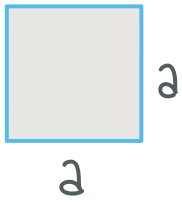
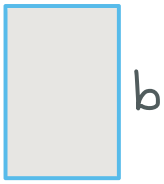
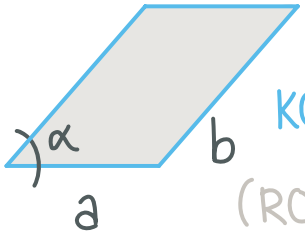
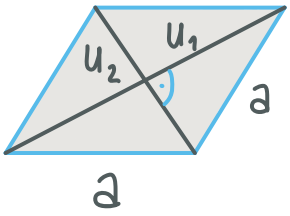
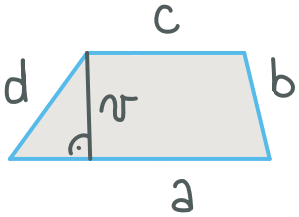
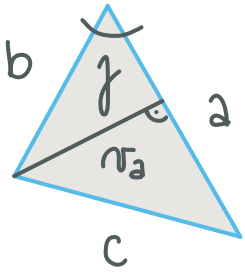
PLANIMETRIE

	OBVOD	OBSAH
 ČTVEREC	$o = 4 \cdot a$	$S = a \cdot a$
 OBDÉLNÍK	$o = 2(a+b)$	$S = a \cdot b$
 KOSODÉLNÍK (ROVNOBĚŽNÍK)	$o = 2(a+b)$	$S = a \cdot b \cdot \sin\alpha$ $S = a \cdot v_a$
 KOSOČTVEREC	$o = 4 \cdot a$	$S = a \cdot a \cdot \sin\alpha$ $S = \frac{u_1 \cdot u_2}{2}$
 LICHOBĚŽNÍK	$o = a+b+c+d$	$S = \frac{(a+c)}{2} \cdot v$

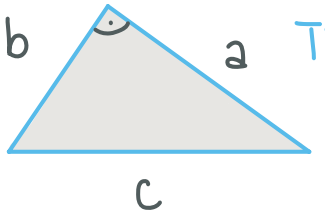


TROJÚHELNÍK OBECNÝ

$$o = a + b + c$$

$$S = \frac{a \cdot v_a}{2}$$

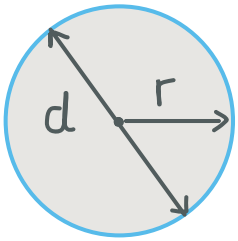
$$S = \frac{1}{2} ab \sin\gamma$$



TROJÚHELNÍK PRAVOÚHLÝ

$$o = a + b + c$$

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



KRUH

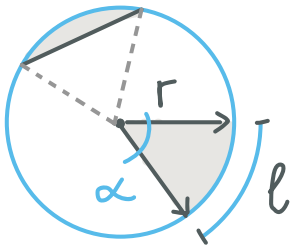
$$d = 2r$$

$$o = 2\pi r$$

$$o = \pi d$$

$$S = \pi r^2$$

$$S = \pi \frac{d^2}{4}$$



KRUHOVÝ OBLOUK

$$l = \frac{2\pi r}{360°} \cdot \alpha$$

KRUHOVÁ VÝSEČ

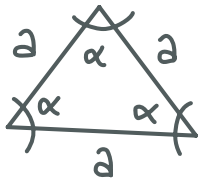
$$S = \frac{\pi r^2}{360°} \cdot \alpha$$

KRUHOVÁ ÚSEČ

$$S = \frac{\pi r^2}{360°} \cdot \alpha - \frac{1}{2} r^2 \cdot \sin\alpha$$

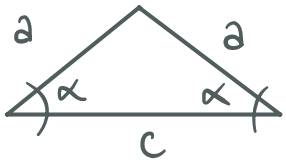
∘ TROJÚHELNÍK

- součet vnitřních úhlů $\alpha + \beta + \gamma = 180°$
- rovnostranný
RSΔ



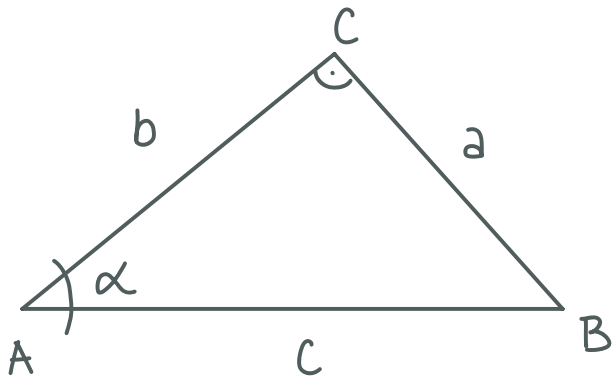
$\alpha = 60°$

- rovnoramenný
RRΔ



$a = a$
$\alpha = \alpha$

A) PRAVOÚHLÝ



∘ PYTHAGOROVA VĚTA

$$c^2 = a^2 + b^2$$

∘ GONIOMETRIE

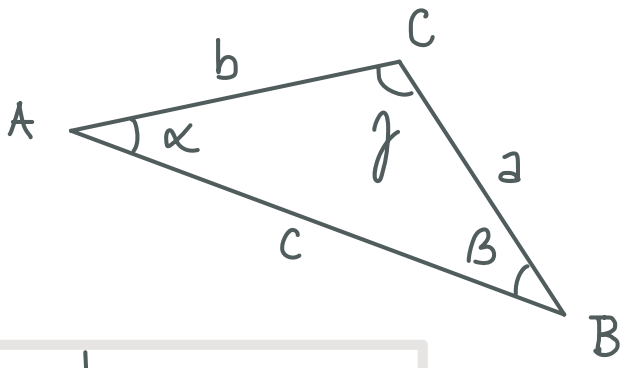
$\sin x = \frac{\text{protilehlá}}{\text{přepona}}$ $\quad \sin\alpha = \frac{a}{c}$

$\cos x = \frac{\text{přilehlá}}{\text{přepona}}$ $\quad \cos\alpha = \frac{b}{c}$

$\operatorname{tg} x = \frac{\text{protilehlá}}{\text{přilehlá}}$ $\quad \operatorname{tg}\alpha = \frac{a}{b}$

$\operatorname{cotg} x = \frac{\text{přilehlá}}{\text{protilehlá}}$ $\quad \operatorname{cotg}\alpha = \frac{b}{a}$

B) OBECNÝ

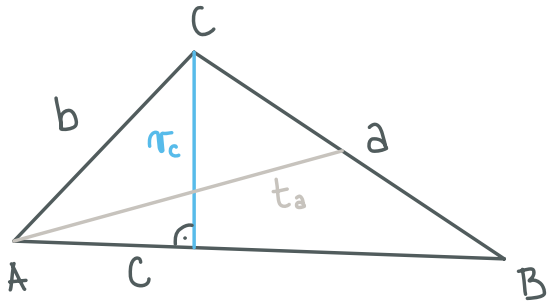


- SINOVÁ VĚTA

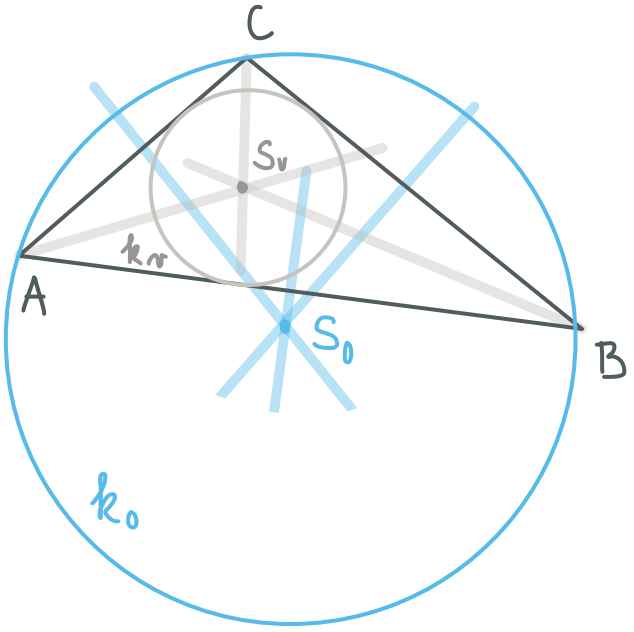
$$\frac{a}{\sin\alpha} = \frac{b}{\sin\beta} = \frac{c}{\sin\gamma}$$

- COSINOVÁ VĚTA

$$a^2 = b^2 + c^2 - 2bc \cdot \cos\alpha$$
$$b^2 = a^2 + c^2 - 2ac \cdot \cos\beta$$
$$c^2 = a^2 + b^2 - 2ab \cdot \cos\gamma$$



VÝŠKA - kolmo na stranu
TĚŽNICE - do středu strany



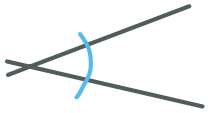
KRUŽNICE

OPSANÁ - osy stran

VEPSANÁ - osy úhlů

ÚHLY

OSTRÝ



$(0°, 90°)$

PRAVÝ

$90°$

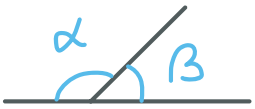
TUPÝ

$(90°, 180°)$

PŘÍMÝ

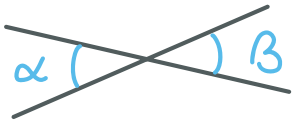
$180°$

VEDLEJŠÍ



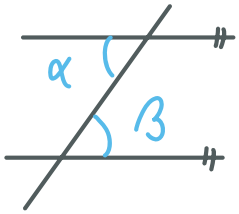
$\alpha + \beta = 180°$

VRCHOLOVÉ



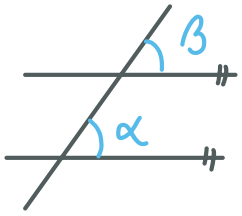
$\alpha = \beta$

STŘÍDAVÉ



$\alpha = \beta$

SOUHLASNÉ



$\alpha = \beta$