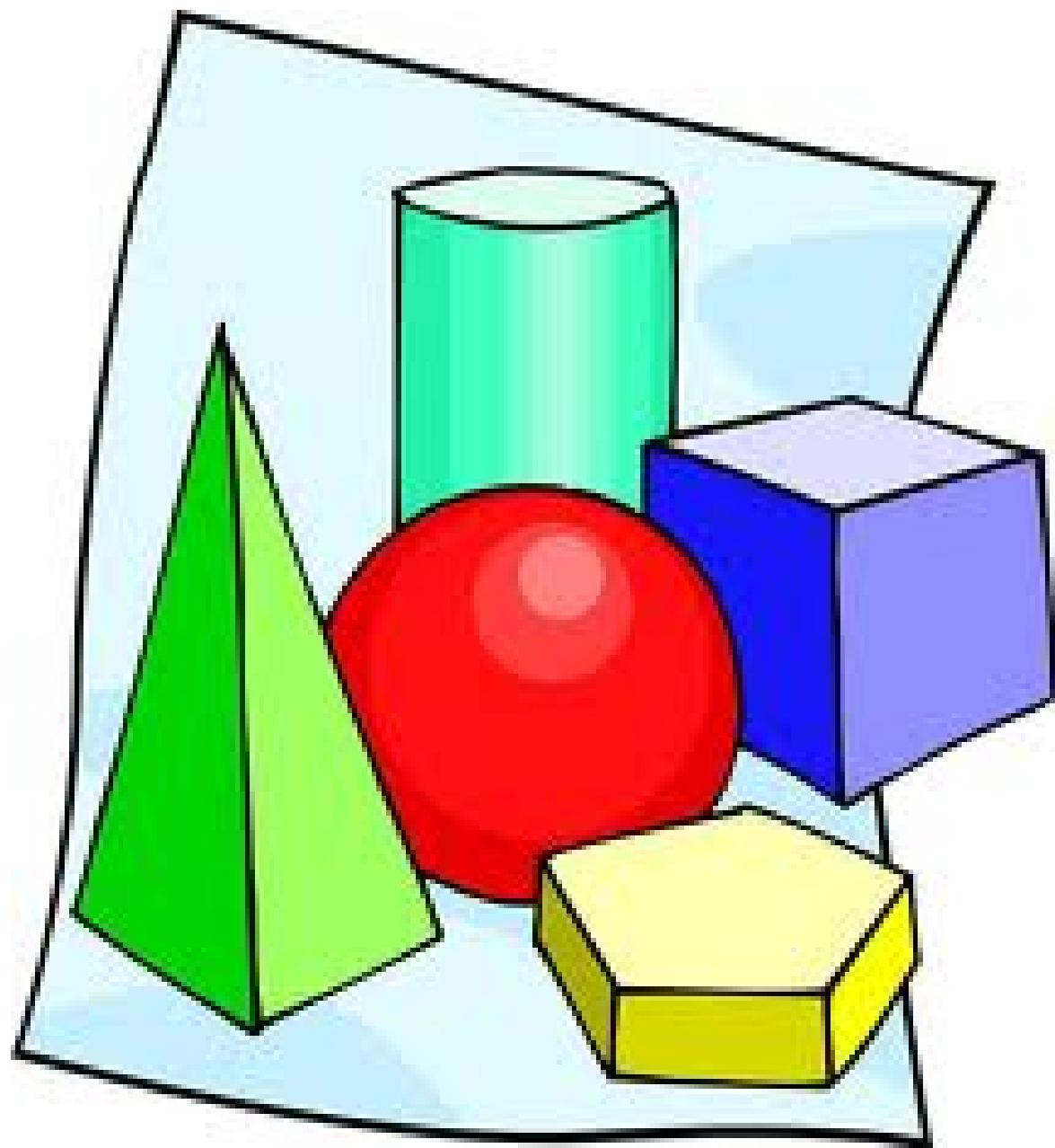


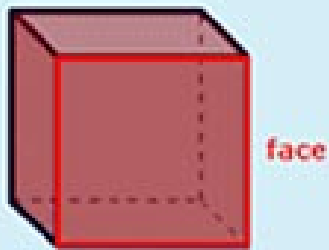
The background of the slide is a technical drawing in descriptive geometry. It features a complex network of thin black lines on a light gray background, including numerous circles, arcs, and straight lines representing projections. Several 3D geometric models are placed on the drawing: a stepped pyramid-like structure in the top left, a V-shaped prism in the top center, a more complex angular prism in the top right, and a long, thin prism in the bottom center. The text is overlaid on the lower half of the image.

PROJEKCIJA **GEOMETRIJSKOG TELA** NA TRI MEĐUSOBNO UPRAVNE RAVNI

Nacrtna geometrija



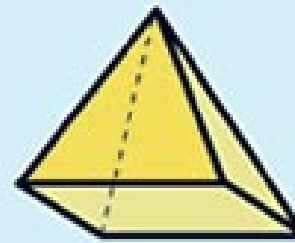
Geometrijska tela



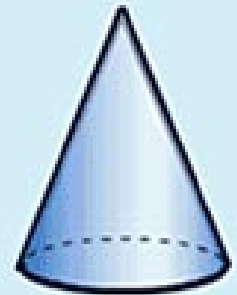
Cube



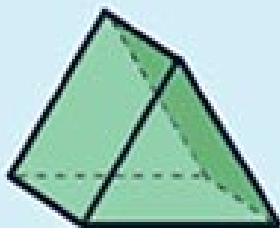
Cuboid



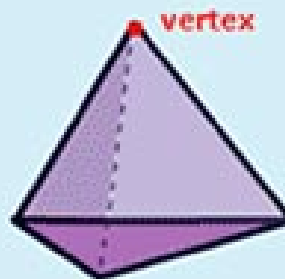
Square based
pyramid



Cone



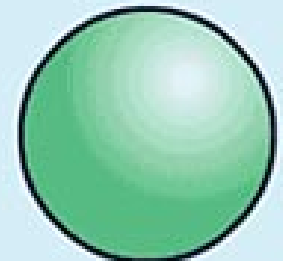
Triangular prism



Triangular based
pyramid

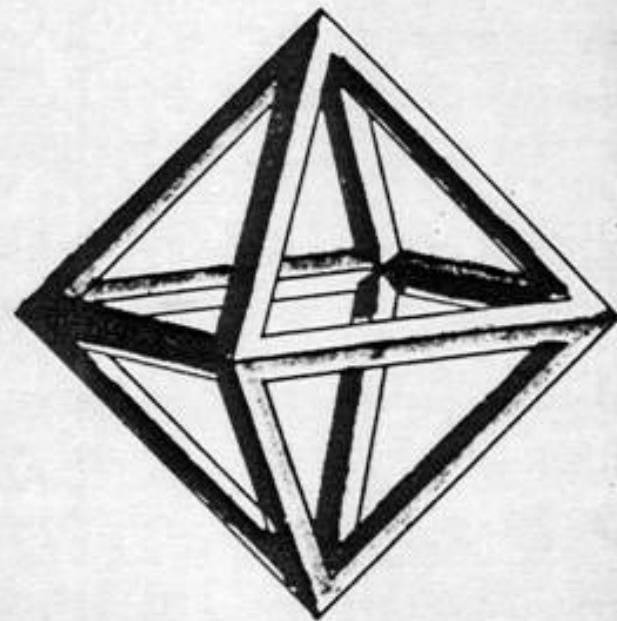
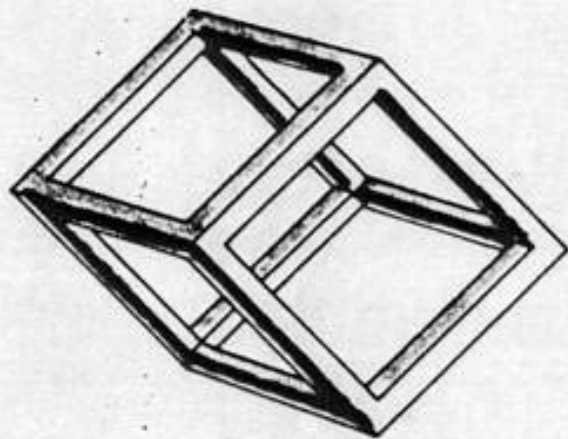
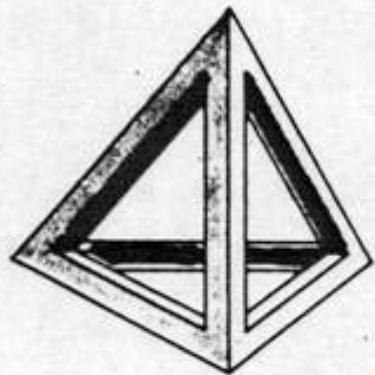


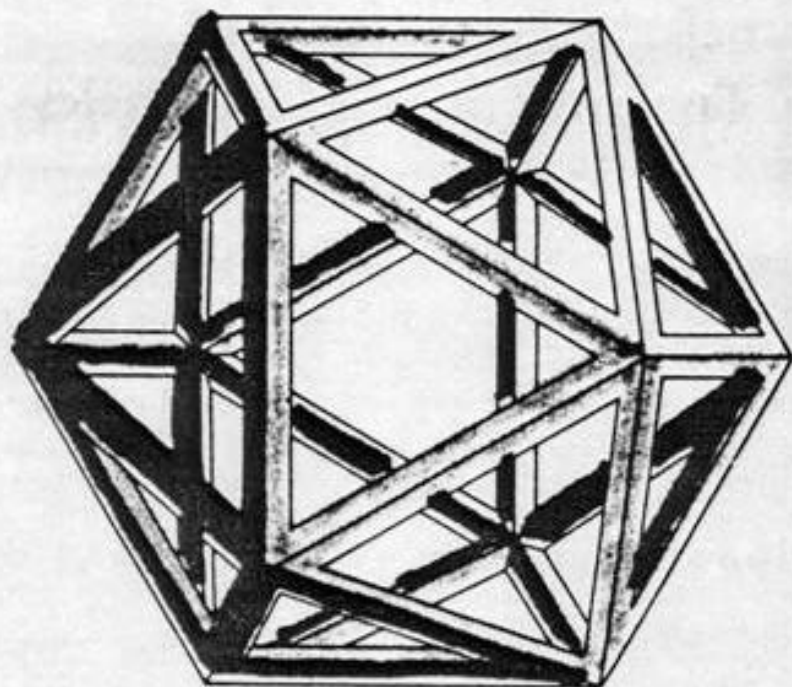
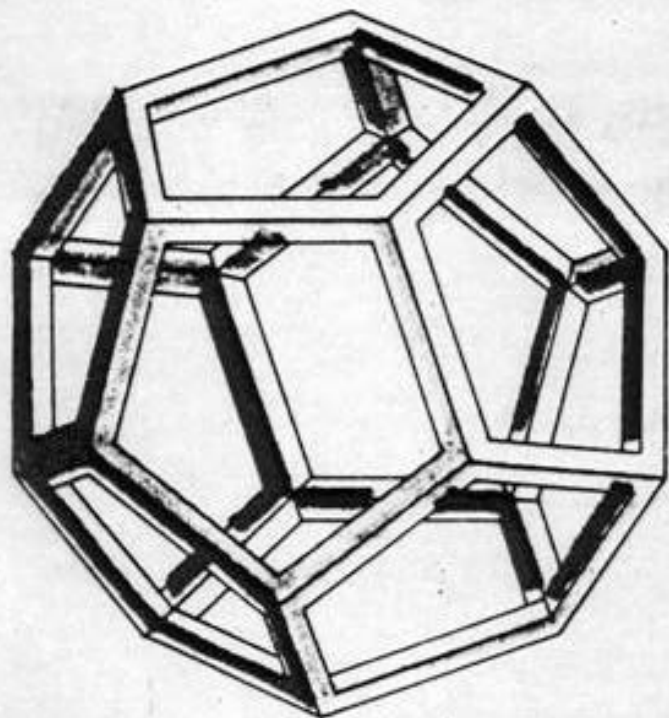
Cylinder



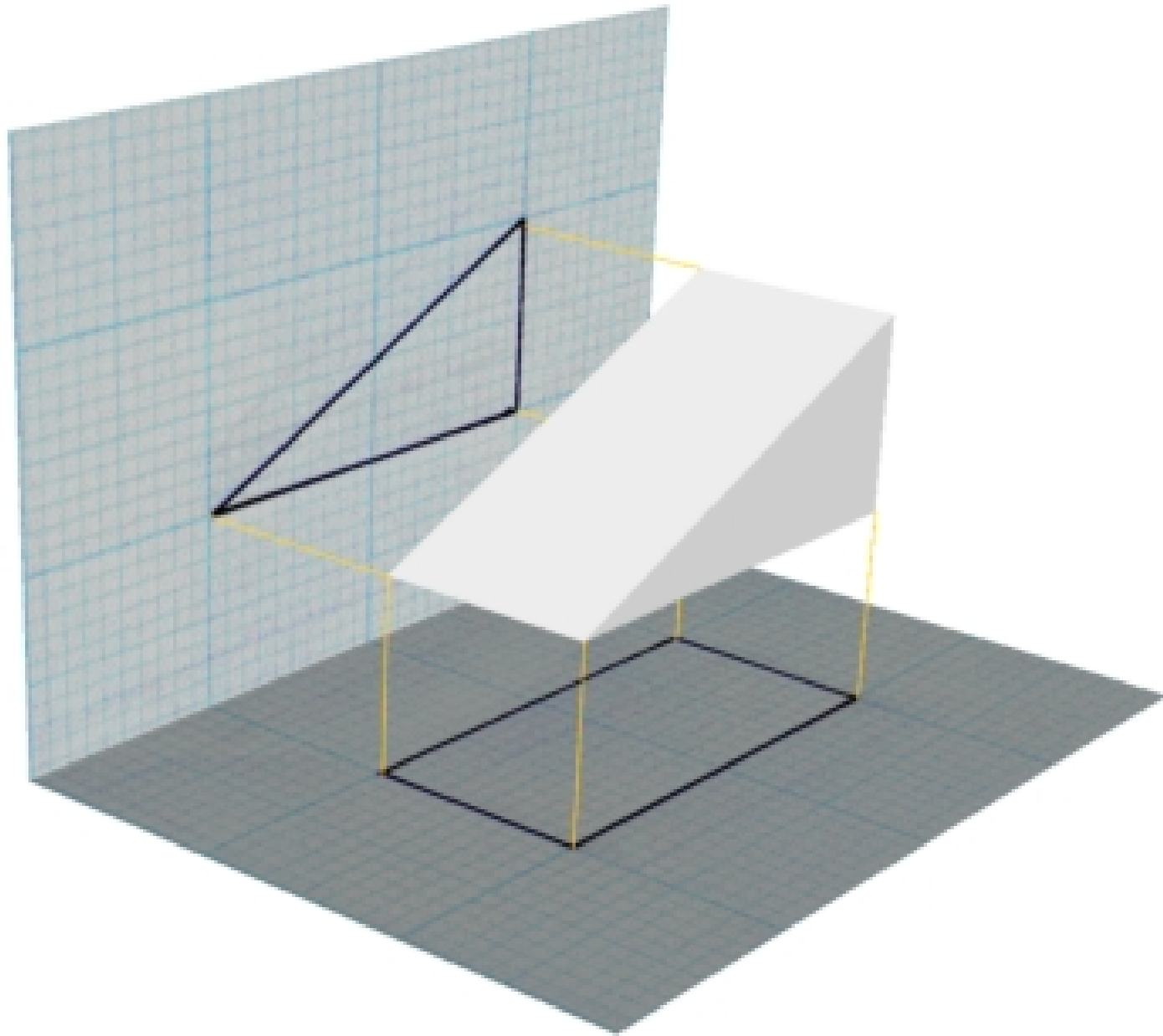
Sphere







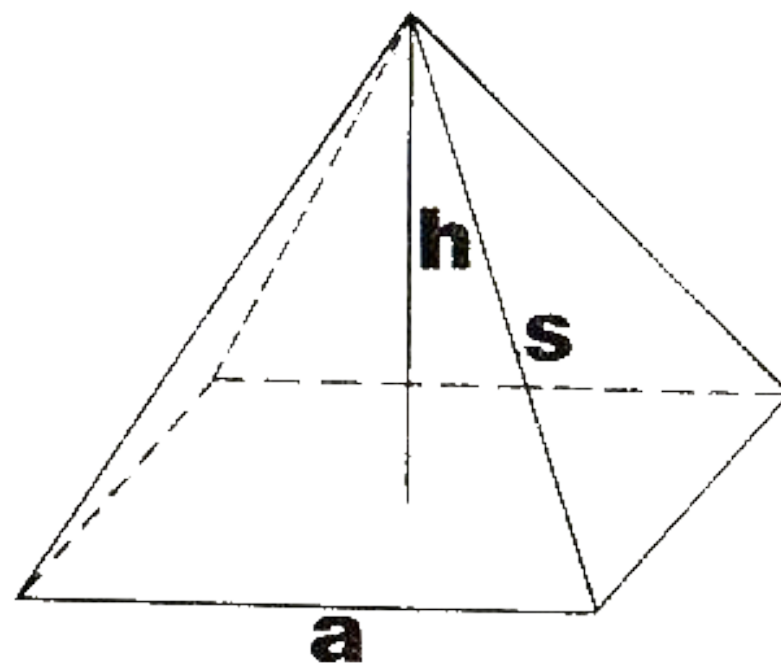
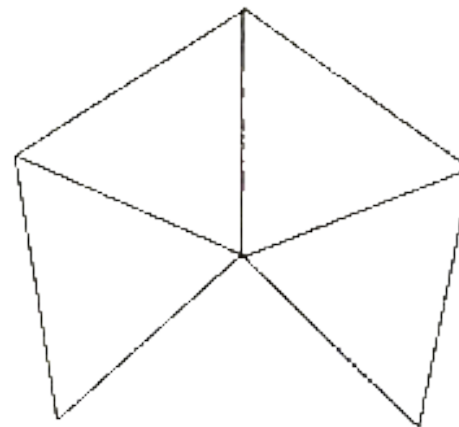
Projekcija tela



Projekcija piramide



Projekcija piramide



Nacrtati projekcije trostrane piramide ABCV na tri upravne ravni.

- Podaci:
- $A (x_1, y_1, z_1),$
- $B (x_2, y_2, z_2),$
- $C (x_3, y_3, z_3),$
- $V (x_4, y_4, z_4)$

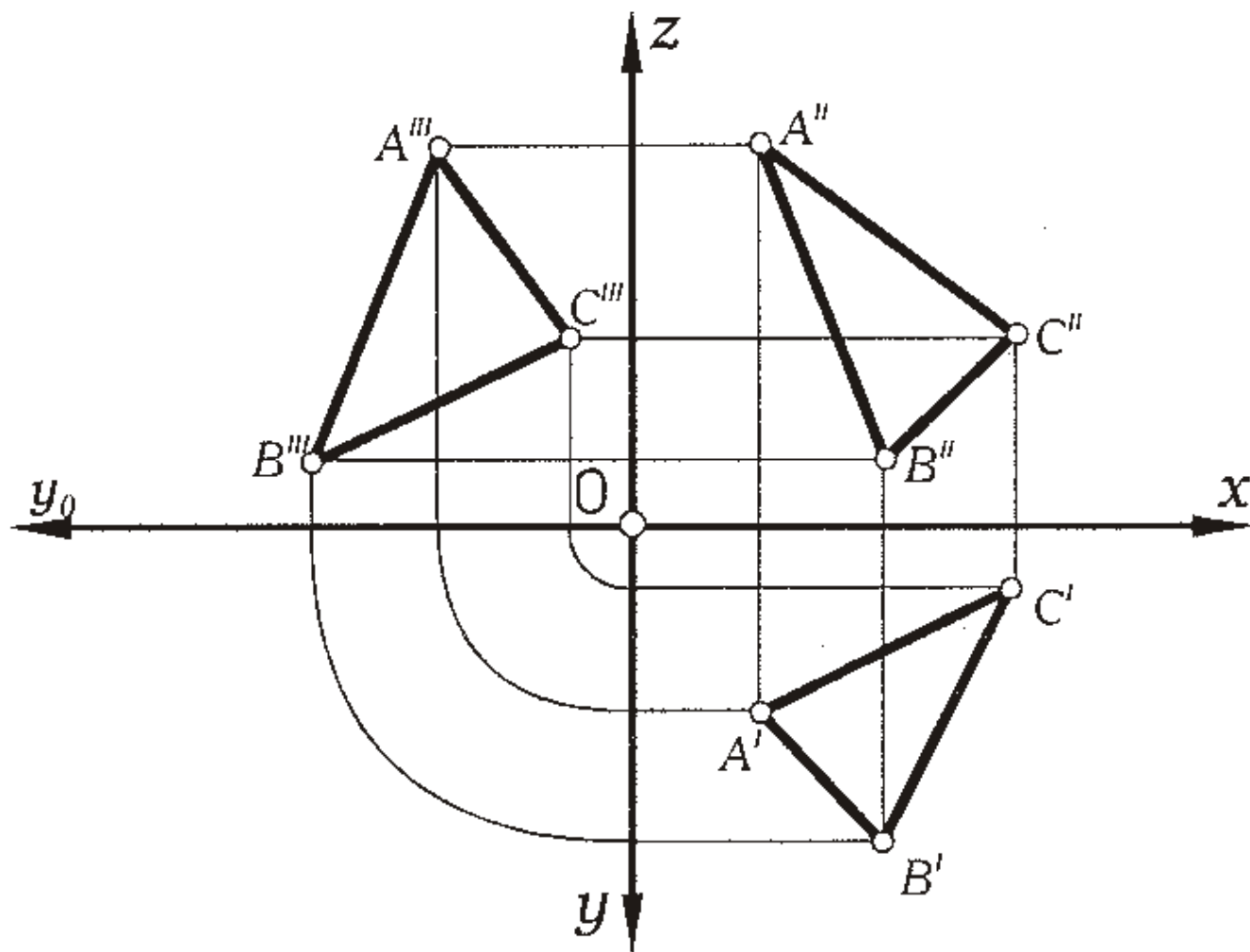
Nacrtati projekcije trostrane piramide ABCV na tri upravne ravni.

- Podaci:
- $A (x_1, y_1, z_1),$ $A (2, 3, 5),$
- $B (x_2, y_2, z_2),$ $B (4, 5, 1),$
- $C (x_3, y_3, z_3),$ $C (6, 1, 3),$
- $V (x_4, y_4, z_4).$ $V (8, 4, 8).$

Osnova trostrane piramide je trougao ABC, koji je određen projekcijama na tri međusobno upravne ravni.

Nacrtajte trougao prema datim koordinatama

Osnova trostrane piramide je trougao ABC, koji je određen projekcijama na tri međusobno upravne ravni.



Vrh piramide je određen koordinatama:

$$V(x_4, y_4, z_4),$$

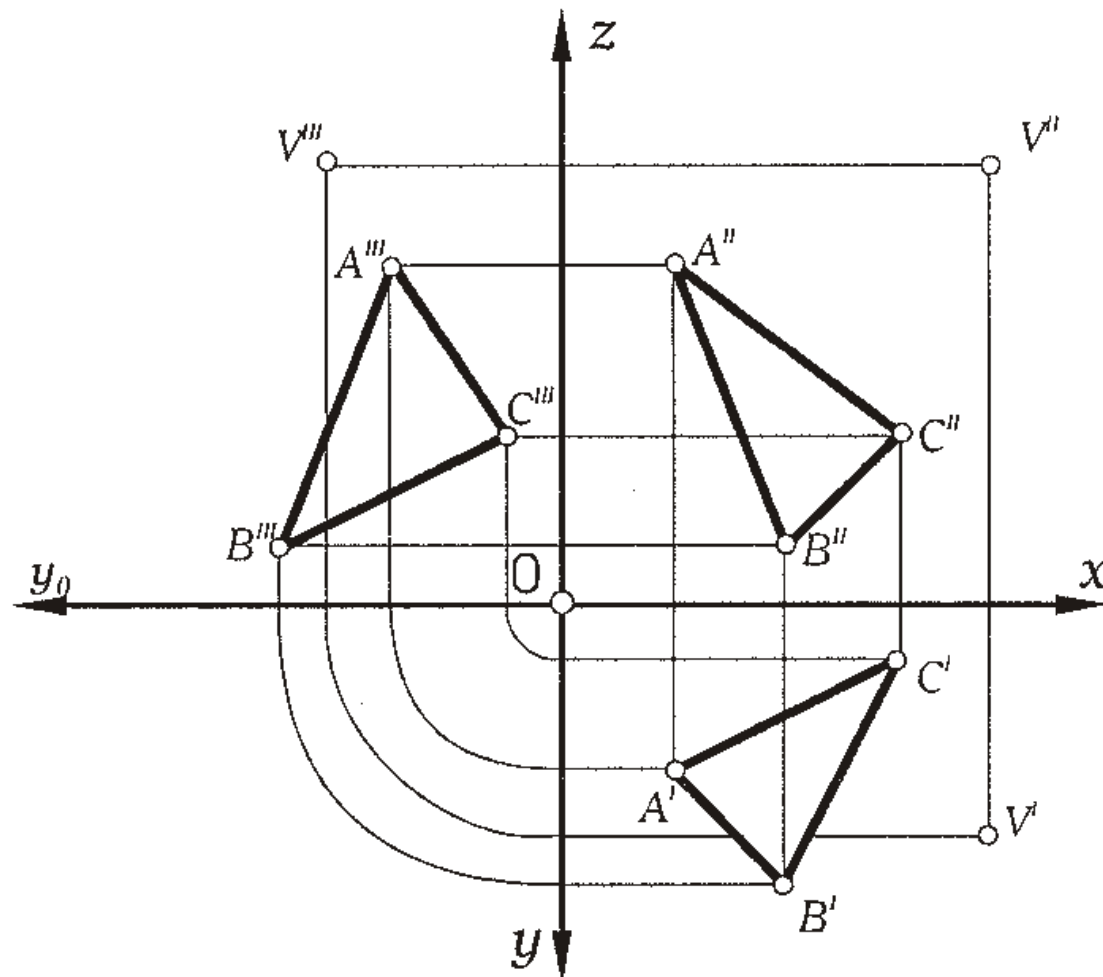
odnosno

projekcijama:

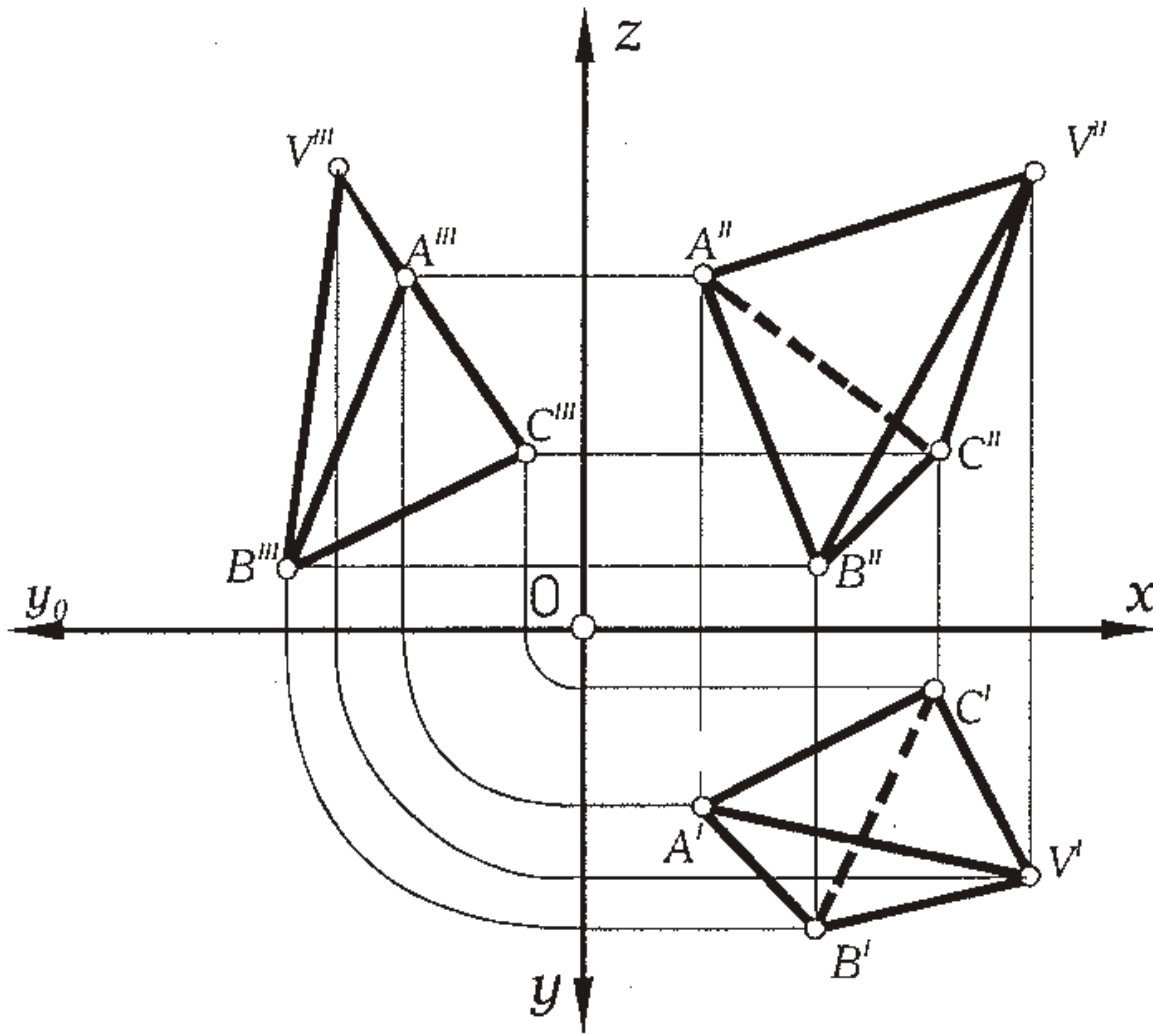
$$V' (x_4; y_4),$$

$$V'' (x_4; z_4) \text{ i}$$

$$V''' (y_4; z_4).$$



Spajanjem tačaka A, B i C sa vrhom V, definišu se projekcije trostrane piramide, na tri međusobno upravne ravni.

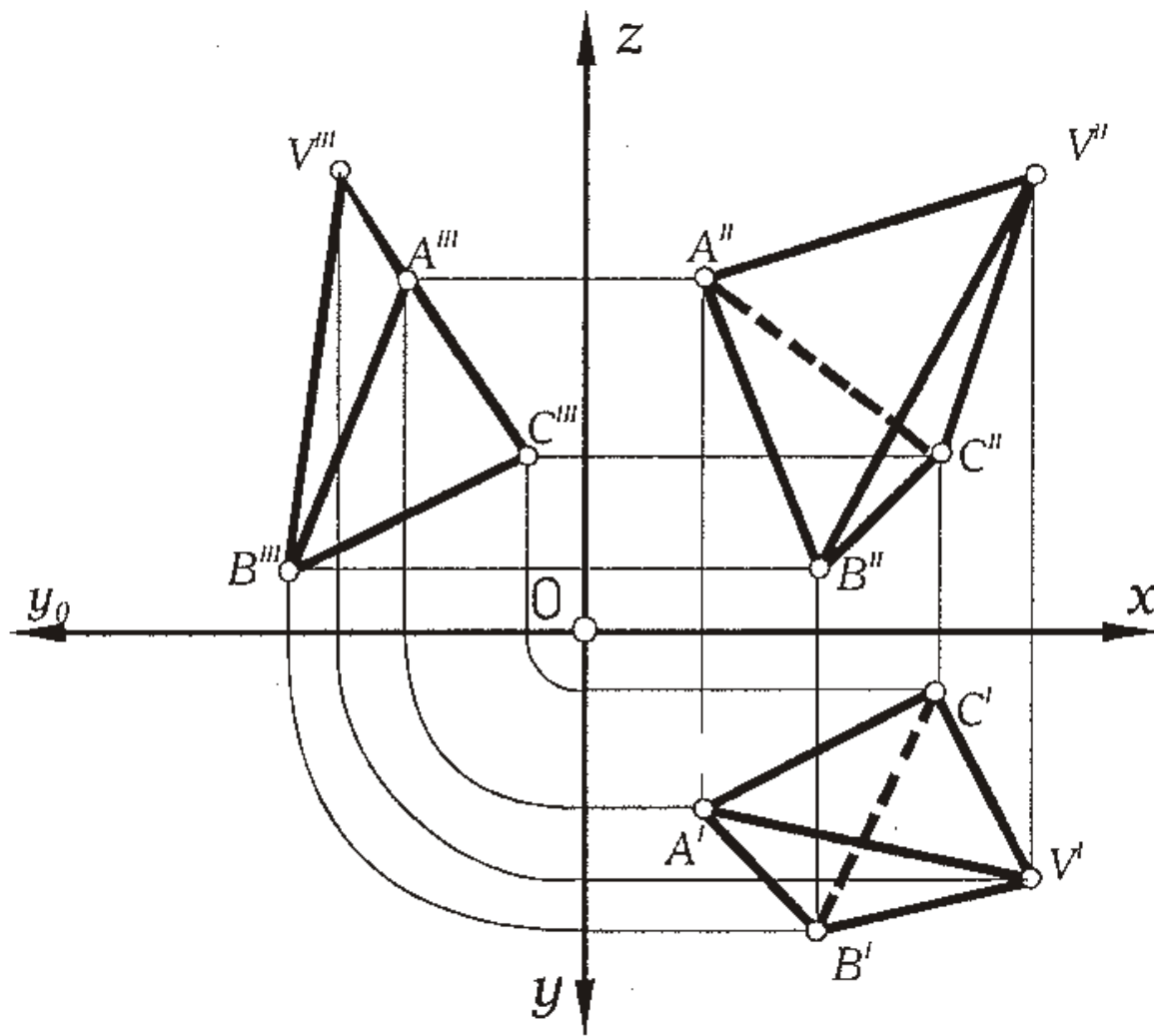


Diskusija.

-Prava veličina tela?

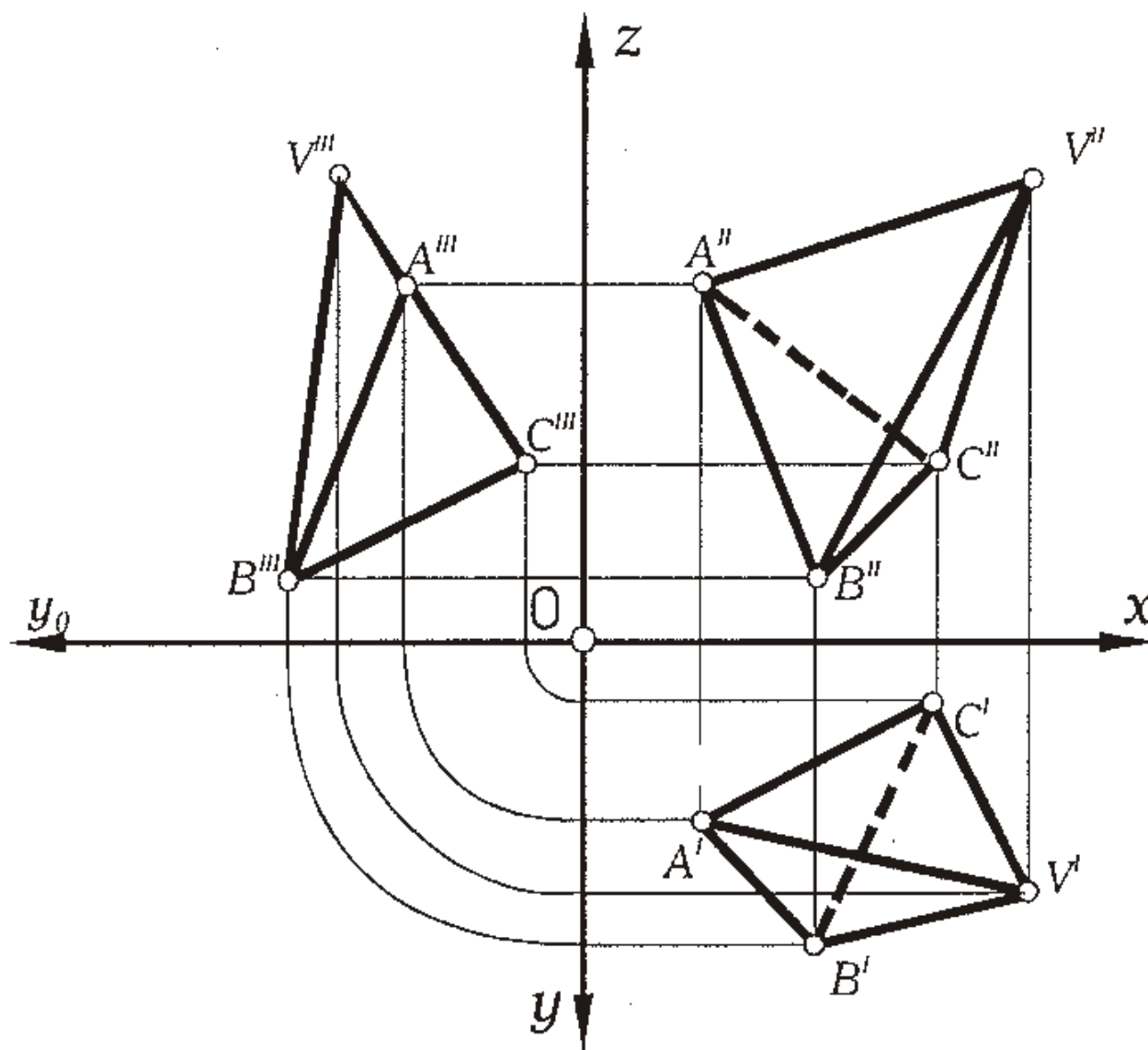
- Vidljivost ivica?

Sve ivice piramide se projektuju u skraćenju.
Ivica **BC** piramide je nevidljiva u **prvoj** projekciji.

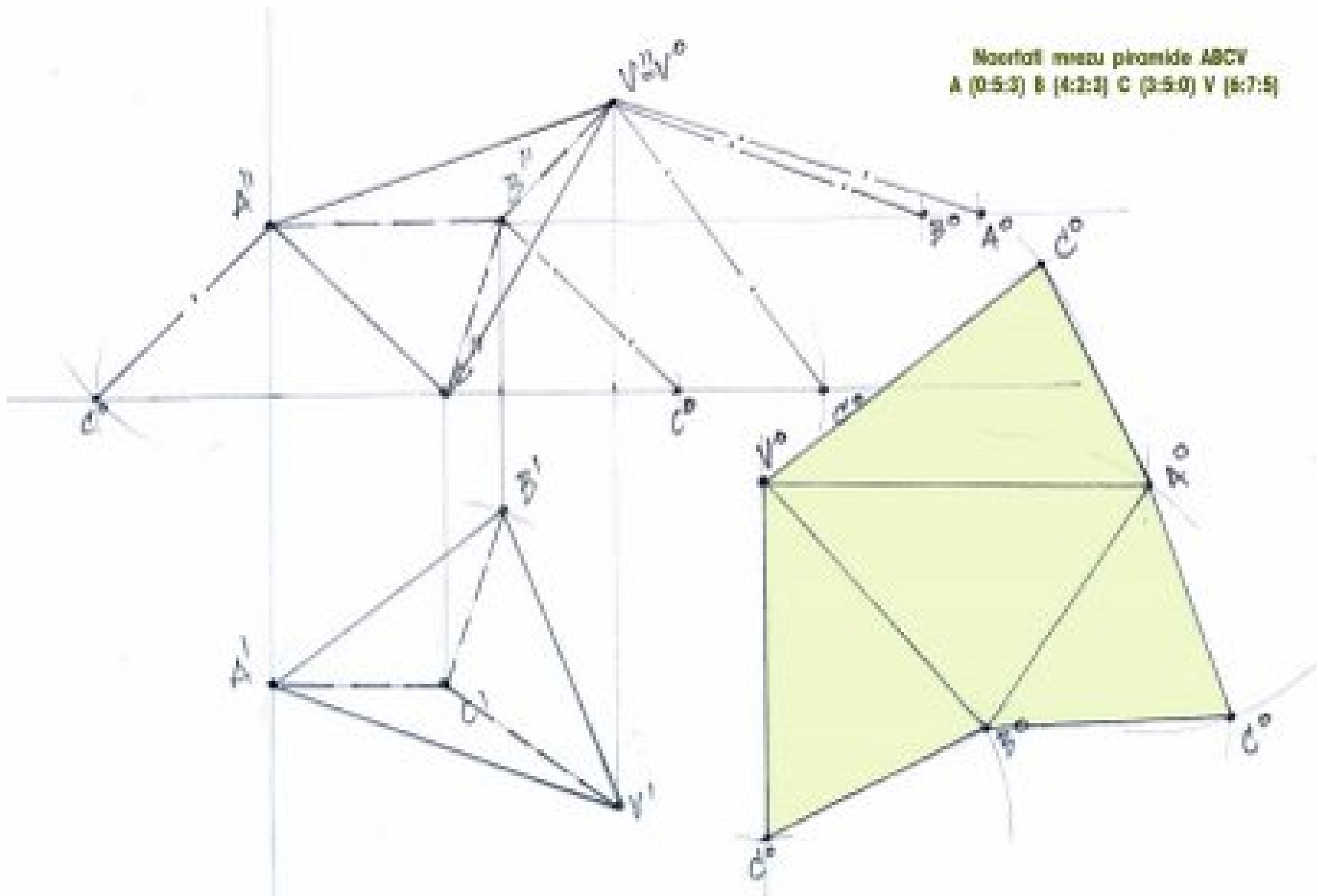


Ivica **AC** piramide
je nevidljiva u
drugoj projekciji.

Kako bi izgledala mreža naše piramide?

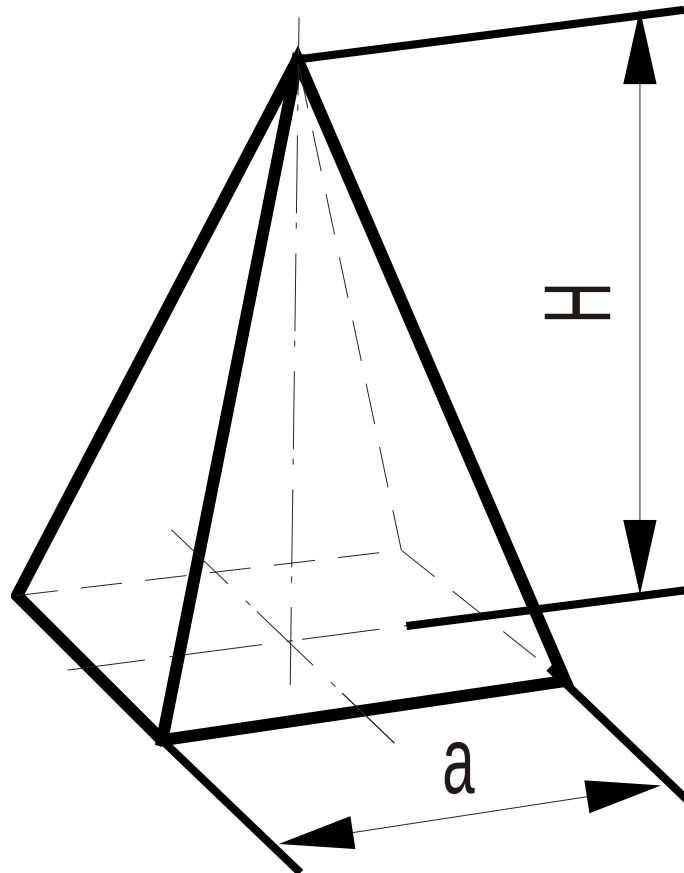


Mreže tela - razvijene površine tela



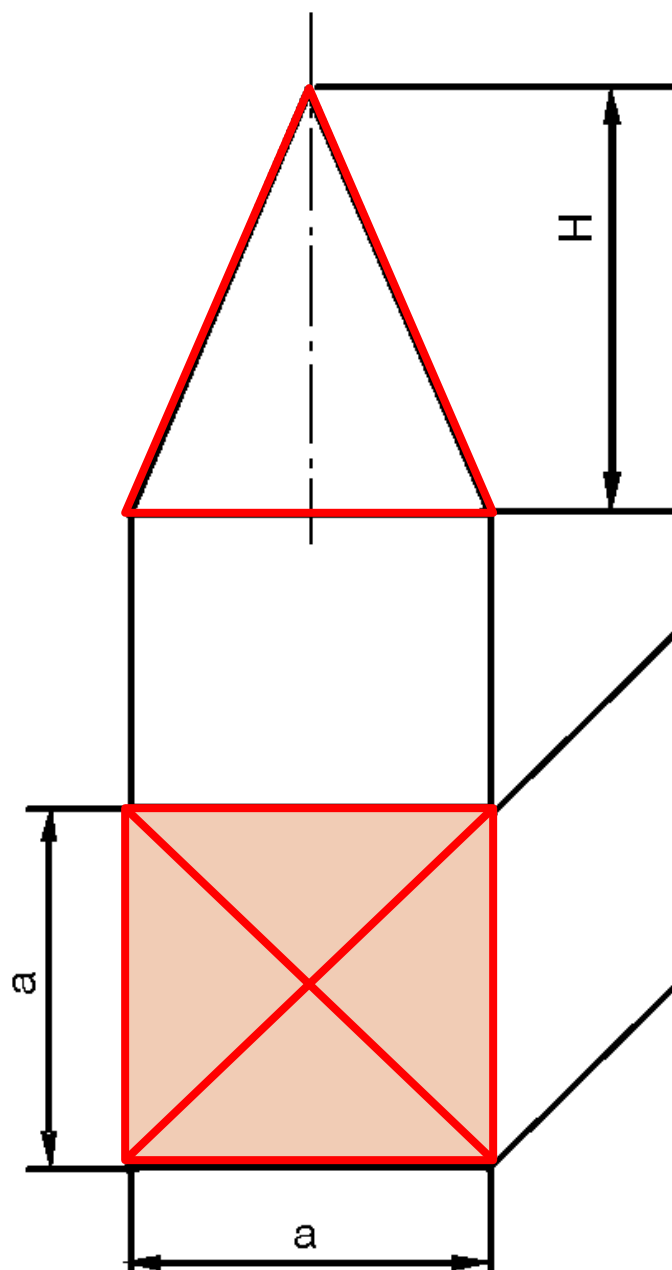
Prava četvorostrana piramida ima za osnovu kvadrat stranice a .

Visina prave piramide je H .



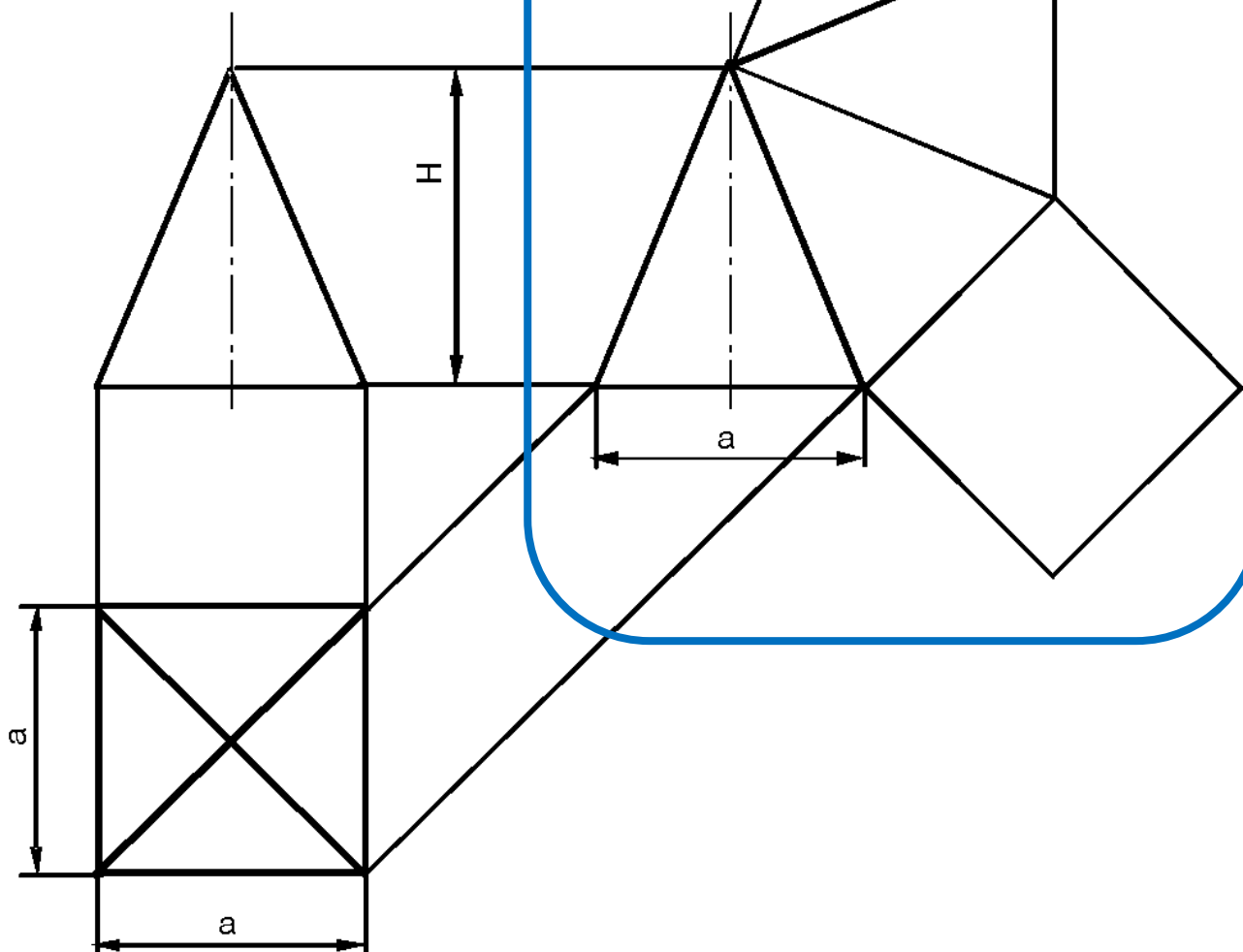
Mreža prave
piramide se
sastoji od
osnove i
omotača.

Osnova je
kvadrat, a
omotač čine
četiri trougla.

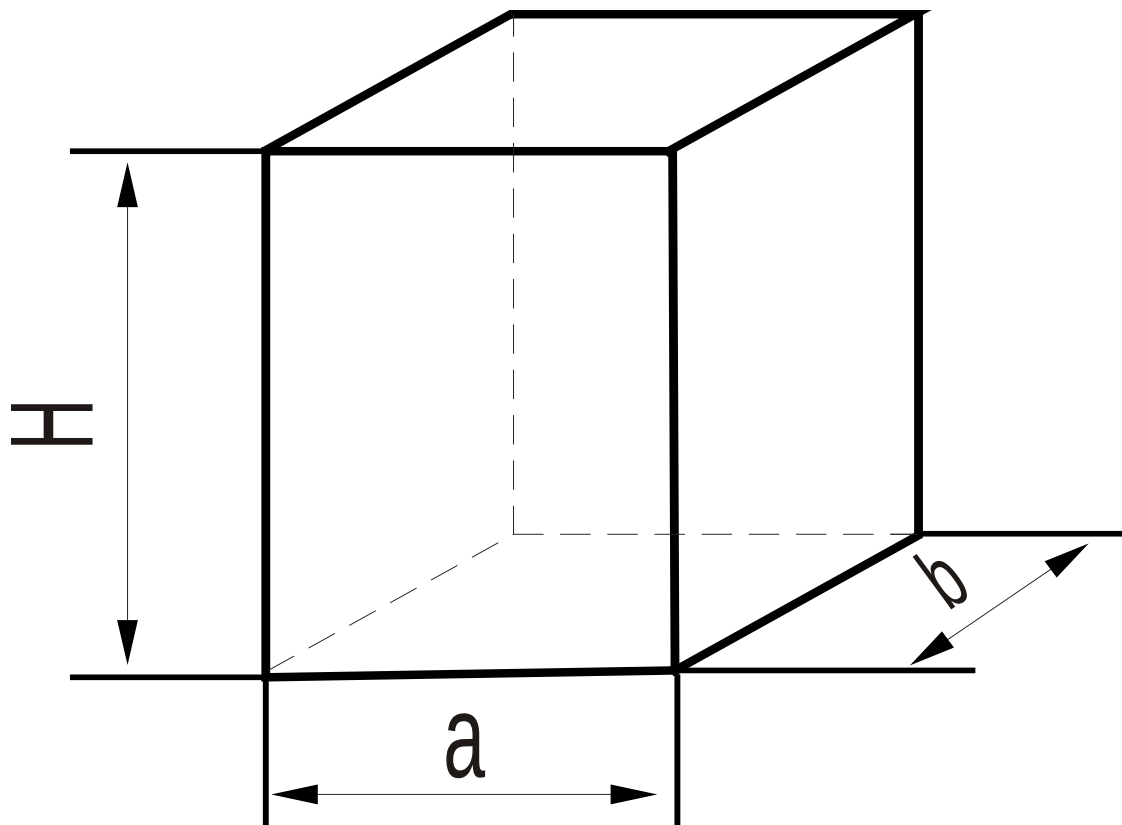


Mreža prave
piramide se
sastoji od
osnove i
omotača.

Osnova je
kvadrat, a
omotač čine
četiri trougla.

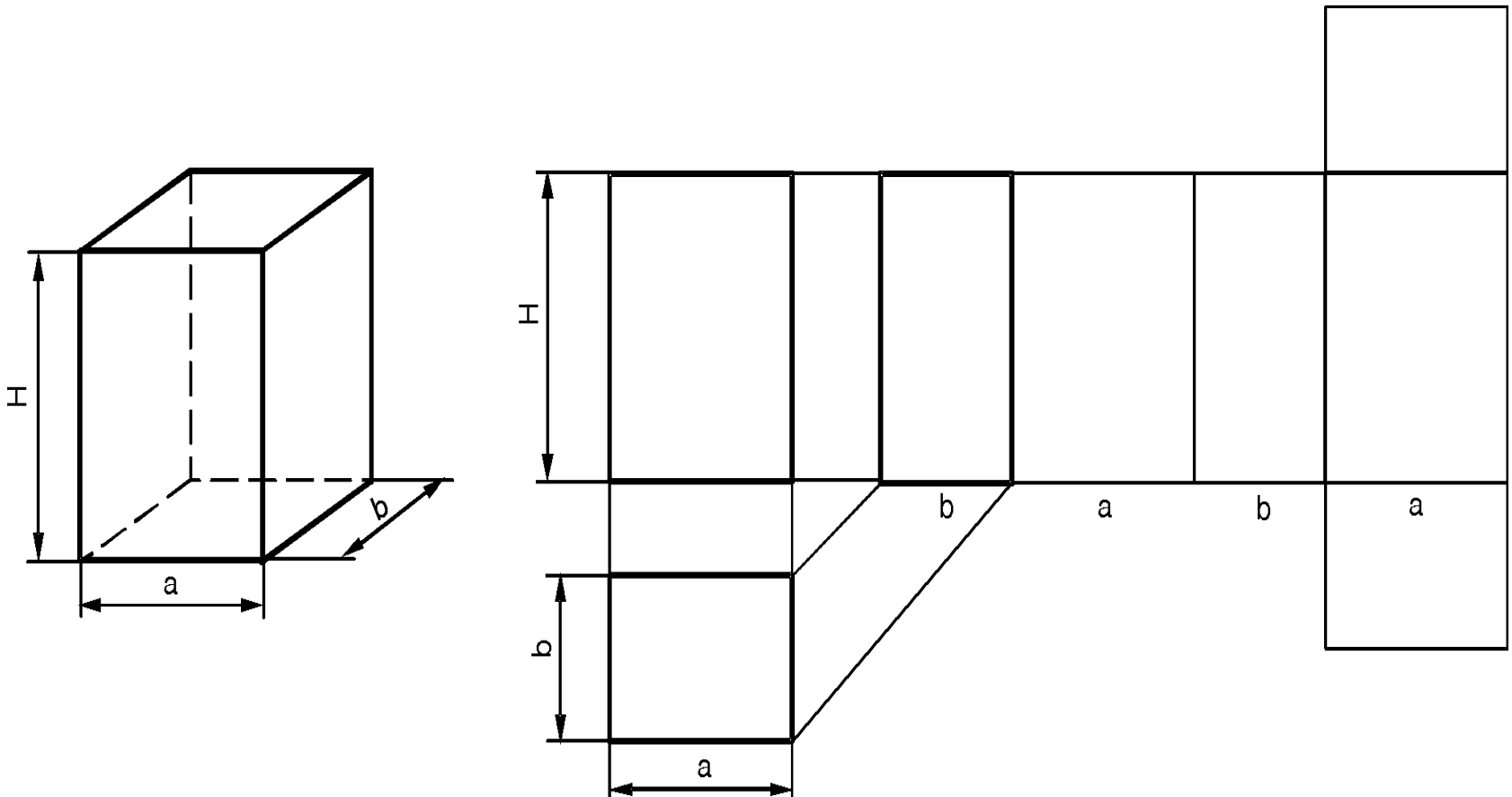


Prava četvorostrana prizma ima za osnovu pravougaonik. Stranice pravougaonika su a i b .
Visina prave prizme je H .



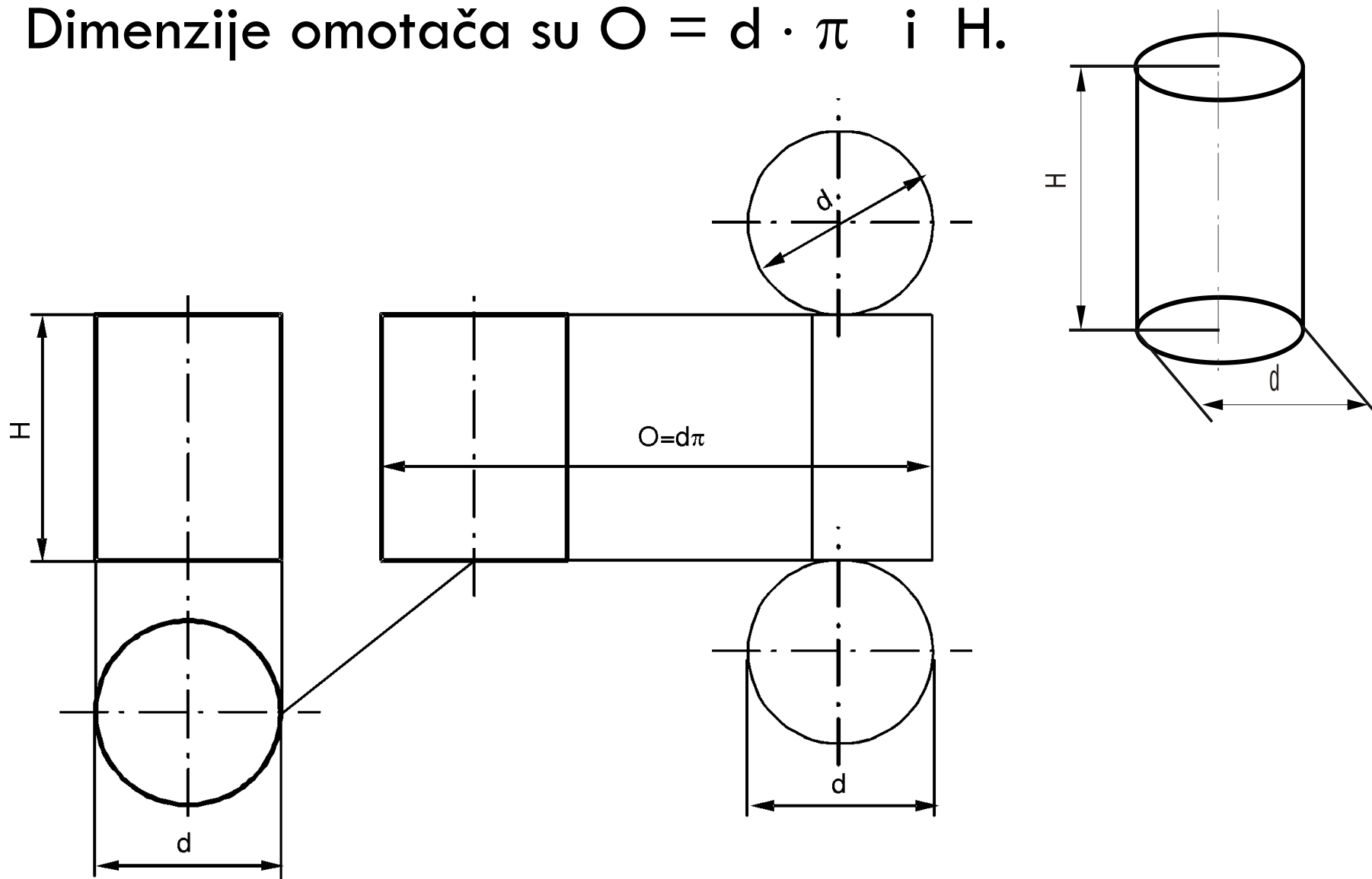
Mreža prave četvorostrane prizme je sastavljena
od **dva bazisa i omotača**.

Omotač čine četiri pravougaonika.

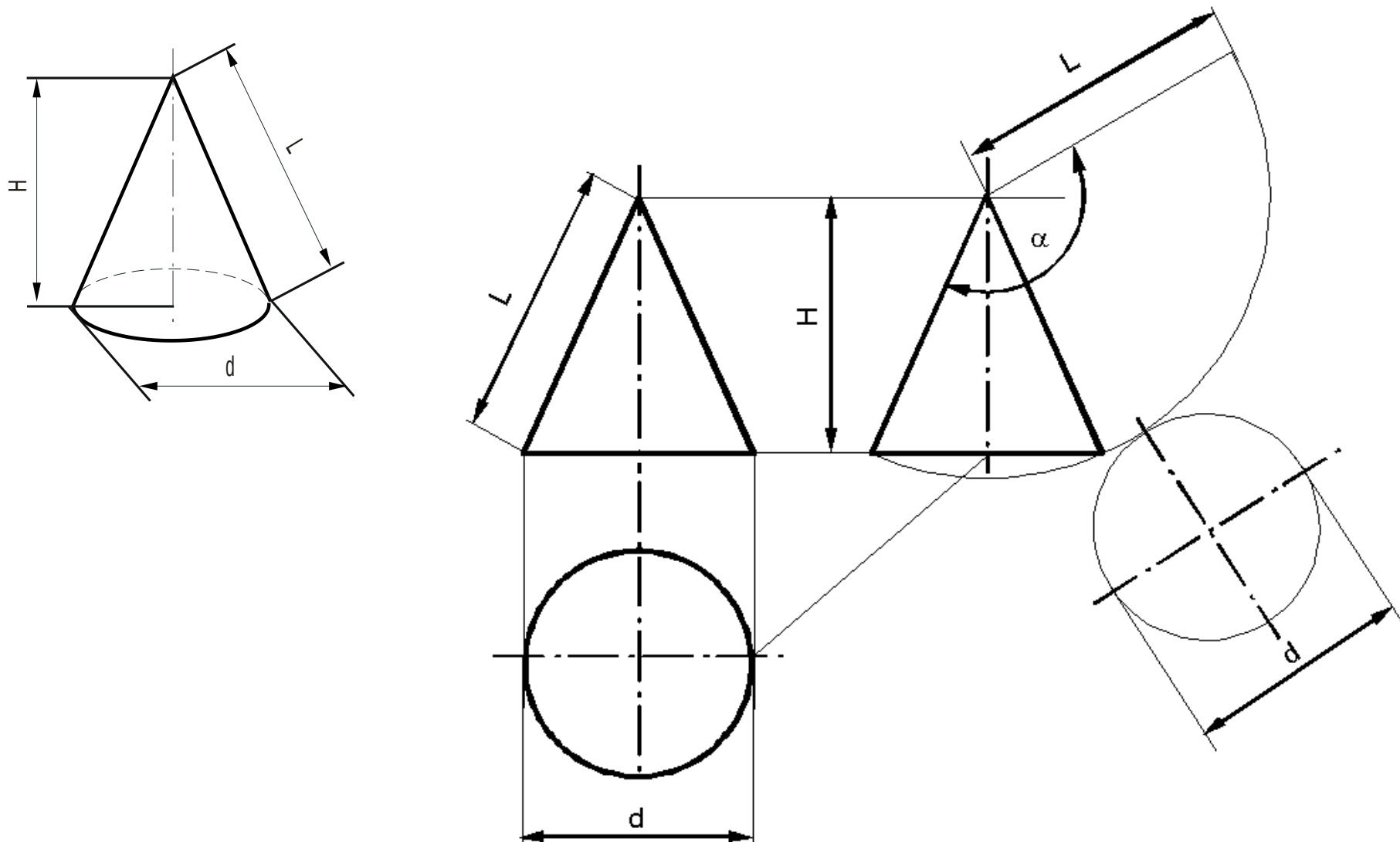


Pravi valjak ima gornju i donju osnovu u obliku kruga i omotač u obliku pravougaonika.

Dimenzije omotača su $O = d \cdot \pi$ i H .

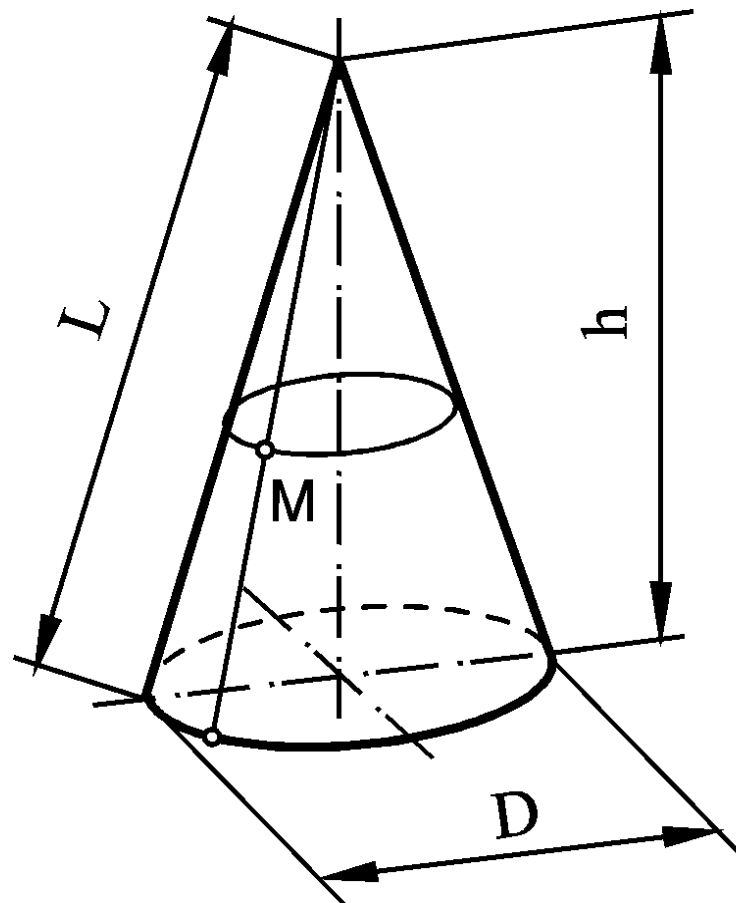


Mreža prave kupe se sastoji od osnove u obliku kruga i omotača u obliku kružnog iseka.



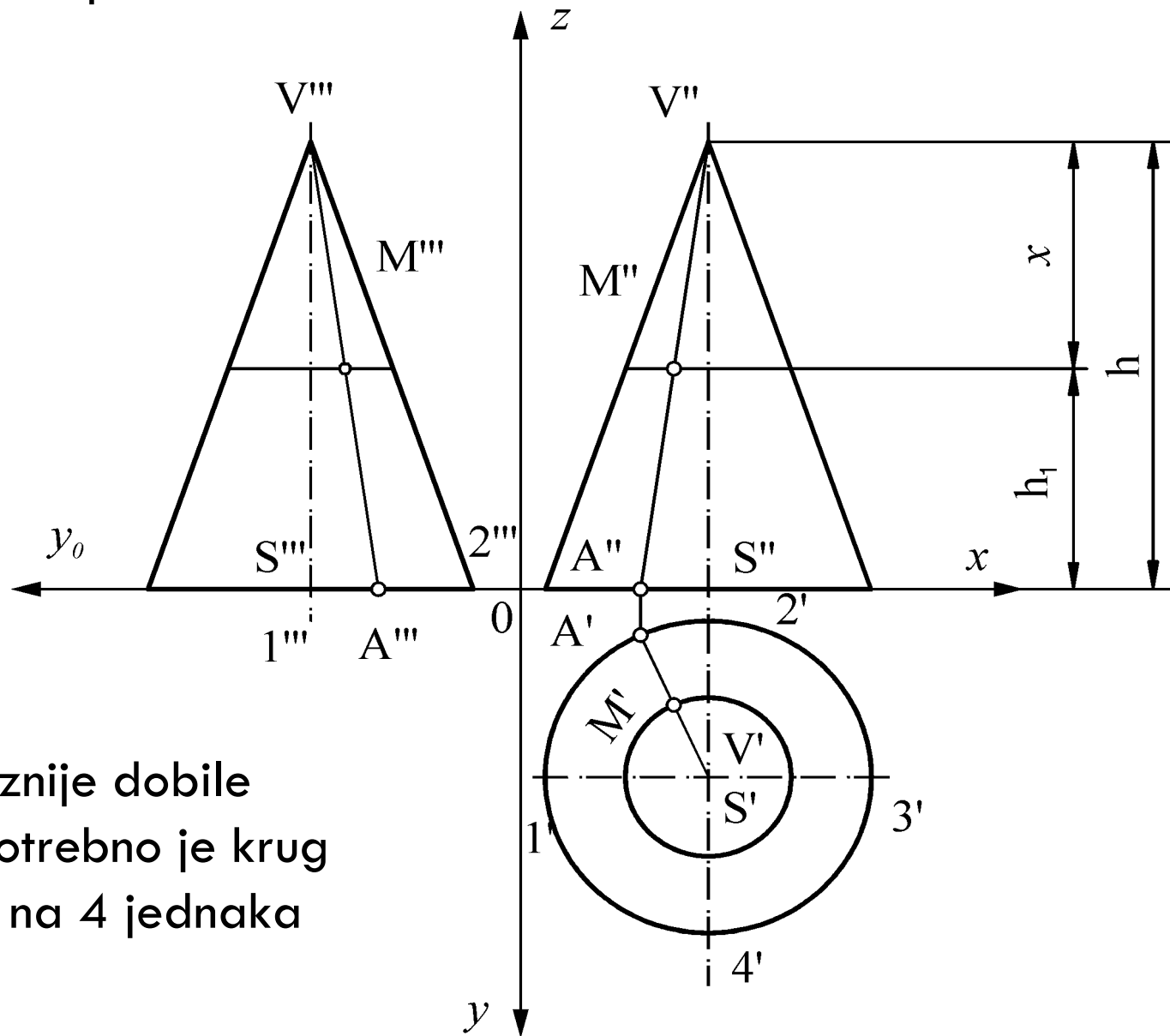
Položaj tačke na omotaču tela

- Prava kupa osnovom leži u (H) . Centar osnove je u tački $S(x, y, z)$.
- Poluprečnik osnove prave kupe je R a visina h .
- Odrediti položaj tačke M na omotaču prave kupe.



Osnova prave kupe je u (H).

Prava veličina osnove je određena tačkama $1'2'3'4'$.

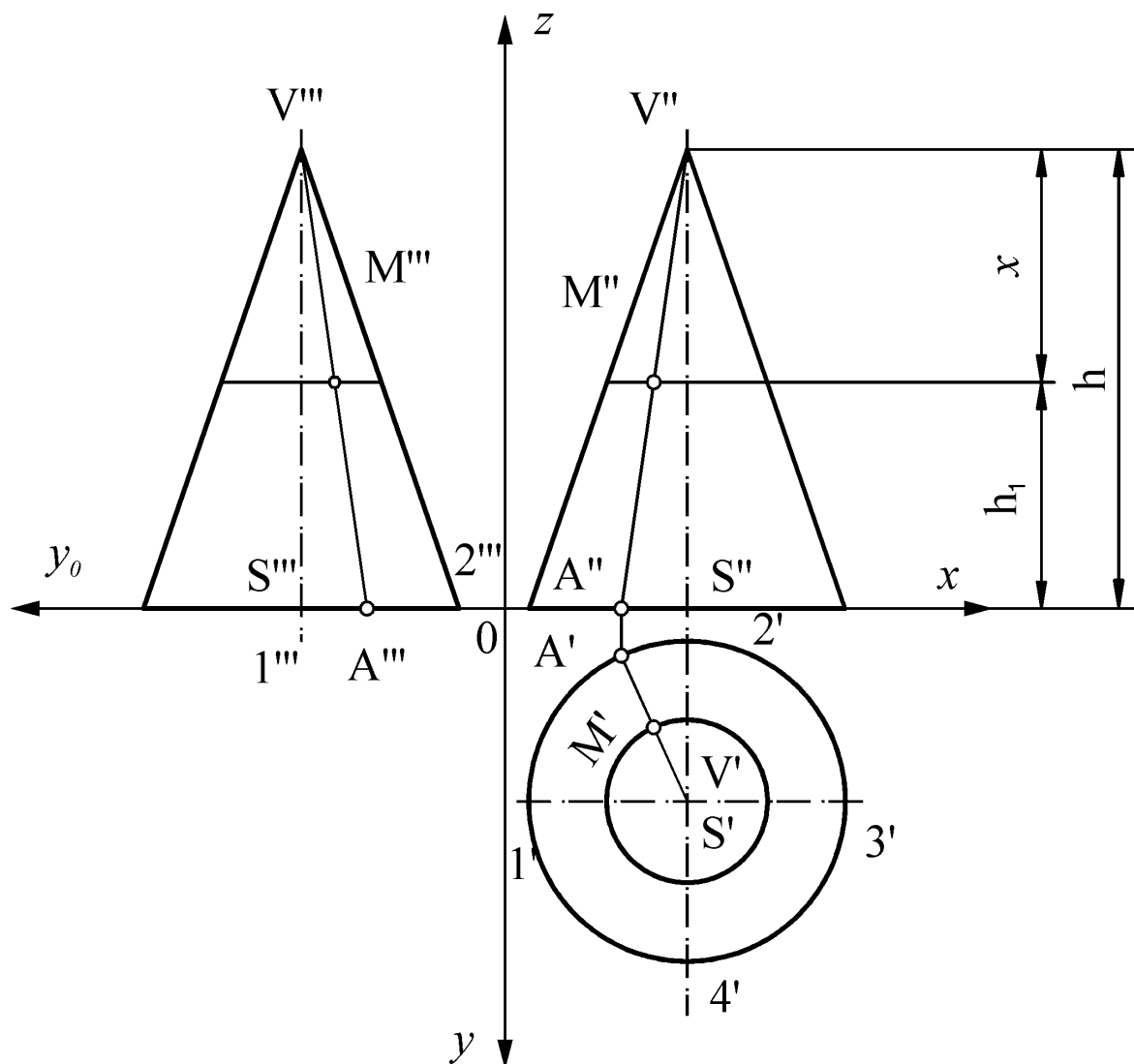


Da bi se što preciznije dobile projekcije kupe potrebno je krug podeliti najmanje na 4 jednaka dela.

Centar kruga
poluprečnika R u ($\mathbf{H}$) je
u tački $S'(x, y)$.

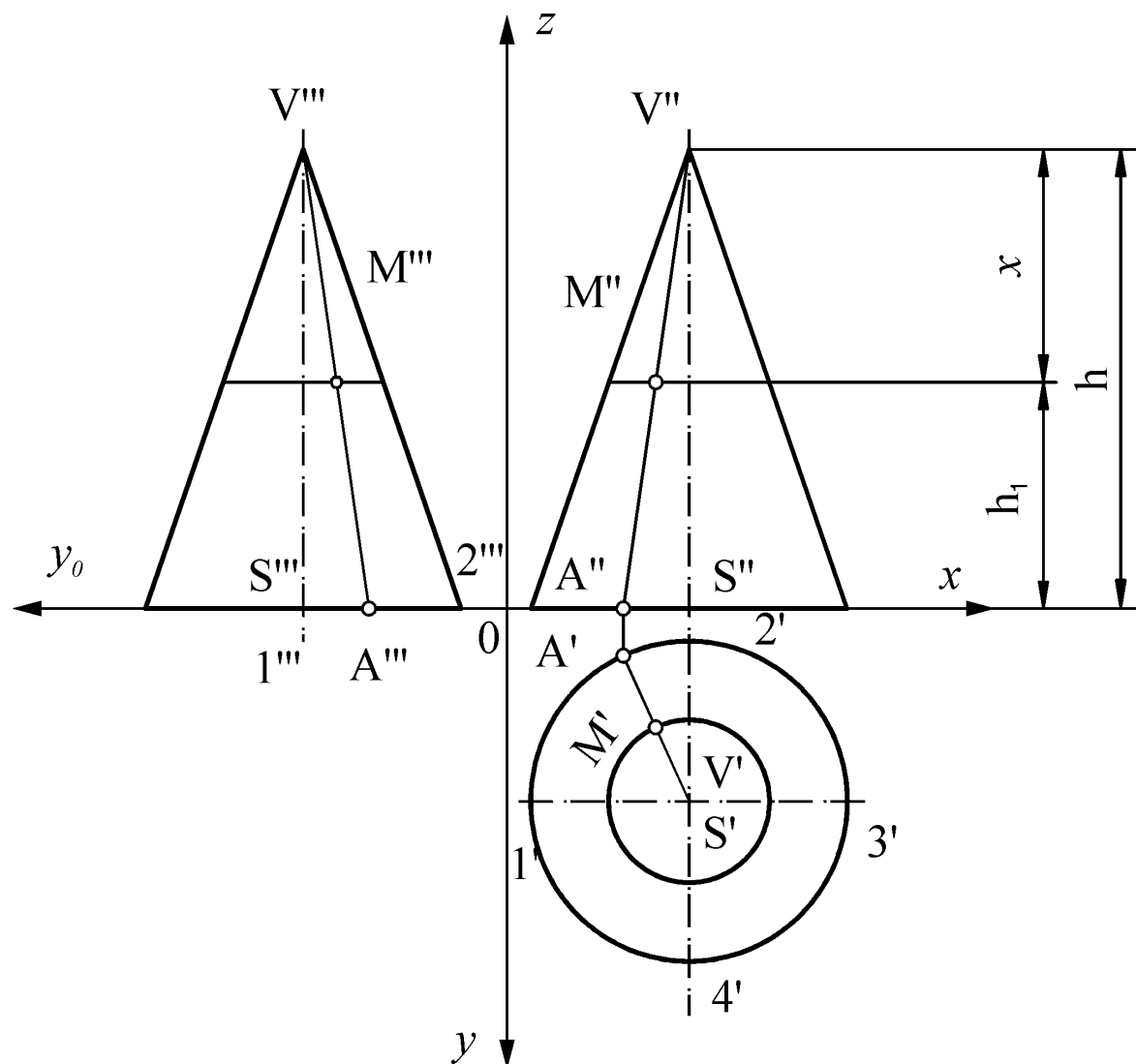
Kako je kod prave
kupe visina SV
upravna na osnovu, to
se visina $h=SV$
projektuje u $\mathbf{H}$ kao
tačka.

Druga i treća projekcija
visine H je duž
normalna na x -osu
odnosno y -osu i
projektuje se u pravo
veliĉini.



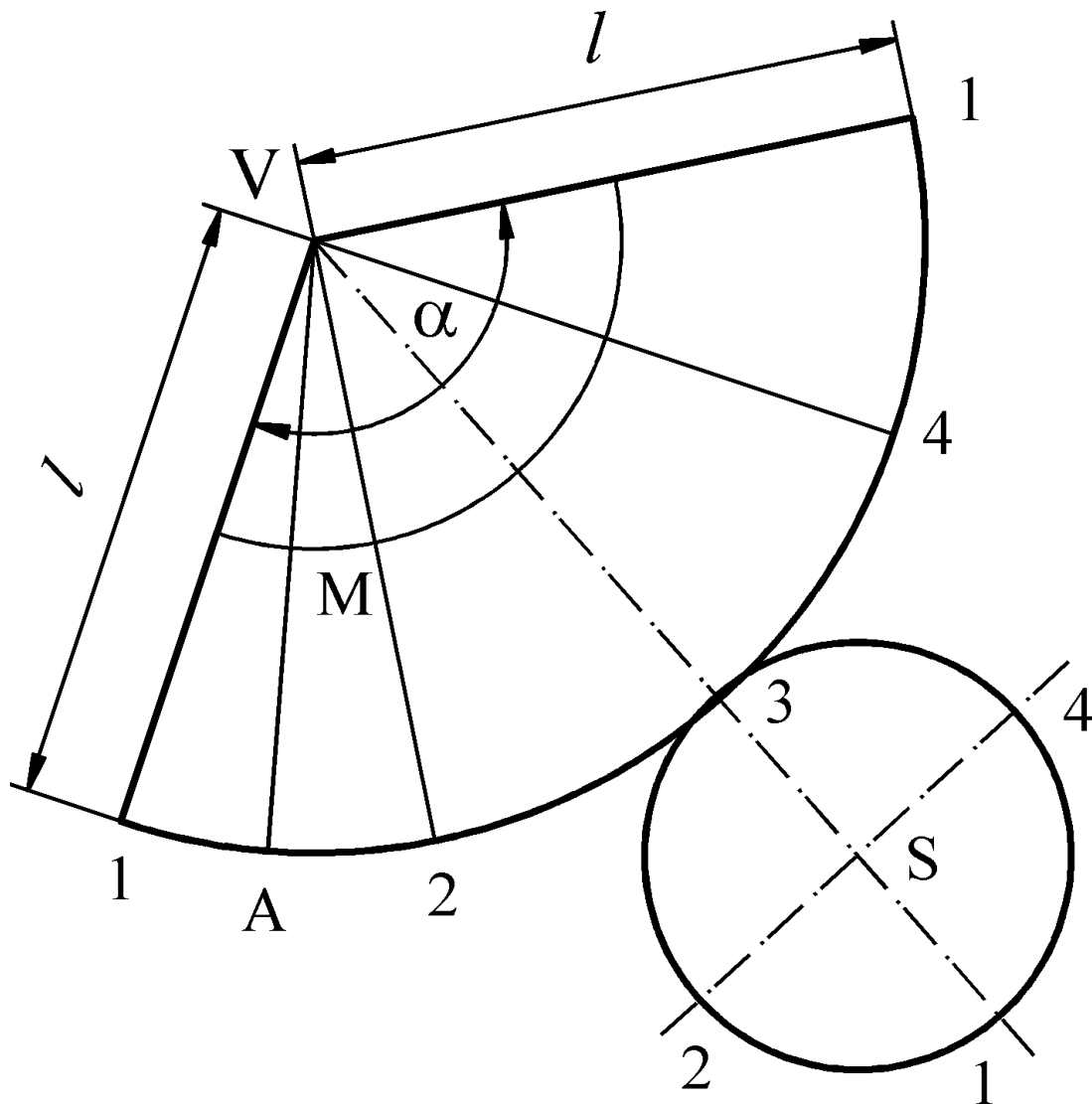
Spajanjem tački 1V;
2V; 3V; i 4V
definisane su izvodnice
kupe.

Prava kupa se
projektuje u (H) kao
krug, a u (V) i (P) su
projekcije u obliku
trouglova.



Mreža prave kupe
se sastoji iz osnove,
koja je krug i
omotača.

Omotač kupe je
kružni isječak 1234V.

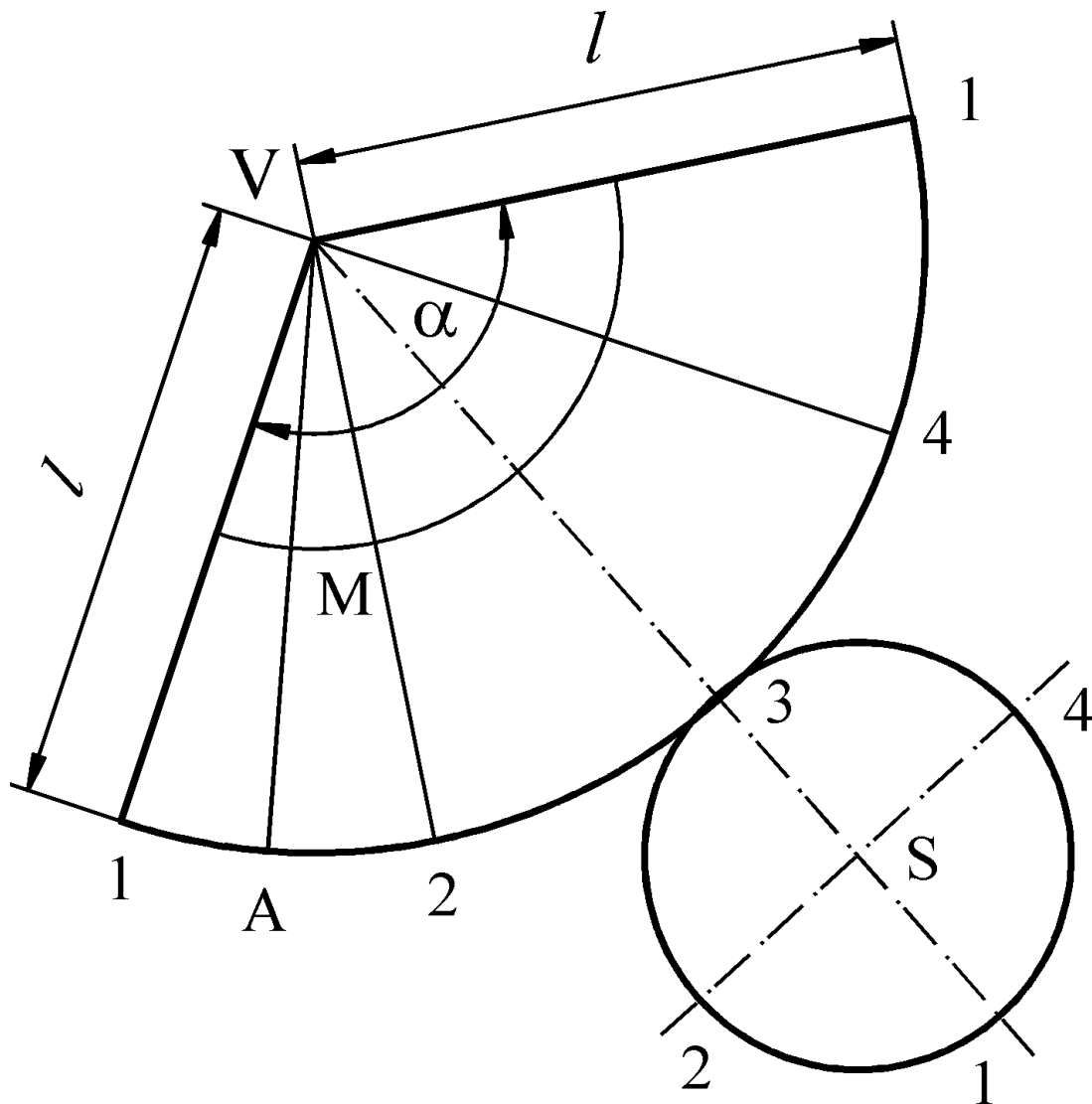


□ Dužina izvodnice:

$$l = \sqrt{\left(\frac{d}{2}\right)^2 + H^2}$$

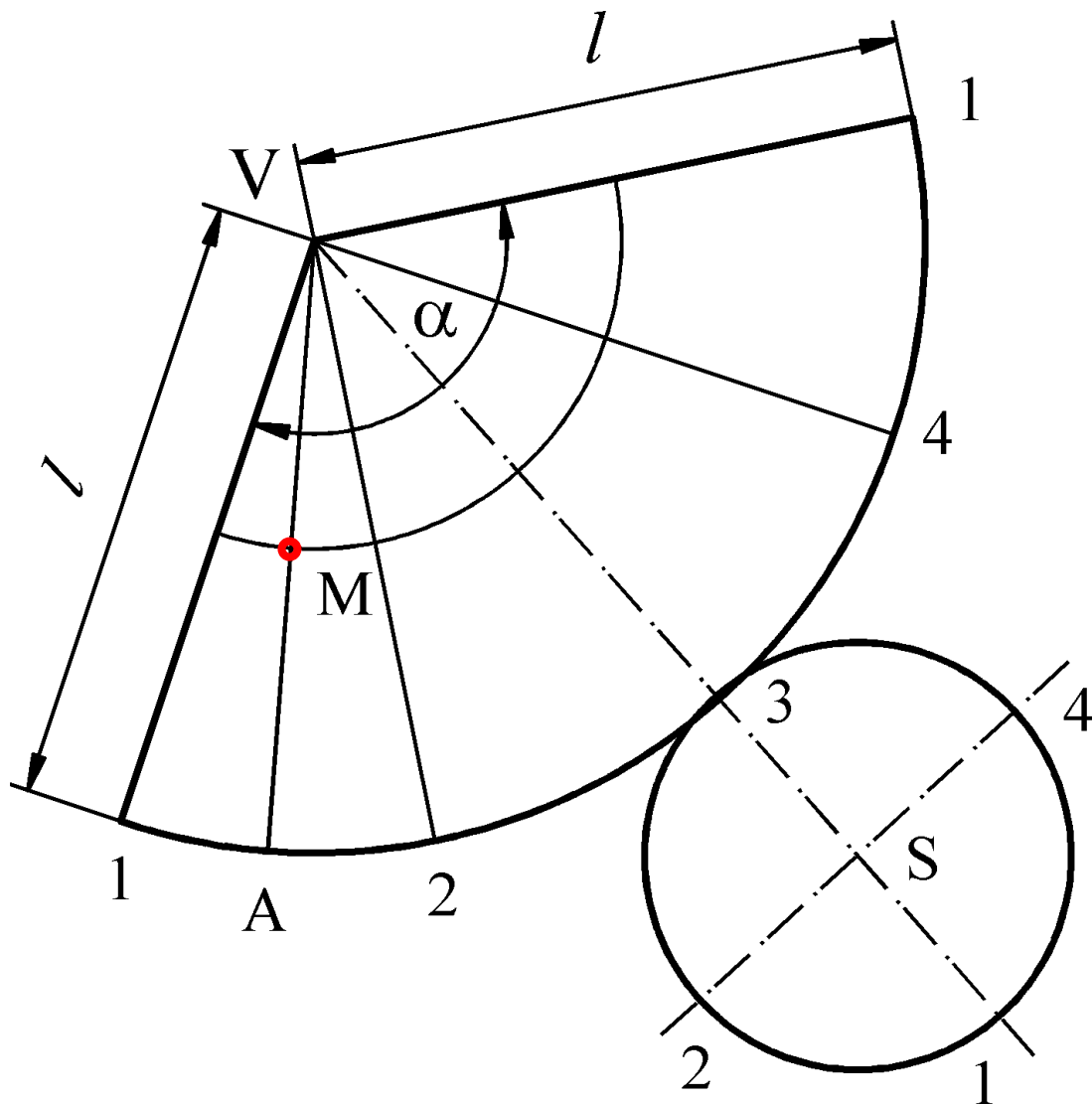
□ Ugao isečka:

$$\alpha = \frac{d}{l} \times 180^\circ$$



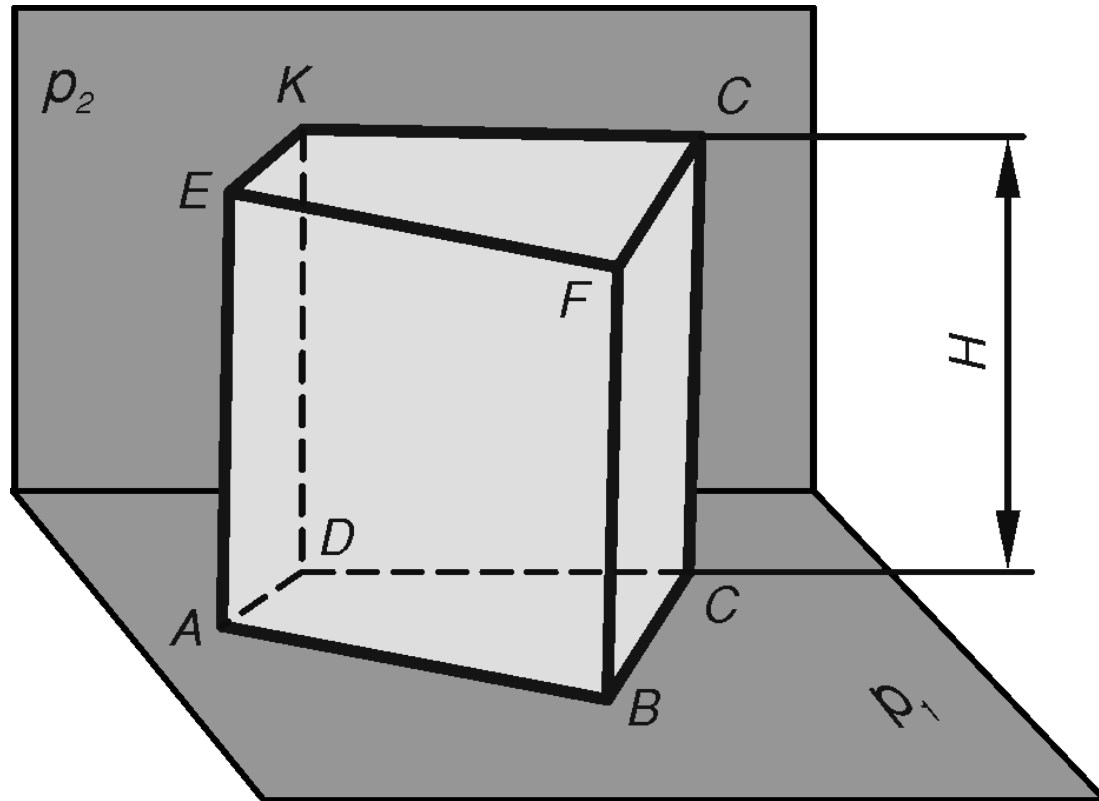
Ako se kroz tačku M povuče izvodnica AV ,
onda je jednoznačno
određen položaj
tačke M na omotaču.

Tačka M se nalazi na
gornjoj ivici
zarubljene prave
kupe visine h .



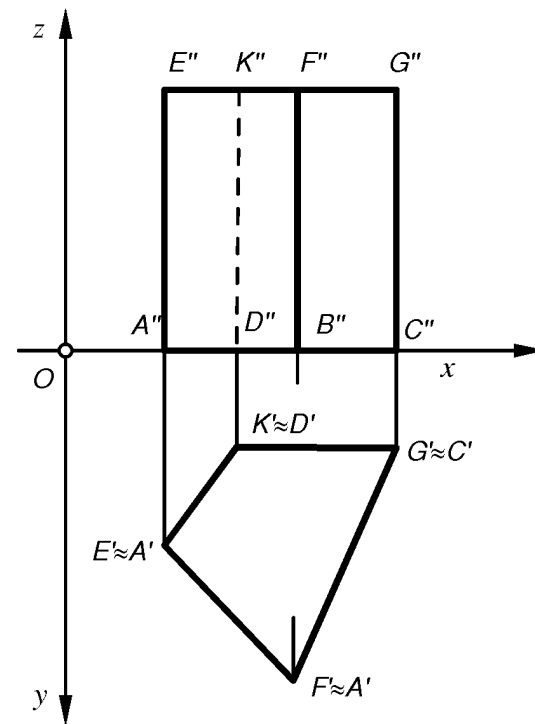
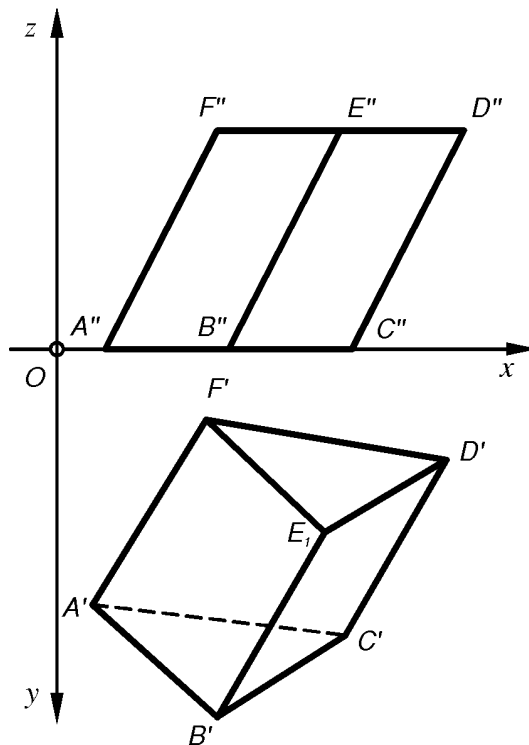
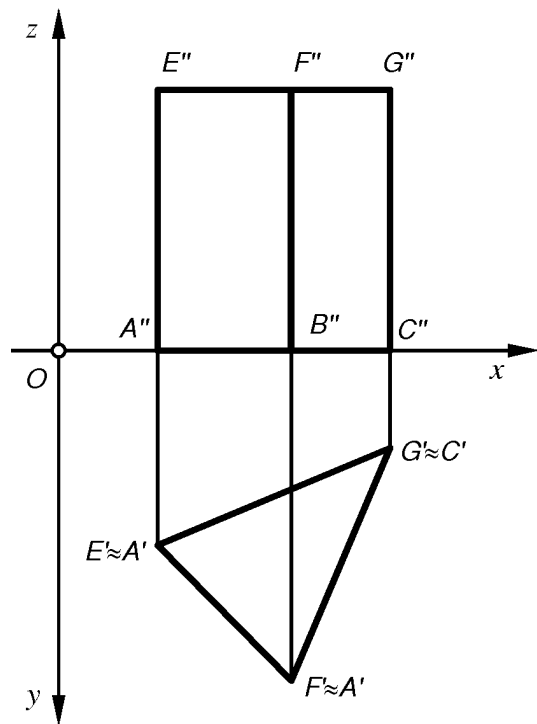
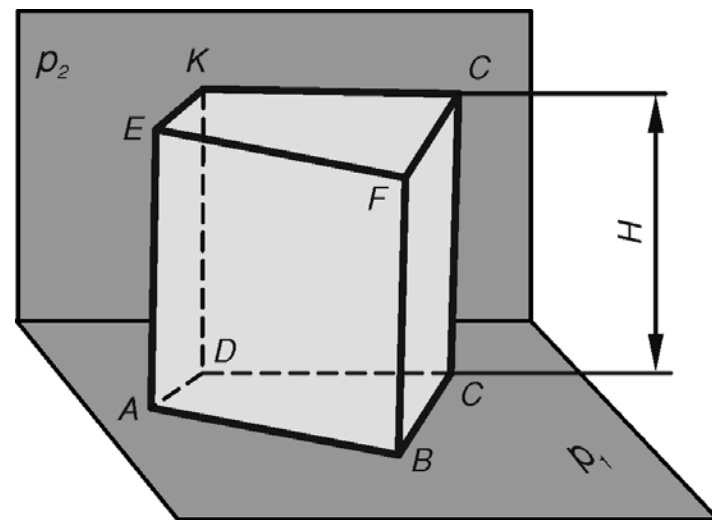
TEST – 1

Prava četvorostrana piramida leži osnovom u H



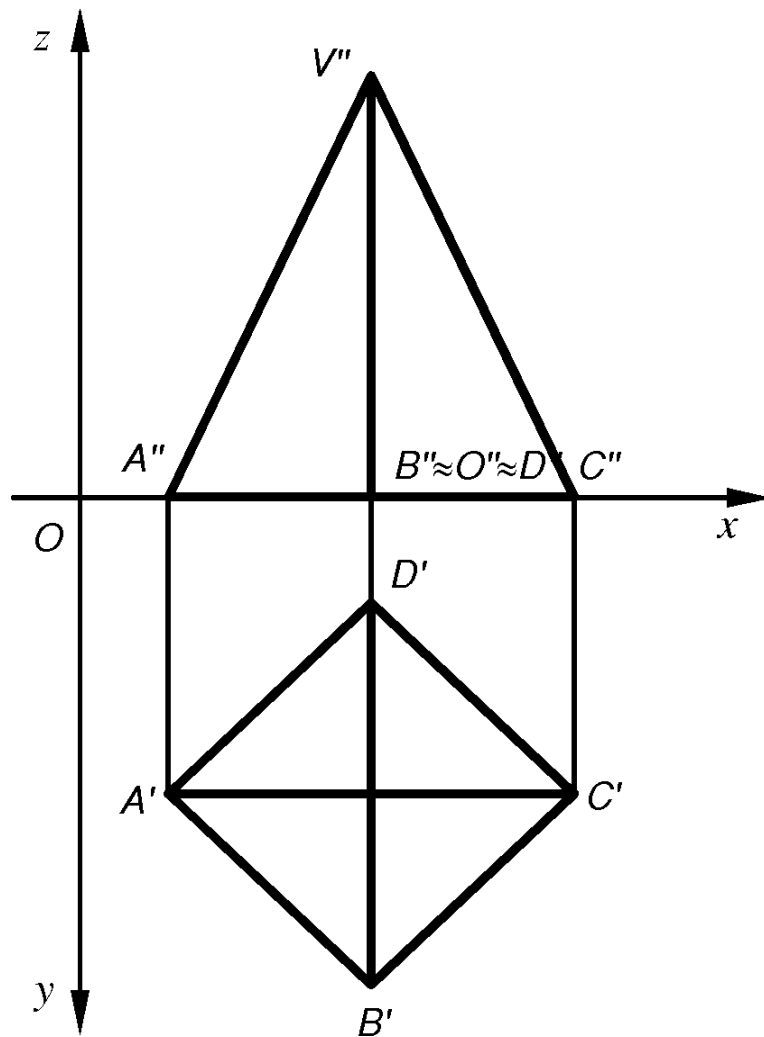
Prava četverostrana piramida
leži osnovom u H.

koji crtež prikazuje prvu i drugu
projekciju prave četverostrane
piramide ?



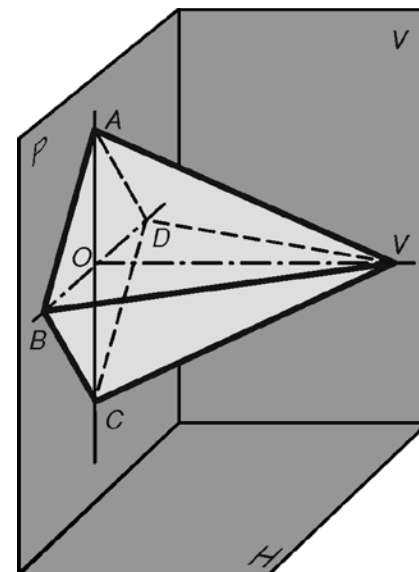
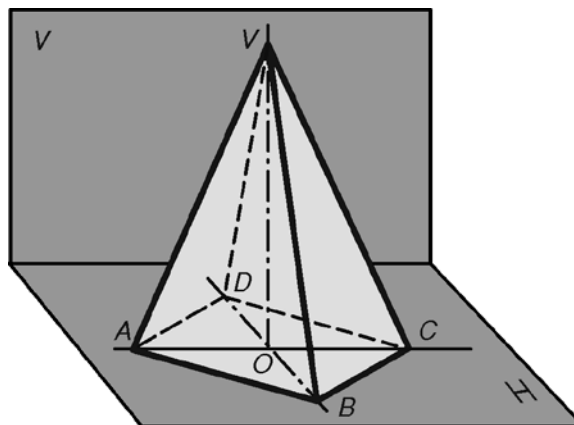
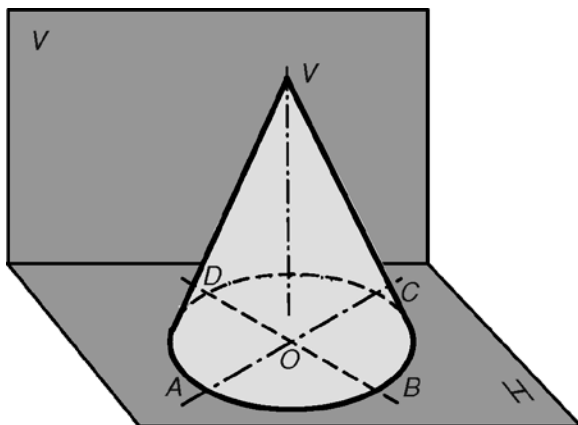
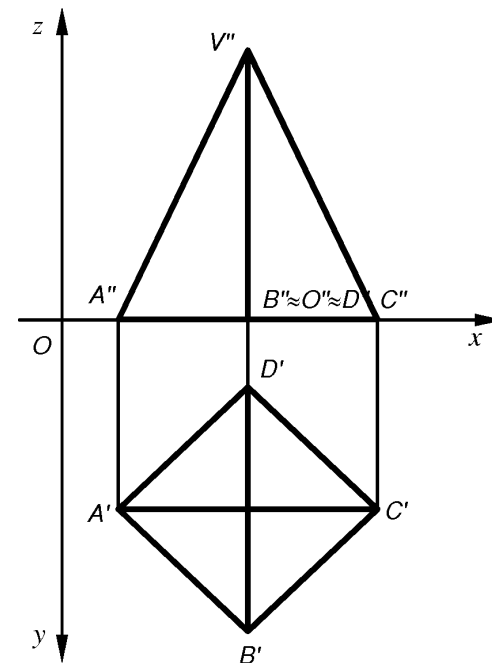
TEST – 2

Prava četverostrana piramida data je prvom i drugom projekcijom



Prava četverostrana piramida
data je prvom i drugom
projekcijom.

koji crtež prikazuje aksonometrijski
prikaz prave četverostrane
piramide?



Domaći zadatak

1. Napraviti model od kartona pravilne četverostrane piramide, proizvoljnih dimenzija
 - ▣ Nacrtati model na kartonu – definisati dimenzije
 - ▣ Iseći model tako da se isti savije u piramidu.
2. Na kartonu nacrtati mrežu valjka prečnika 5 cm i visine 8 cm i načiniti model.

PRIPREMA ZA NAREDNI ČAS

- ZADATAK ZA KOLOKVIJUM
- Nacrtati tri projekcije i mrežu tela nastalog presekom tela i jedne ravni

