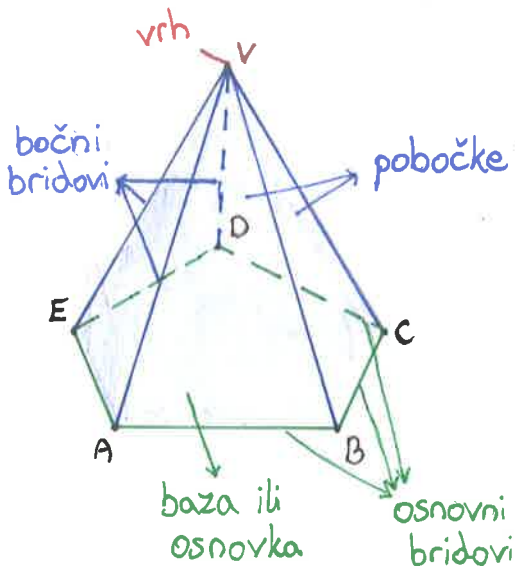


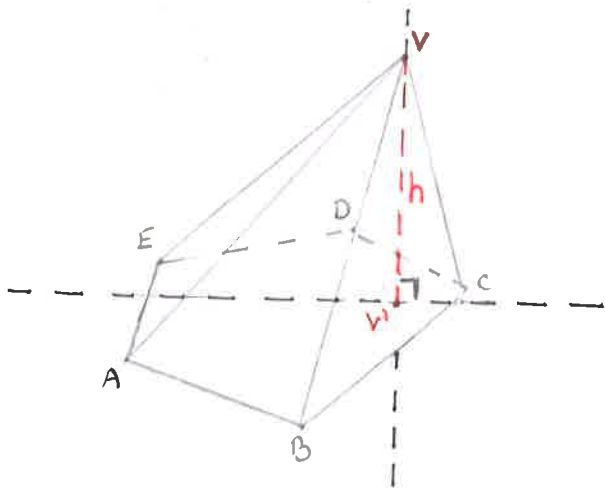
PIRAMIDA



- piramida - geometrijsko tijelo omeđeno n -terokutom i sa n trokuta
- trokuti imaju jedan zajednički vrh i jednu stranicu zajedničku sa stranicom n -terokuta
- pobočke - trokuti koji se sastaju u vrhu
- pobočje - sve pobočke zajedno

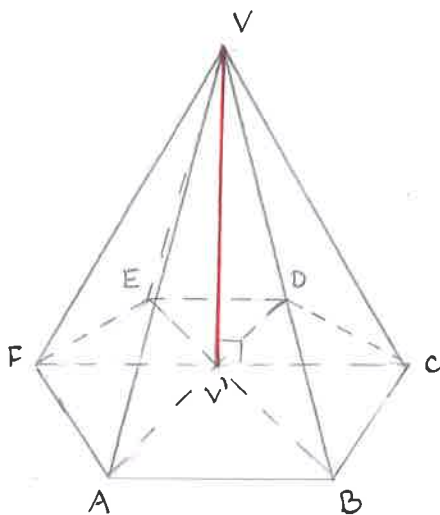
n -terokut	3	7	n
vrhovi	4	8	$n+1$
bridovi	6	14	$2n$
strane	4	8	$n+1$

· VISINA PIRAMIDE



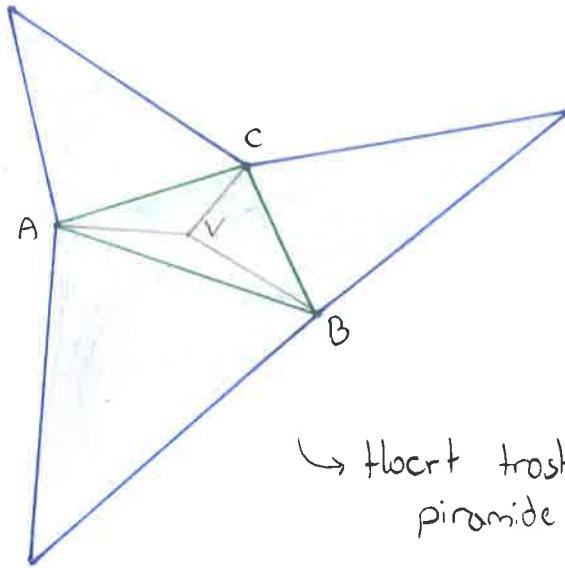
- visina - udaljenost između vrha i baze
- ortogonalna projekcija vrha V na ravninu baze
- V' → nožište ravnine

· PRAVILNA PIRAMIDA



- piramida je pravilna ako joj je baza pravilni mnogokut, a nožište visine središte tog mnogokuta

• MREŽA I OPLOŠJE PIRAMIDE



↳ tlacrt trostrane
piramide

- mrežu piramide dobivamo polaganjem svih strana piramide u jednu ravninu
- oplošje - zbroj svih strana piramide

$$O = B + P$$

baza pobočje

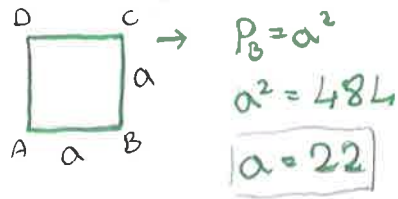
• VOLUMEN PIRAMIDE

- dvije piramide kojima je baza jednake površine i koje imaju jednake visine, imaju i jednak volumen

$$V = \frac{1}{3} B \cdot h$$

baza visina

14. $P_B = 484 \text{ cm}^2$
 $O = 2684 \text{ cm}^2$
 $V = ?$



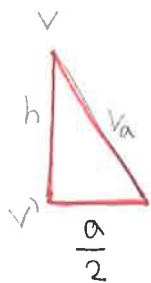
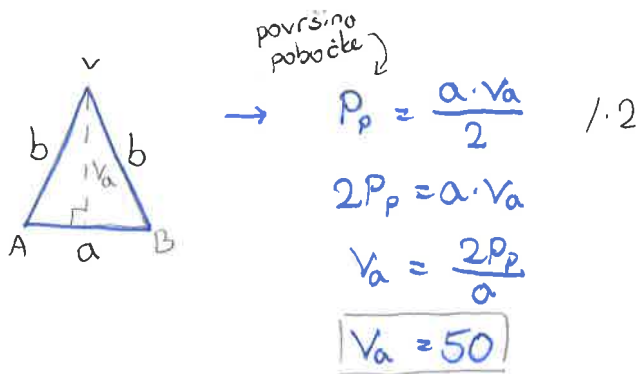
površina
boze
 $O = B + P \rightarrow$ pobočje

$P = O - B$

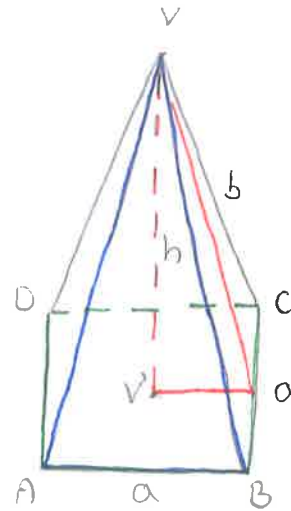
$P = 2684 - 484$

$P = 2200 \quad /:4 \rightarrow$ dijelimo sa 4
kako bi dobili
površinu jedne
pobočke

$P_p = 550$



$V_a^2 = h^2 + \left(\frac{a}{2}\right)^2$
 $h^2 = V_a^2 - \left(\frac{a}{2}\right)^2$
 $h^2 = 50^2 - \frac{484}{4} \quad /:4$
 $4h^2 = 4 \cdot 50^2 - 484$
 $4h^2 = 9516 \quad /:4$
 $h^2 = 2379 \quad \sqrt{\quad}$
 $h = 48.77$

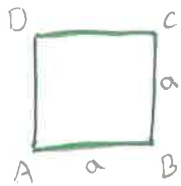


površina
boze
 $V = \frac{1}{3} \cdot B \cdot h$
 $V = \frac{1}{3} \cdot 484 \cdot 48.77$
 $V = 7868 \text{ cm}^3$

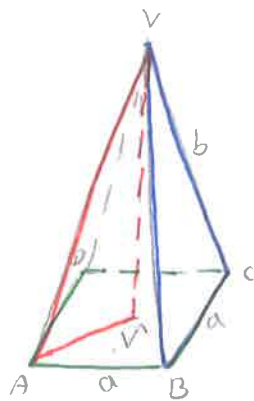
15. $P_4 = 544$

$B = 256$

$V = ?$



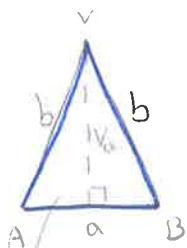
$\rightarrow B = a^2$
 $a^2 = 256 \quad \sqrt{\quad}$
 $a = 16$



$P_1 = P_4 : 4$

$P_1 = 136$

\rightarrow pobočje djelimo sa 4 kako bi dobili površinu jedne pobočke



$\rightarrow P = \frac{a \cdot V_a}{2} \quad | \cdot 2$

$2P = a \cdot V_a$

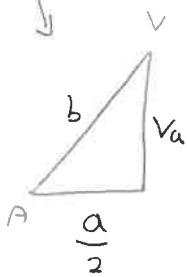
$V_a = \frac{2P}{a}$

$V_a = 17$

$V = \frac{1}{3} \cdot B \cdot h$

$V = \frac{1}{3} \cdot 256 \cdot 15$

$V = 1280 \text{ cm}^3$

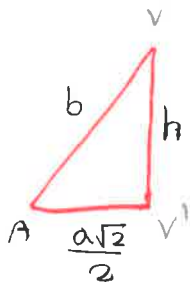


$\rightarrow b^2 = V_a^2 + \left(\frac{a}{2}\right)^2$

$b^2 = 17^2 + 64$

$b^2 = 353 \quad \sqrt{\quad}$

$b = 18.79$



$\rightarrow b^2 = h^2 + \left(\frac{a\sqrt{2}}{2}\right)^2$

$h^2 = b^2 - \left(\frac{a\sqrt{2}}{2}\right)^2$

$h^2 = 18.79^2 - \frac{16^2 \cdot 2}{4}$

$h^2 = 225$

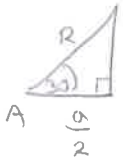
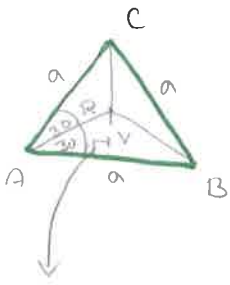
$h = 15$

17.

$$a = 12$$

$$b = 13$$

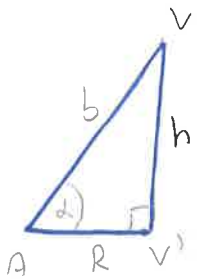
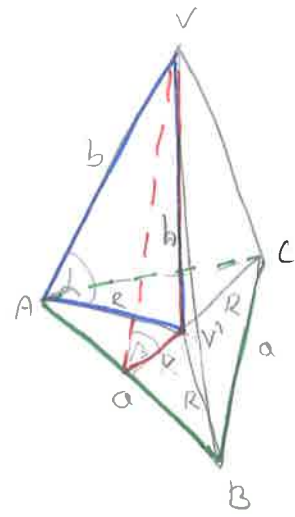
$$\alpha, \beta = ?$$



$$\rightarrow \cos(30^\circ) = \frac{\frac{a}{2}}{R}$$

$$R = \frac{\frac{a}{2}}{\cos(30^\circ)}$$

$$R = 6.93$$



→

$$\cos(\alpha) = \frac{R}{b}$$

$$\alpha = 57^\circ 41' 11''$$

→

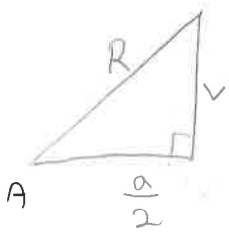
$$b^2 = h^2 + R^2$$

$$h^2 = b^2 - R^2$$

$$h^2 = 13^2 - 6.93^2$$

$$h^2 = 120.98$$

$$h = 11$$



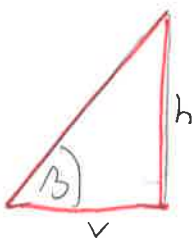
$$R^2 = v^2 + \left(\frac{a}{2}\right)^2$$

$$v^2 = R^2 - \left(\frac{a}{2}\right)^2$$

$$v^2 = 6.93^2 - 36$$

$$v^2 = 12.025$$

$$v = 3.47$$



→

$$\operatorname{tg}(\beta) = \frac{h}{v}$$

$$\beta = 72^\circ 29' 30''$$

18.

$$a = 15 \text{ cm}$$

$$b = 16 \text{ cm}$$

$$c = 17 \text{ cm}$$

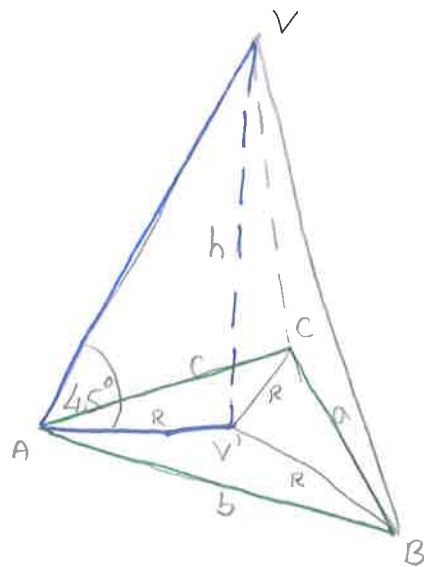
$$V = ?$$

$$B = \sqrt{s(s-a)(s-b)(s-c)}$$

$$s = \frac{a+b+c}{2} = 24$$

$$B = 109.98 \text{ cm}^2$$

→ površinu baze
možemo izračunati
po Heronovoj
formuli



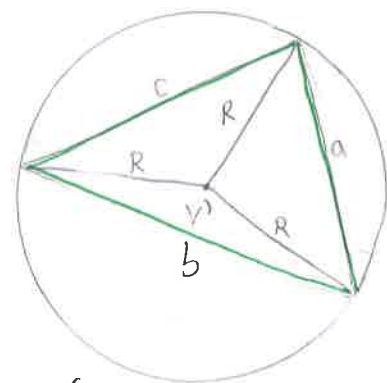
računamo R pomoću formule
za površinu trokuta (baze)

$$B = \frac{abc}{4R} \quad | \cdot 4R$$

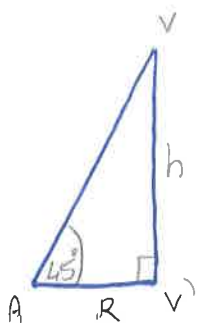
$$4RB = abc$$

$$R = \frac{abc}{4B}$$

$$R = 9.274 \text{ cm}$$



↳ V' predstavlja središte
opisane kružnice



$$\rightarrow \operatorname{tg}(45^\circ) = \frac{h}{R}$$

$$h = R \cdot \operatorname{tg}(45^\circ)$$

$$h = 9.274 \text{ cm}$$

$$V = \frac{1}{3} \cdot B \cdot h$$

$$V = \frac{1}{3} \cdot 109.98 \cdot 9.274$$

$$V = 340 \text{ cm}^3$$