9.r PONAVLJANJE IN UTRJEVANJE - 6. teden

REŠI NALOGE.

1. naloga

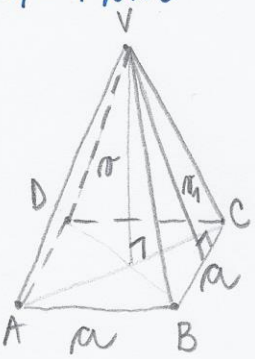
PIRAMIDE	tristrana piramida	štiristrana piramida	šeststrana piramida	n-strana piramida
št. oglišč	4	5	7	$n+1$
št. robov	6	8	12	$2 \cdot n$
št. ploskev	4	5	7	$n+1$

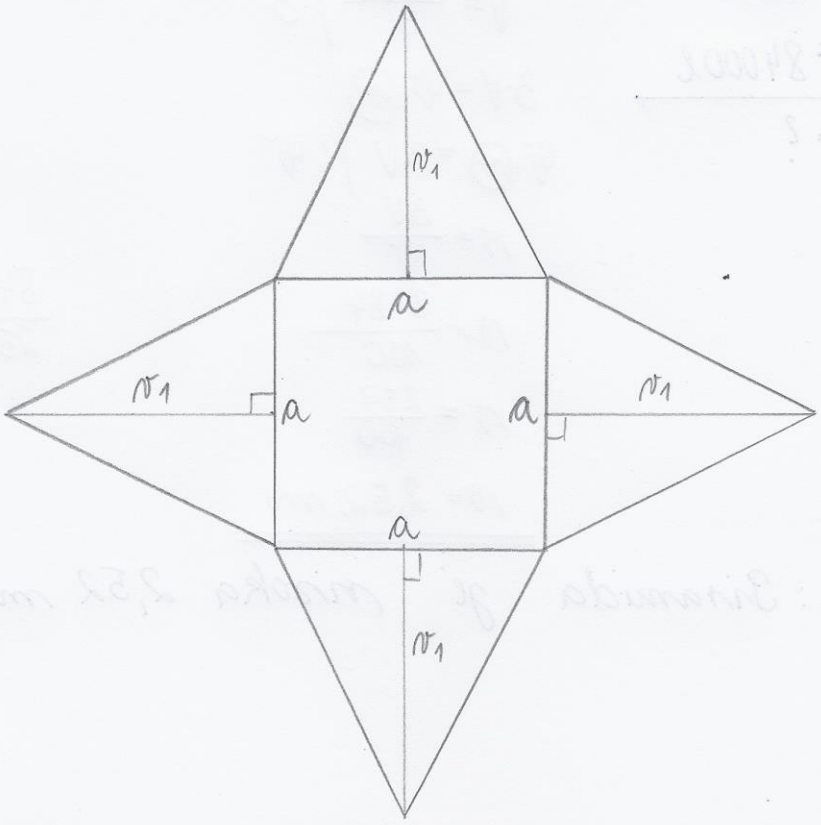
2. naloga

pravilna 4-strana piramida

$a = 4\ cm$

$v_1 = 4\ cm$





3. naloga

piramida

$pl = 265\ m^2$

$\upsilon = 135\ m^2$

$P = ?$

$P = \upsilon + pl$

$P = 135 + 265$

$P = 400\ m^2$

4. naloga

piramida

$S = 218,1\ cm^2$

$v = 3,6\ cm$

$V = ?$

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

$$V = \frac{218,1 \cdot 3,6 \cdot 1,2}{3 \cdot 1}$$

$$V = 261,72\ cm^3$$

$$\begin{array}{r} 218,1 \cdot 1,2 \\ + \quad 4362 \\ \hline 261,72 \end{array}$$

5. naloga

piramida

$S = 100\ m^2$

$V = 84000\ l$

$v = ?$

$$84\,000\ l = 84\,000\ dm^3 = 84\ m^3$$

$$V = \frac{S \cdot v}{3} \quad / \cdot 3$$

$$3 \cdot V = S \cdot v$$

$$S \cdot v = 3V \quad / : S$$

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

$$v = \frac{3 \cdot 84}{100}$$

$$v = \frac{252}{100}$$

$$v = 2,52\ m$$

$$\begin{array}{r} 84 : 3 \\ \hline 252 \end{array}$$

Odg.: Piramida je visoka 2,52 m.

9.r PRAVILNA 4-STRANA PIRAMIDA

ŠOLSKI str. 162/3., 4., 6.a in 7.

3. piramida
$W = 20\ cm^2$
$pl = 3 \cdot W$
$P = ?$

$P = W + pl$
$P = W + 3 \cdot W$
$P = 4 \cdot W$
$P = 4 \cdot 20$
$P = 80\ cm^2$

4.

a.) Da. Osnovna ploskev je pravilni 4-kotnik (kvadrat).

b.) daljica SV – višina piramide

c.) daljica EV – višina stranske ploskve

č.) daljica AC – diagonala osnovne ploskve

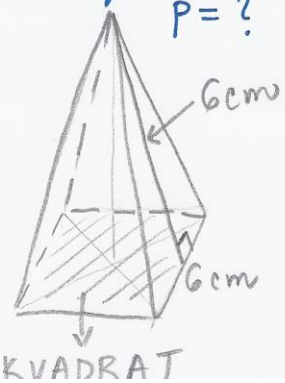
d.) daljica CV – ni osnovni rob piramide, je stranski rob piramide

e.) štirikotnik ABCD – osnovna ploskev piramide

f.) trikotnik BCV – stranska ploskev piramide

g.) $|SV| = \sqrt{|EV|^2 - |SE|^2}$

6.a pravilna 4-stranska piramida
$P = ?$



$P = W + pl$
$P = a^2 + 4 \cdot \frac{a \cdot v_1}{2 \cdot 1}$
$P = a^2 + 2 \cdot a \cdot v_1$
$P = 6^2 + 2 \cdot 6 \cdot 6$
$P = 36 + 72$
$P = 108\ cm^2$

7. $V_{PRIZME} = 12\,\ell$
$V_{PIRAMIDE} = 4\,\ell$ } :3

Telesi imata enako veliko (skladno) osnovno ploskev in enaki (skladni) višini.

9.r UPORABA PI v PRAVILNI 4-STRANI PIRAMIDI

Vaja dela mojstra, če mojster dela vajo

SŠO 9 str. 162/5., 8., str. 163/9., 10.

5.

a.) Piramida se imenuje: pravilna 4-strana piramida
Sestavljena je iz: enega kvadrata in štirih enakokrakih trikotnikov

b.) $P = ?$

$S = 36\ cm^2$

$p_\Delta = p_{STRANSKE\ PLOSKVE} = 15\ cm^2$

$P = S + 4 \cdot p_\Delta$

$P = 36 + 4 \cdot 15$

$P = 36 + 60$

$P = 96\ cm^2$

c.) $a = ?$

$S = a^2$

$a = \sqrt{S}$

$a = \sqrt{36}$

$a = 6\ cm$

č.) $V = ?$

$v = ?$

$v_1 = ?$

1. $p_\Delta = \frac{a \cdot v_1}{2} \quad / \cdot 2$

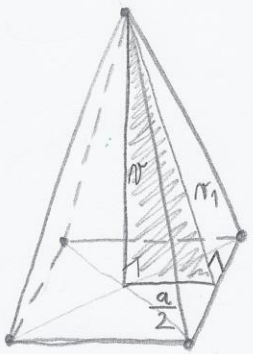
$2 \cdot p_\Delta = a \cdot v_1$

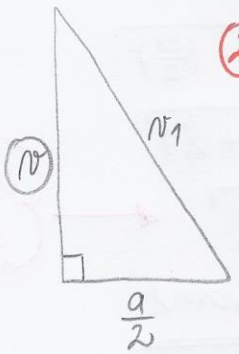
$a \cdot v_1 = 2 \cdot p_\Delta$

$v_1 = \frac{2 \cdot p_\Delta}{a}$

$v_1 = \frac{2 \cdot 15 \cdot 1 \cdot 5}{6 \cdot 3 \cdot 1}$

$v_1 = 5\ cm$





2. $v = \sqrt{v_1^2 - (\frac{a}{2})^2}$

$v = \sqrt{5^2 - (\frac{6}{2})^2}$

$v = \sqrt{25 - 9}$

$v = \sqrt{16}$

$v = 4\ cm$

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

$V = \frac{36 \cdot 4 \cdot 12}{3 \cdot 1}$

$V = 48\ cm^3$

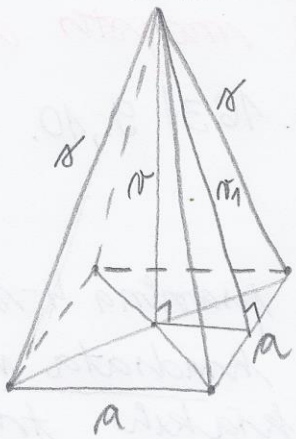
(8.) pravilna 4-strana piramida

$a = 18\ cm$

$v_1 = 15\ cm$

1. $P = ?$
2. $v = ?$
3. $V = ?$
4. $s = ?$

SKICA:



1. $P = \psi + pl$

$P = a^2 + 4 \cdot \frac{a v_1}{2 \cdot 1}$

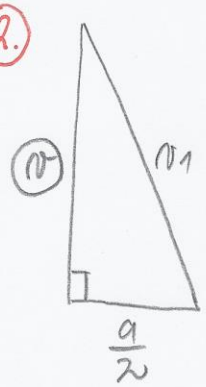
$P = a^2 + 2 a v_1$

$P = 18^2 + 2 \cdot 18 \cdot 15$

$P = 324 + 540$

$P = 864\ cm^2$

2.



$v = \sqrt{v_1^2 - (\frac{a}{2})^2}$

$v = \sqrt{15^2 - (\frac{18}{2})^2}$

$v = \sqrt{225 - 81}$

$v = \sqrt{144}$

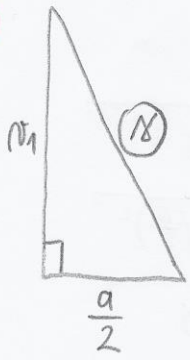
$v = 12\ cm$

3. $V = \frac{\psi \cdot v}{3}$

$V = \frac{18^2 \cdot 12 \cdot 4}{3 \cdot 1}$

$V = 1296\ cm^3$

4.



$s = \sqrt{v_1^2 + (\frac{a}{2})^2}$

$s = \sqrt{15^2 + (\frac{18}{2})^2}$

$s = \sqrt{225 + 81}$

$s = \sqrt{306}$

$s \doteq 17{,}5\ cm$

UPORABI TABELCE ali ŽR

9. piramida A

$w = 60\ cm^2$

$pl = 120\ cm^2$

$v = 8\ cm$

$P = ?$

$V = ?$

$P = w + pl$

$P = 60 + 120$

$P = 180\ cm^2$

$V = \frac{w \cdot v}{3}$

$V = \frac{60 \cdot 8 \cdot 20}{3 \cdot 1}$

$V = 160\ cm^3$

piramida B

$w = 256\ cm^2$

$pl = 320\ cm^2$

$V = 512\ cm^2$

$v = ?$

$P = ?$

$P = w + pl$

$P = 256 + 320$

$P = 576\ cm^2$

$V = \frac{w \cdot v}{3} \quad / \cdot 3$

$3V = w \cdot v$

$v = \frac{3V}{w}$

$v = \frac{3 \cdot 512 \cdot 2}{256 \cdot 1}$

$v = 6\ cm$

piramida C

$w = 484\ cm^2$

$v = 16\ cm$

$P = 3124\ cm^2$

$pl = ?$

$V = ?$

$P = w + pl$

$pl = P - w$

$pl = 3124 - 484$

$pl = 2640\ cm^2$

$V = \frac{w \cdot v}{3}$

$V = \frac{484 \cdot 16}{3}$

$V = 2581\frac{1}{3}\ cm^3 =$

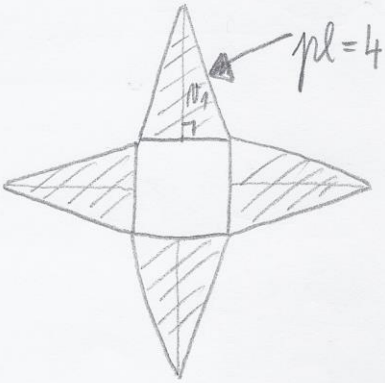
$= 2581{,}3\ cm^3$

10. pravilna 4-strana piramida

$pl = 120\ cm^2$

$v_1 = 10\ cm$

3. $V = ?$
4. $d_{ŽICE} = ?$
1. $a = ?$
2. $v = ?$



$pl = 4 \cdot p_\Delta$

1. $pl = \frac{2}{4} \cdot \frac{a \cdot v_1}{2 \cdot 1}$

$pl = 2 a v_1$

$2 a v_1 = pl \quad / : 2 v_1$

$a = \frac{pl}{2 v_1}$

$a = \frac{120 \cdot 6}{2 \cdot 10 \cdot 1}$

$a = 6\ cm$

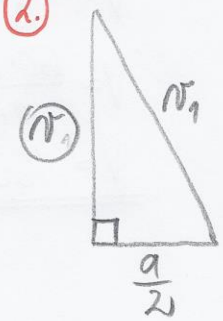
③ $V = \frac{\pi \cdot r}{3}$

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

$V = \frac{6^2 \cdot 9{,}5}{3}$

$V = \frac{36 \cdot 9{,}5 \cdot 12}{3 \cdot 1}$

$V \doteq 114\ cm^3$

② 

$r = \sqrt{r_1^2 - (\frac{a}{2})^2}$

$r = \sqrt{10^2 - 3^2}$

$r = \sqrt{100 - 9}$

$r = \sqrt{91}$

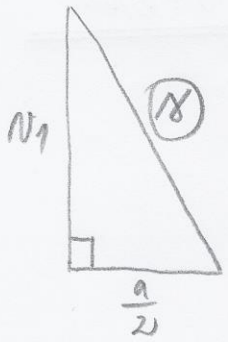
$r \doteq 9{,}5\ cm$

④ $d_{ZICE} = 4 \cdot a + 4 \cdot s$

$d_{ZICE} = 4 \cdot 6 + 4 \cdot 10{,}4$

$d_{ZICE} = 24 + 41{,}6$

$d_{ZICE} = 65{,}6\ cm$



$s = \sqrt{r_1^2 + (\frac{a}{2})^2}$

$s = \sqrt{10^2 + 3^2}$

$s = \sqrt{100 + 9}$

$s = \sqrt{109}$

$s \doteq 10{,}4\ cm$

O.: Prostornina piramide je približno $114\ cm^3$.
Potrebovali bi najmanj 65,6 cm žice.