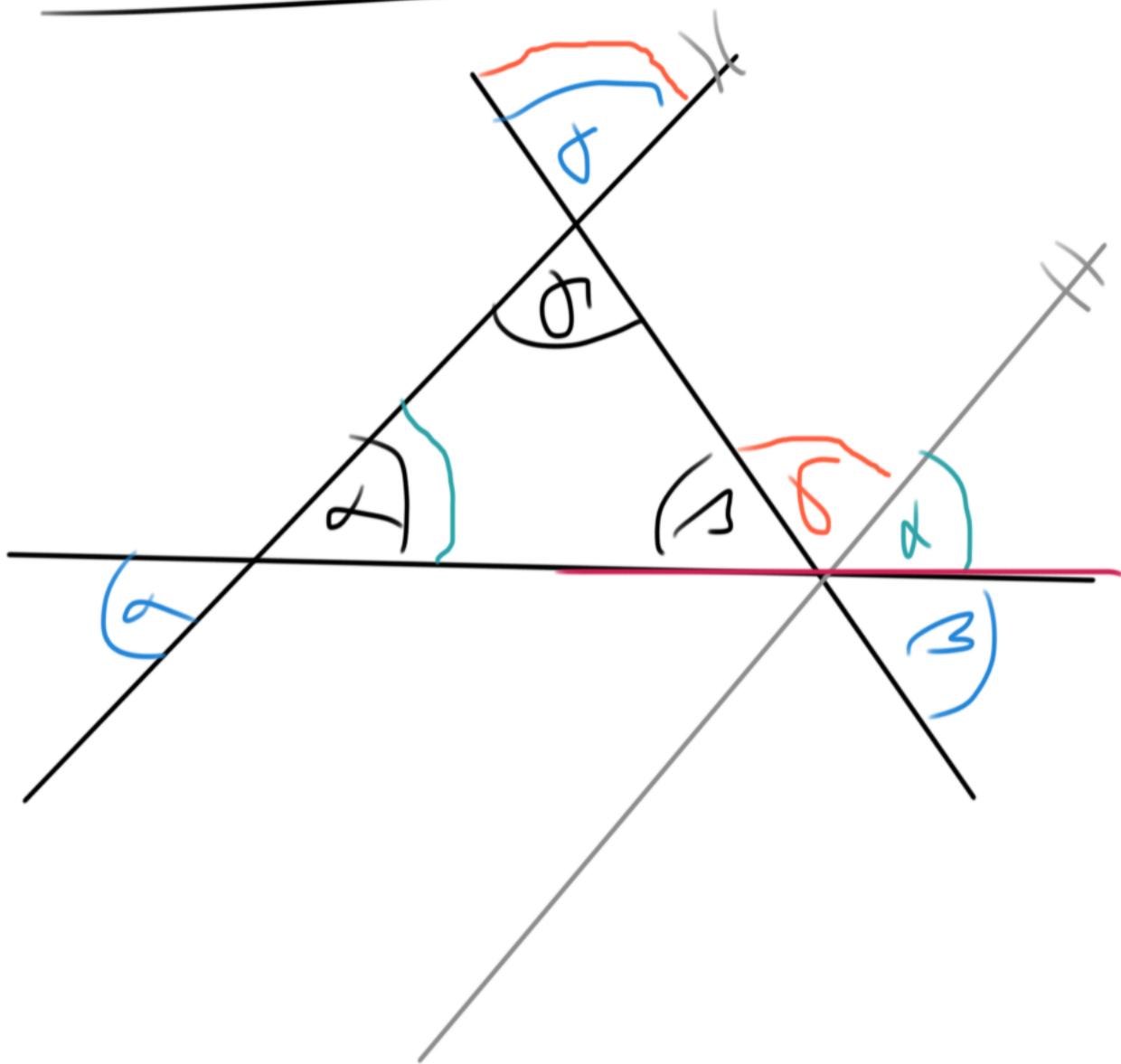
$$a^2 = \frac{1}{\sqrt{2}}$$

$$a = \frac{1}{\sqrt{2}} \text{ m}$$

$$b = 1,19 \text{ m} \quad a = 0,84 \text{ m}$$

$$\text{AT: } b = 2,7 \text{ m} \quad a = 2,1 \text{ m}$$

SOVIET Vnitřních úhlů △



VRCHOLOVÉ
SOUHLASNÉ I
SOUHLASNÉ II

$$\alpha + \beta + \gamma = 180^\circ$$