



**GEOMETRIK JISMLAR VA ULARNING FAZOVIY
HOLATLARINI TARIFLASHDA ULARNING ASOSIY
TAYANCH MANBALARINI HISOBGA OLISH**

URINOVA SADOQAT XAKIMJON QIZI

Namangan viloyati Yangi Namangan tumani
59-sonli umumiy o`rta ta`lim maktabi,
Matematika fani o`qituvchisi

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Annotatsiya: Ushbu maqolada geometrik jismlarni ularning fazoviy holatini hisobga olgan holda tavsiflash va proyeksion holatini yozma yoki og`zaki tavsiflashda proyeksiya tekisliklariga, ularning asosiy tayanch manbalari va tushunchalaridan foydalanish masalasi ko`rilgan.

Kalit so`zlar. geometrik jism, yozma tavsif, pozitsion munosabat, metrik munosabat, proyeksiy tekislikligi, vertikal prizma, gorizontal prizma, dekad koordinatalar sistemasi.

Аннотация: В данной статье рассматривается вопрос об использовании плоскостей проекции, их основных базовых источников и понятий при описании геометрических тел с учетом их пространственного положения и письменной или устной описании проекционного состояния.



Ключевые слова. Геометрическое тело, письменное описание, позиционное отношение, метрическое отношение, плоскость проекции, вертикальная призма. горизонтальная призма, декартова система координат.

Abstract: This article discusses the use of geometric bodies taking into account their phase state and projection process, their main sources and use in writing or using projection cases.

Key words: Geometric body, written description, positional relation, metric relation, projection plane, vertical prism. horizontal prism, Cartesian coordinate system.

KIRISH

Har qanday model yoki detalning tuzilishi uning ish bajarish vazifasiga ko'ra o'zaro turli xil vaziyatda joylashgan har xil turdagi geometrik jismlar (sirtlar)dan yoki ularning yig'indisidan iborat bo'ladi. Agar biron buyum yoki detal tarkibi bo'yicha ikki geometrik jism yig'indisidan iborat bo'lsa, ular bir biriga nisbatan ma'lum pozitsion va metrik munosabatda bo'ladi. Shu detalni yozma tavsiflash uchun detaldagi ikki geometrik jismning o'zaro egallagan vaziyatini aniq ko'ra bilish va uni aniq qilib yoza olish zarur bo'ladi. Shuning uchun ham ularni yozma tavsiflashda tarkibidagi har bir jismning tutgan holatini alohida va unga nisbatan boshqa jismlarning vaziyatlarini alohida ta'riflashga to'g'ri keladi. Dastlab jismning, albatta, proeksiyalar tekisligiga nisbatan egallagan holati aniqlanadi. Asosiy qiyinchilik ham aslida shu erdan boshlanadi. Chunki birinchi jismga nisbatan ikkinchi jism ma'lum metrik va pozitsion munosabatda joylashtirilsa, uni birinchi jismning qaysi tomoniga, shuningdek, qanday masofada joylashtiriladi va qanday aniqlikda ta'riflanadi, qanday ta'riflansa qulay va aniq tushunarli bo'ladi kabi masalalar kelib chiqadi. Bu jism tarkibini aniq bilish va aniq tasavvur qila olish va ma'lum darajada topqirlikni talab qiladi. Ana shu maqsadda har bir boshlang'ich geometrik jismni alohida-alohida tahlil



qilishga to'g'ri keladi. Asosiy geometrik jismlar, masalan: prizma, piramida, silindr, konus, shar, xalqa va hokozalardan iboratdir.

MUHOKAMA VA NATIJALAR

PRIZMA. Ikki yoqi teng ko'pburchaklar va boshqa yoqlari to'rtburchaklardan iborat bo'lgan ko'pyoqlik.

PIRAMIDA. Yoqlaridan biri tekis ko'pburchak bo'lib, qolgan yoqlari esa umumiy uchga ega bo'lgan uchburchaklardan tuzilgan ko'pyoqlik.

SILINDR. To'g'ri chiziqlarning unga parallel to'g'ri chiziq atrofida aylanishidan hosil bo'lgan sirt silindr sirti va u o'rab turgan jism silindr deyiladi.

KONUS. To'g'ri chiziqlarning aylanish o'qini kesib uning atrofida aylanishdan hosil bo'lgan sirt konus sirti, o'rab turgan jism konus deyiladi.

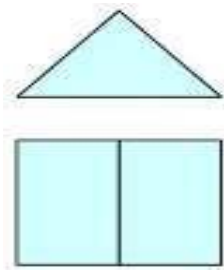
SHAR. Aylananing o'z diametri atrofida aylanishidan hosil bo'lgan sirt sfera deyilib, u o'rab turgan qismi shar deyiladi.

Model yoki detallar tarkibida ishtirok etayotgan geometrik jismlar ko'pincha xususiy holda uchraydi. Masalan, ular umumiy o'qqa ega bo'ladi yoki H va V ga nisbatan xususiy vaziyatlarda joylashadi. Shuning uchun ham har bir geometrik jismning fazodagi har xil holatlarini tekshirayotganimizda asosiy e'tibor ularning xususiy vaziyatlariga qaratiladi. Jismga tavsif berilganda uning shakli va holati qo'shib aytiladi. Masalan, prizma haqida aytilganda u vertikal, gorizontal so'zlari qo'shib aytilishi mumkin. Bunda uning yon qirralari asosiy aniqlovchi rolni o'ynaydi, ya'ni aytilgan iboralar yon qirralarining proeksiyalar tekisligiga nisbatan tutgan vaziyatiga nisbatan aytiladi. Agar yon qirralari H ga perpendikulyar joylashgan bo'lsa, prizma vertikal prizma, H ga parallel joylashgan bo'lsa gorizontal prizma deyiladi.

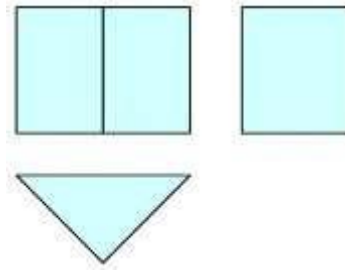
Prizma gorizontal holatda V ga yoki W ga parallel joylashgan bo'lishi ham mumkin. Bu aytilganlar silindr sirtiga ham to'la taaluqlidir.



Piramida konus bilan o'xshash bo'lib ularning holatiga uchlari va o'qlari aniqlik kiritadi. Endi ana shu geometrik jismlarni alohida-alohida ko'rib, ularning ta'rifiga e'tibor beraylik.



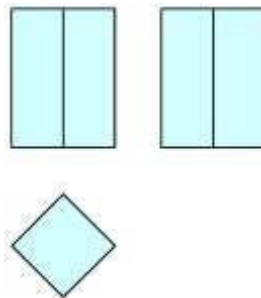
a)



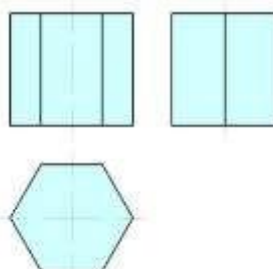
b)

a) yon qirralari V ga perpendikulyar va bir yoqi H ga parallel joylashgan to'g'ri uchburchakli prizma

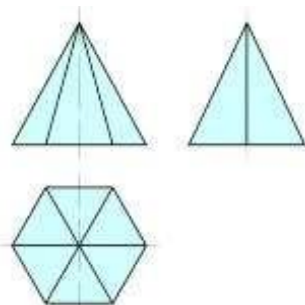
b) Bir yon yoqi bilan V ga parallel joylashgan uchburchakli vertical prizma



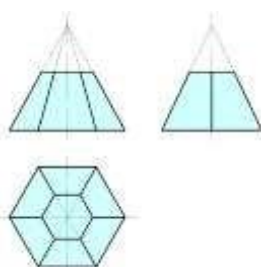
Asosi kvadrat bo'lib, uning ikki uchi gorizontal o'qda joylashgan to'g'ri to'rtburchakli vertikal prizma



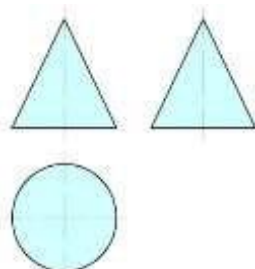
Asosi muntazam oltiberchak bo'lib uning ikki uchi gorizontal o'qda joylashgan oltiburchakli vertical prizma



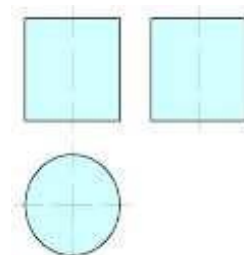
Uchi yuqoriga qaragan muntazam oltiburchakli to'g'ri piramida



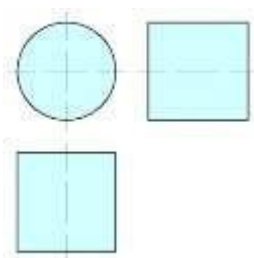
Uchi yuqoriga qaragan oltiburchakli kesik piramida



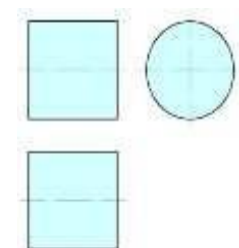
Uchi yuqoriga qaragan to'g'ri doiraviy konus



To'g'ri doiraviy vertikal silindr. O'qi H ga perpendikulyar to'g'ri doiraviy silindr



O‘qi V ga perpendikulyar to‘g‘ri doiraviy silindr



Aylanish o‘qi W ga perpendikulyar doiraviy silindr

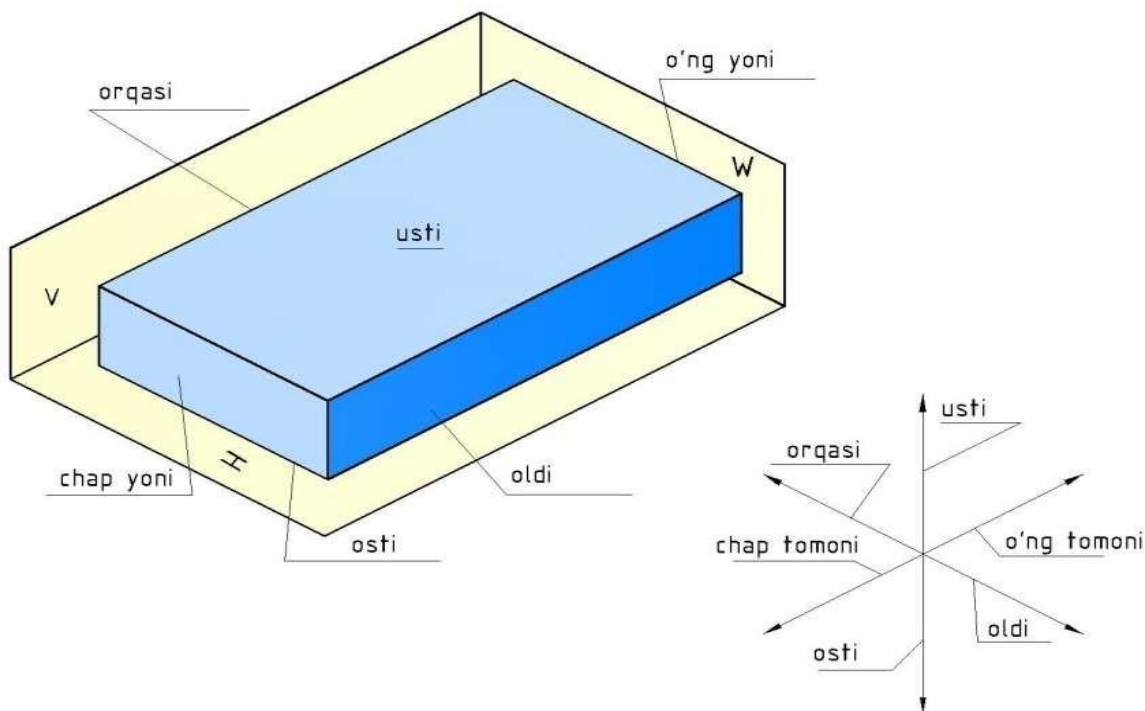


Yon qirralari W ga perpendikulyar va bir yoni H ga parallel joylashgan uchburchak prizma

Tavsif avvaldan kelishib, shartlashib olingan qonun-qoidalariga va shartli yo‘nalishlarga asoslangan holda amalga oshiriladi. Masalan, biron shaharning joylashgan o‘rni geografik kartasida shimoldan janubga tortilgan meridian va ularga perpendikulyar o‘tkazilgan parallellarga nisbatan aniqlanadi. Xuddi shunday, biron jismni tavsiflash uchun oldi va orqasi, chap va o‘ng yonlari, usti va osti kabi tushunchalari qaysi yo‘nalishga nisbatan aytilishi lozimligini avvaldan bilishi va kelishib olinishi shart. Ana shu maqsadda, biror geometrik sirtini, masalan parallelepiped (to‘g‘ri burchakli prizma)ni Dekard koordinatalar sistemasida qabul qilingan proyeksiy tekisliklariga nisbatan mos holda (chizmada berilgan holatda) joylashtirib, unga nisbatan o‘ng, chap, orqa, oldi, usti va osti termin-ifodalari bilan bog‘liq korinishlarni qabul qilamiz va ularga oid tayanch tushunchalarga ega bo‘lamiz. Yozma tavsif jarayonida ham ana shu shartlarga rioya qilish va ko‘rinishlarni rasmiylashtirish amal qilinadi.

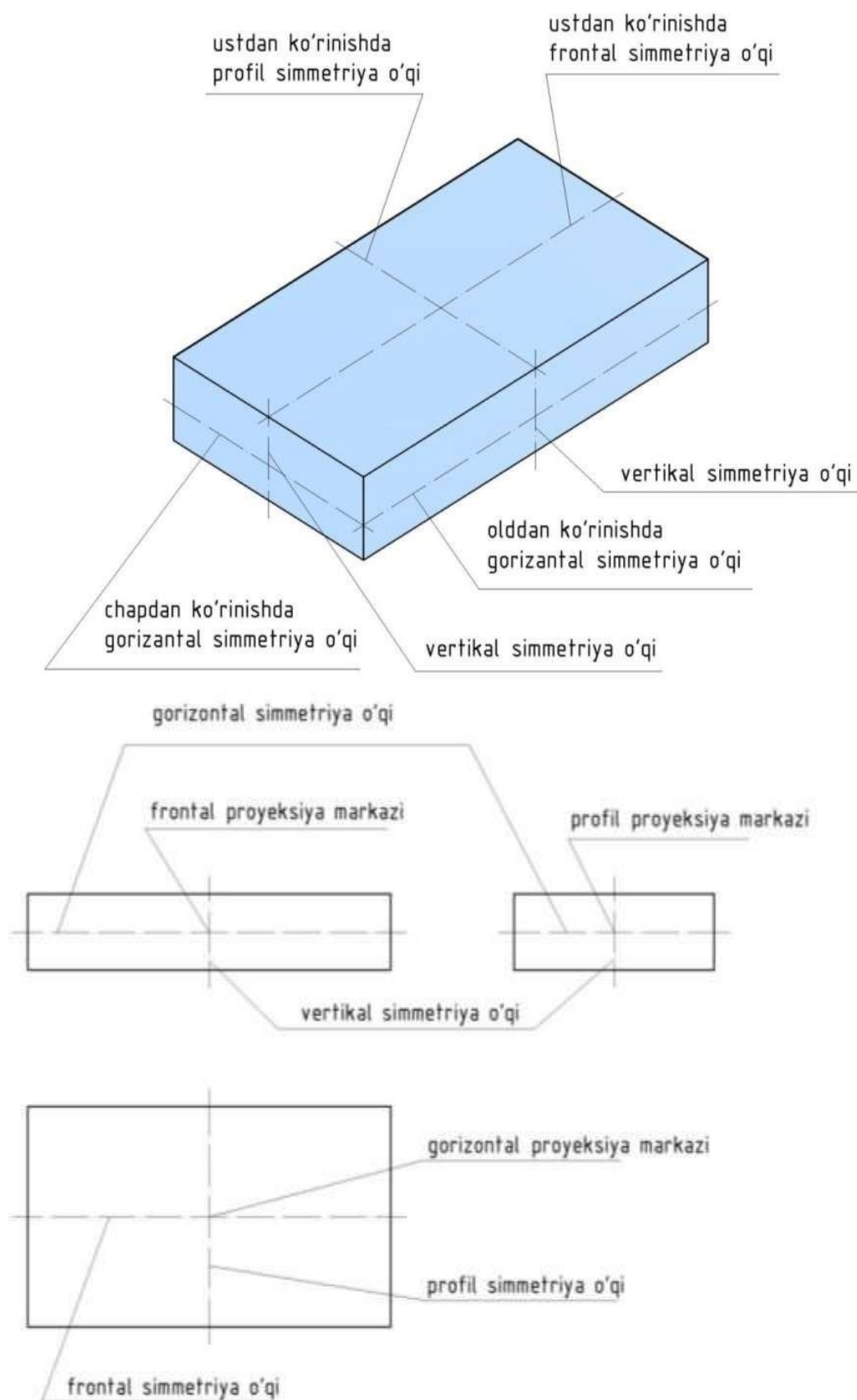


Buyumning proyeksiy tekisliklariga nisbatan joylashuvi



Buyumning proyeksiya tekisliklaridagi tasvir joylari







Bundan tashqari jism tarkibidagi elementlarni, ya'ni qismlar joylarini aniqlashda simmetriya o'qlari katta ahamiyatga ega. Quyidagi shaklda proeksiyalardagi simmetriya o'qlari va ularning nomlanishi keltirilgan. Bu shartliliklar yaqqol tasvirlar va unga mos ravishda ortogonal proeksiyalarda ham tasvirlangan. Bu qabul qilingan shartli tushunchalar o'quvchining ko'z oldida hamma vaqt turishi kerak. Ana shunday qilganda o'quvchining fazoviy tasavvuri shakllanib boradi va rivojlanadi.

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