

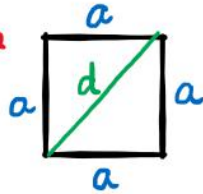
GEOMETRIJSKI LIKI

Kvadrat

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

$$\sigma = 4a$$

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

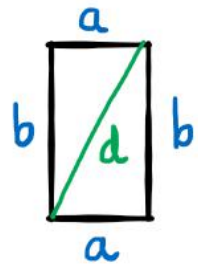


Pravokotnik

$$S = a \cdot b$$

$$\sigma = 2a + 2b$$

$$d = \sqrt{a^2 + b^2}$$



Paralelogram

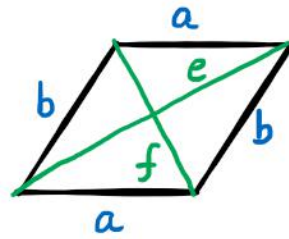
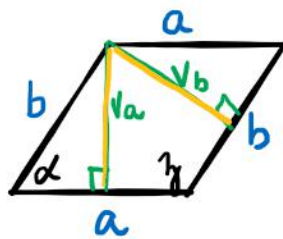
$$S = a \cdot b \cdot \sin d$$

$$S = a \cdot v_a = b \cdot v_b$$

$$\sigma = 2a + 2b$$

$$d + \gamma = 180^\circ$$

$$d = \gamma, \beta = \alpha$$



Romb

$$S = \frac{e \cdot f}{2}$$

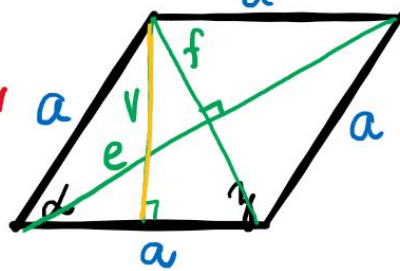
$$S = a^2 \cdot \sin d = a \cdot v$$

$$\sigma = 4a$$

$$d + \beta = 180^\circ$$

$$d = \beta, \gamma = \alpha$$

$$\left(\frac{e}{2}\right)^2 + \left(\frac{f}{2}\right)^2 = a^2 \quad e \perp f$$



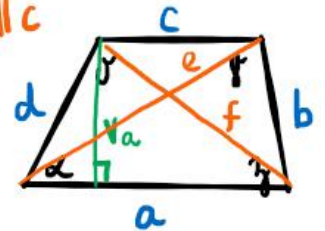
Trapez

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

$$\sigma = a + b + c + d$$

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

$$a \parallel c$$

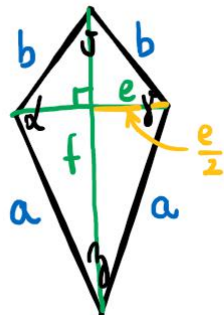


Deltoid

$$S = \frac{e \cdot f}{2}$$

$$\sigma = 2a + 2b$$

$$d = \gamma \quad e \perp f$$



enakokraki trapez

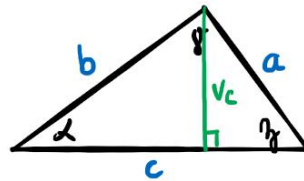
$$b = d$$

$$d = \beta, \gamma = \alpha$$

Trikotnik

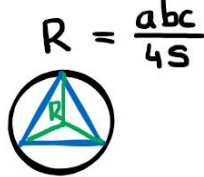
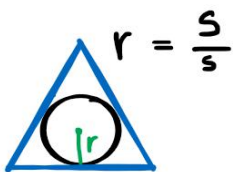
$$S = \frac{a \cdot v_a}{2} = \frac{b \cdot v_b}{2} = \frac{c \cdot v_c}{2}$$

$$S = \frac{absin\gamma}{2} = \frac{acsin\beta}{2} = \frac{bcsind}{2}$$



$$S = \sqrt{s(s-a)(s-b)(s-c)} \quad s = \frac{a+b+c}{2} = \frac{\sigma}{2}$$

$$\sigma = a+b+c$$



r... polmer vrtanega kroga
R... polmer ovtanega kroga

Kosinusni izrek

$$\begin{aligned} c^2 &= a^2 + b^2 - 2ab \cdot \cos\gamma \\ b^2 &= a^2 + c^2 - 2ac \cdot \cos\beta \\ a^2 &= b^2 + c^2 - 2bc \cdot \cos\alpha \end{aligned}$$

Sinusni izrek

$$\frac{a}{\sin\alpha} = \frac{b}{\sin\beta} = \frac{c}{\sin\gamma} = 2R$$

Enakostranični Δ

$$\begin{aligned} S &= \frac{a^2\sqrt{3}}{4} \\ \sigma &= 3a \\ v &= \frac{a\sqrt{3}}{2} \end{aligned}$$

Enakokraki Δ

$$\begin{aligned} \sigma &= c + 2a \\ d &= \beta \\ v^2 + \left(\frac{c}{2}\right)^2 &= a^2 \end{aligned}$$

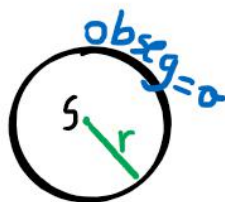
Pravokotni Δ

$$\begin{aligned} S &= \frac{a \cdot b}{2} \\ a^2 + b^2 &= c^2 \\ \gamma &= 90^\circ \\ \alpha + \beta &= 90^\circ \end{aligned}$$

a, b... kateti
c... hipotenuza

Krog

$$\begin{aligned} S &= \pi \cdot r^2 \\ \sigma &= 2\pi r \end{aligned}$$

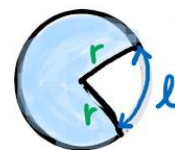


Krožni izsek

$$S = \frac{\pi r^2 \cdot d}{180^\circ}$$

Krožni lok

$$l = \frac{2\pi r \cdot d}{360^\circ}$$





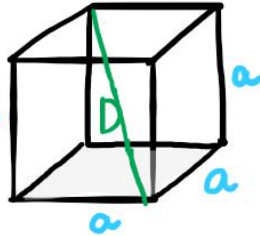
GEOMETRIJSKA TELESA

Kocka

$$P = 6a^2$$

$$V = a \cdot a \cdot a = a^3$$

$$D = a\sqrt{3}$$

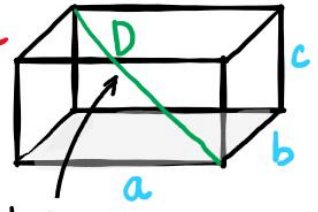


Kvader

$$P = 2ab + 2ac + 2bc$$

$$V = a \cdot b \cdot c$$

$$D = \sqrt{a^2 + b^2 + c^2}$$



telesna diagonalna

Prizma

V splošnem:

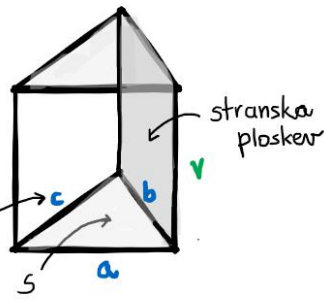
$$P = 2S + pL = 2S + \sigma \cdot v$$

$$V = S \cdot v$$

osnovna ploskev (ploščina)

višina prizme

osnovni robovi (a, b, c)

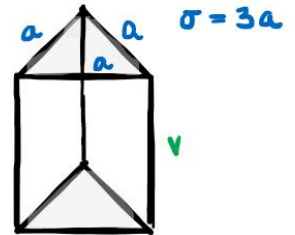


Pravilna 3-strana

Osnovna ploskev je enakostranični trikotnik ker je pravilna

$$P = 2 \cdot \frac{a^2\sqrt{3}}{4} + 3a \cdot v$$

$$V = \frac{a^2\sqrt{3}}{4} \cdot v$$



- 3-strana: S = trikotnik
- 4-strana: S = štirikotnik
- 6-strana: S = šestkotnik

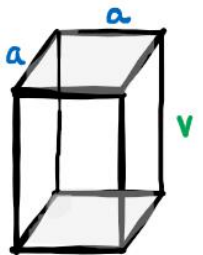
enako kot kvader

Pravilna 4-strana

Osnovna ploskev je kvadrat

$$P = 2 \cdot a^2 + 4a \cdot v$$

$$V = a^2 \cdot v$$



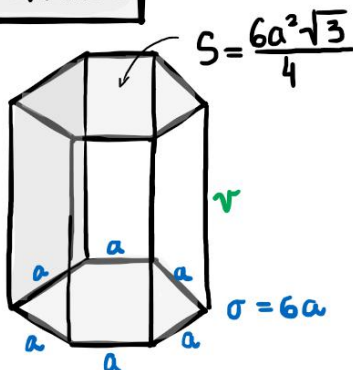
Pravilna 6-strana

Osnovna ploskev je pravilni 6-kotnik

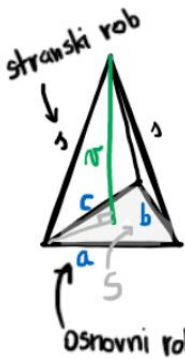
$$P = 2S + pL$$

$$= 2 \cdot \frac{6a^2\sqrt{3}}{4} + 6a \cdot v$$

$$V = \frac{6a^2\sqrt{3}}{4} \cdot v$$



Piramida



$$P = S + pl$$

$$V = \frac{1}{3} S \cdot v = \frac{S \cdot v}{3}$$

Plašč = iz enakokrakih trikotnikov

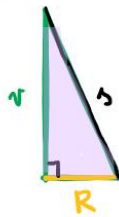
Pravilna 3-strana

$$P = \frac{a^2 \sqrt{3}}{4} + 3 \cdot \frac{a \cdot v_s}{2}$$

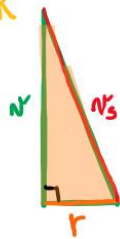
$$V = \frac{1}{3} \cdot \frac{a^2 \sqrt{3}}{4} \cdot v$$

Pitagorov izrek:

$$s^2 = v^2 + R^2$$

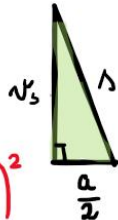


$$v_s^2 = v^2 + r^2$$

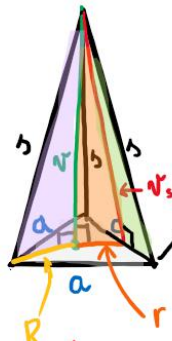


$$r = \frac{a \sqrt{3}}{6}$$

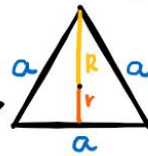
$$R = \frac{a \sqrt{3}}{3}$$



$$s^2 = v_s^2 + \left(\frac{a}{2}\right)^2$$



Osnovna ploskev: enakostranični Δ



v ... višina piramide

v_s ... stranska višina

s ... stranski rob

a ... osnovni rob

Pravilna 4-strana

$$P = \underbrace{a^2}_S + 4 \cdot \underbrace{\frac{a \cdot v_a}{2}}_{pl}$$

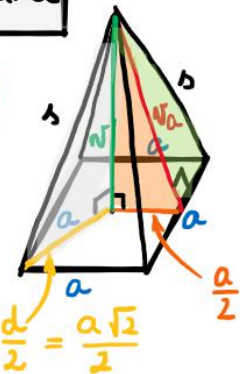
$$V = \frac{1}{3} a^2 \cdot v$$

Pitagorov izrek:

$$s^2 = v^2 + \left(\frac{a\sqrt{2}}{2}\right)^2$$

$$v_a^2 = v^2 + \left(\frac{a}{2}\right)^2$$

$$s^2 = v_a^2 + \left(\frac{a}{2}\right)^2$$

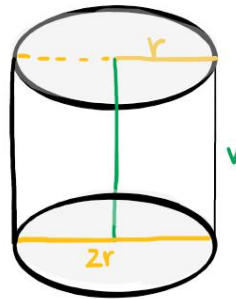
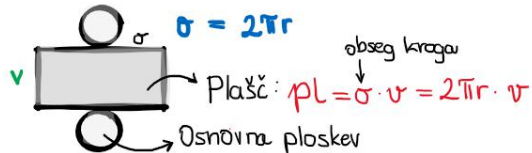


Vajj

$$P = 2S + pl = 2 \cdot \pi r^2 + 2\pi r \cdot v$$

$$P = 2\pi r \cdot (r + v)$$

$$V = S \cdot v = \pi r^2 \cdot v$$



Osnj presek = pravokotnik v prerezu

$$S_0 = 2r \cdot v$$

Enakostranični vajj

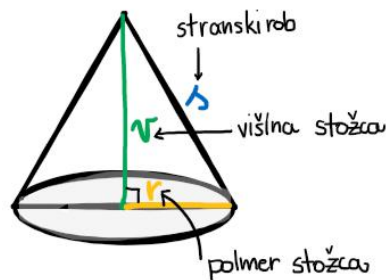
Osnj presek je kvadrat:

Velja: $2r = v \Rightarrow S_0 = v^2$

Stožec

$$P = \pi r^2 + \pi r s = \pi r \cdot (r + s)$$

$$V = \frac{1}{3} \cdot \pi r^2 v = \frac{\pi r^2 v}{3}$$



Velja zveza:

$$v^2 + r^2 = s^2$$

Osnj presek = trikotnik v prerezu:



Enakostranični stožec

Osnj presek je enakostranični trikotnik:

Velja: $2r = s \Rightarrow S_0 = \frac{s^2 \sqrt{3}}{4}$
 ali $S_0 = r \cdot v$

Krogla

$$P = 4\pi R^2$$

$$V = \frac{4\pi R^3}{3}$$

