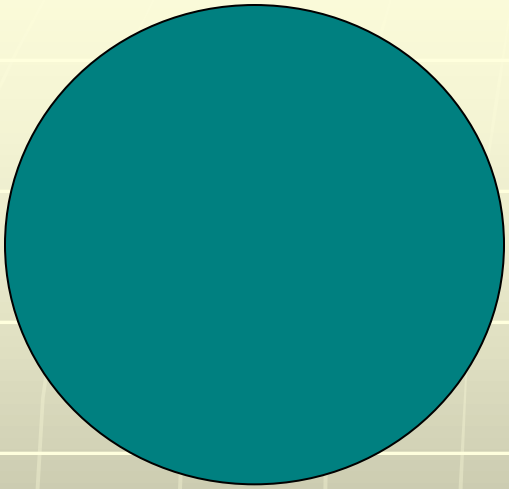
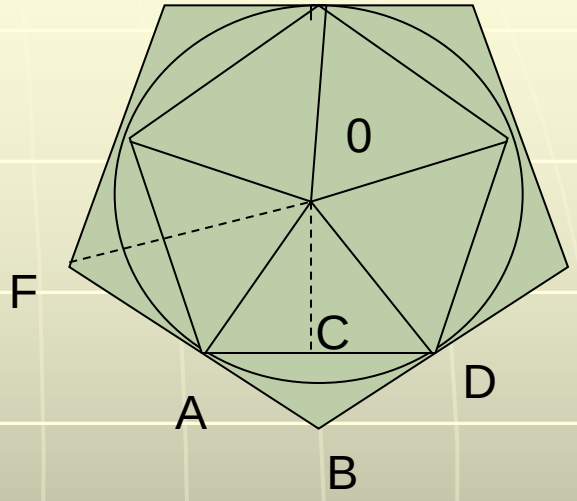
# *Mavzu: Aylana jismlari*

# *AYLANA*

- *AYLANA NUQTALARIDAN UNING MARKAZIGACHA MASOFA AYLANANING RADIUSI DEYILADI.*
- *AYLANA NUQTASINI UNING MARKAZI BILAN TUTASHTIRUVCHI HAR QANDAY KESMA HAM RADIUS DEYILADI.*

- *AYLANANING IKKITA NUQTASINI TUTASHTIRUVCHI KESMA VATAR DEYILADI.*
- *AYLANA MARKAZIDAN O'TUVCHI VATAR DIAMETR DEYILADI.*
- *1- RASMDA BC-VATAR AD-DIAMETR*

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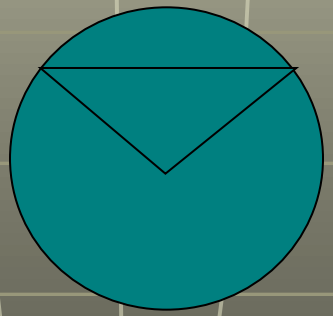
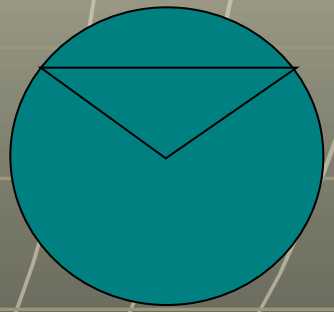




# Doiraning yuzi

- *Agar berilgan figurani o’z ichiga oluvchi sodda figuralar va berllgan figuraning ichida yotuvchi sodda figuralar mavjud bo’lsa va sodda figuralar S dan istagancha kam farq qiluvchi yuzaga ega bo’lsa, berilgan figura S ga teng yuzga ega bo’ladi.*
- Tekislikning berilgan nuqtasidan berilgan masofadan katta bo’lmagan masofada yotuvchi barcha nuqtalardan iborat figura *doira* deb aytiladi.

- Bu nuqta *doiraning markazi* deyiladi, berilgan masofa esa *doiraning radiusi* deyiladi. Doiraning chegarasi aylanadan iborat bo’lib, bu aylananing markazi va radiusi doiraning markazi va radiusidir.
- ***Doiraning yuzi uni chegaralovchi aylana uzunligi bilan radiusi ko’paytmasining yarmiga teng.***

- ***Doiraviy sektor*** deb doiraning mos markaziy burchagi qismiga aytiladi.
- ***Doiraviy sektorning yuzi***

$$S = \frac{\pi R^2}{360}\alpha$$

- ***formula bo'yicha hisoblanadi***, bunda R-doira radiusi, α esa mos markaziy burchakning gradus o'lchovi.

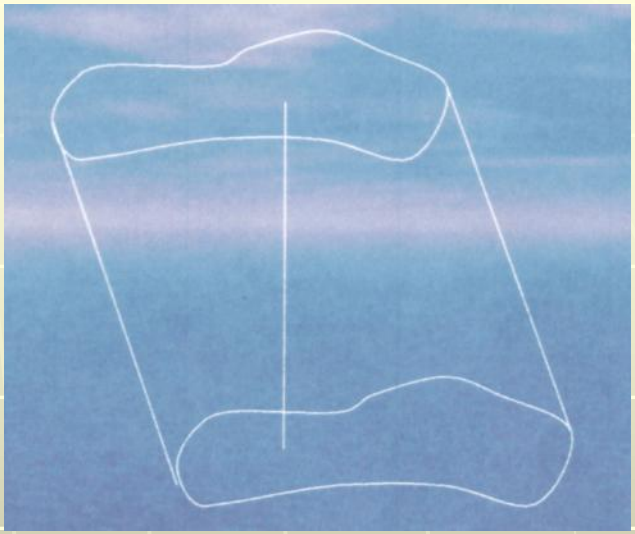
- Doira bilan yarim tekislikning umumiy qismi doiraviy segment deyiladi. Yarim doiraga teng bo’lmagan segmentning yuzi formula bo’yicha hisoblanadi, bunda α-shu doiraviy segment yoyini o’z ichiga olgan markaziy burchakning gradus o’lchovi, esa uchlari doira markazi bilan tegishli sektorni chegaralovchi radiuslar oxirlaridsn iborat uchburchakning yuzi.

$$S = \frac{\pi R^2}{360}\alpha \pm S_{\Delta}$$

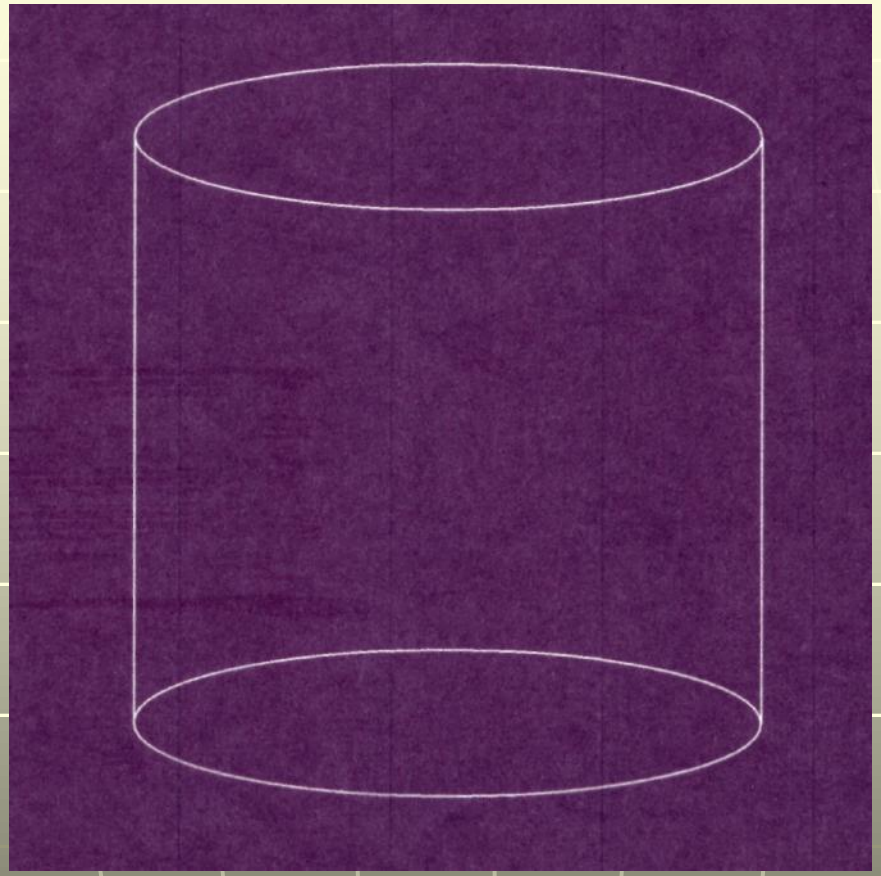
- “-” ishorani $\alpha < 180^\circ$ bo’lganda,
- “+” ishorani $\alpha > 180^\circ$ bo’lganda olish kerak.

# SILINDR

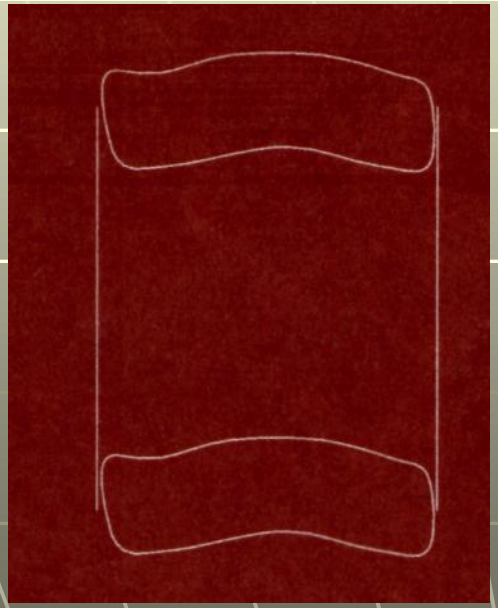
Ta'rif. Silindrik sirt ikkita o'zaro parallel tekislik bilan kesilganda hosil bo'lgan jism silindr deyiladi.

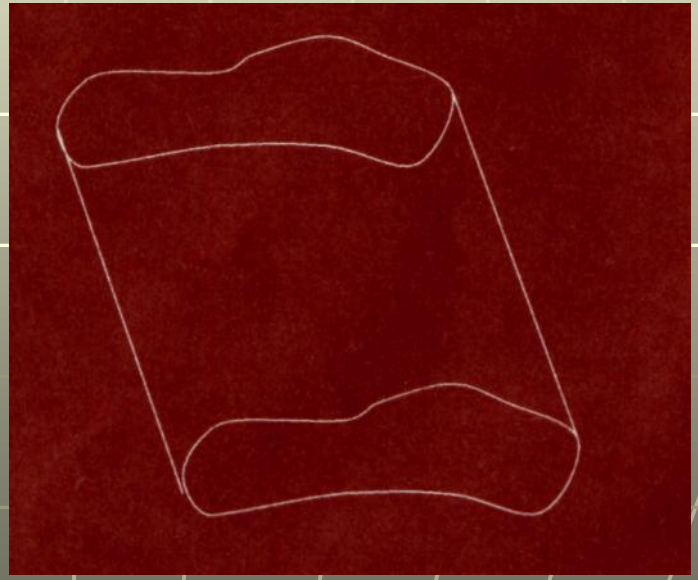


Parallel kesimlar silindrning asoslari: ular orasidagi masofa uning balandligi deyiladi.



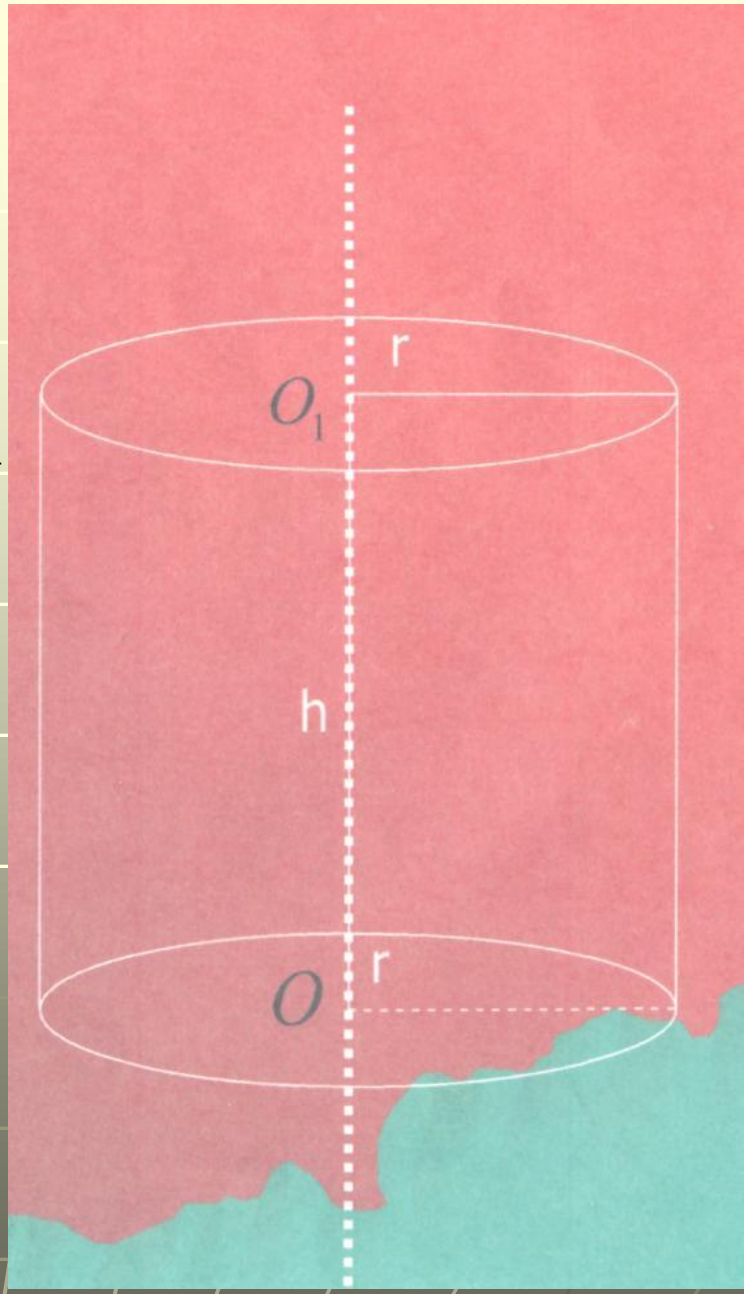
Ta’rif. Silindrning yasovchisi asos tekisligiga perpendikulyar bo'lsa u to'g'ri silindr deyiladi, aks holda og'ma silindr deyiladi.





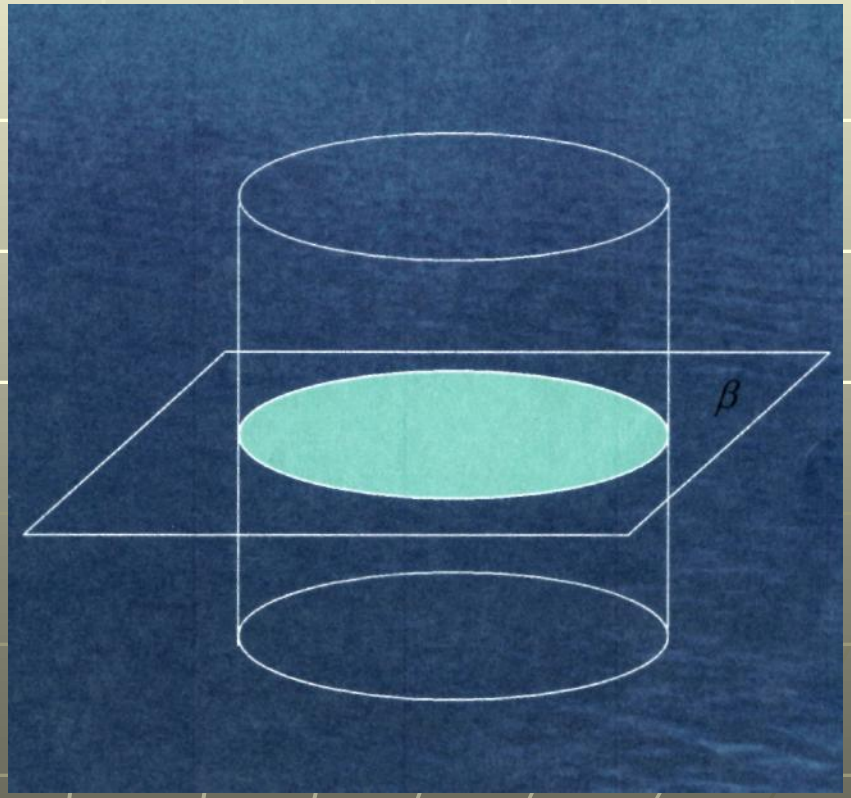
Silindr asosining radiusi silindrning radiusi deyiladi. Silindr asoslari orasidagi masofa silindrning balandligi deyiladi.

Asoslarining markazidan o'tuvchi to'g'ri chiziq silindrning o'qi deyiladi. Bu o'q yasovchilarga parallel bo'ladi.



Teorema: Silindr asosi tekisligiga parallel tekislik uning yon sirtini asos aylanasiga teng aylana bo’yicha kesadi.

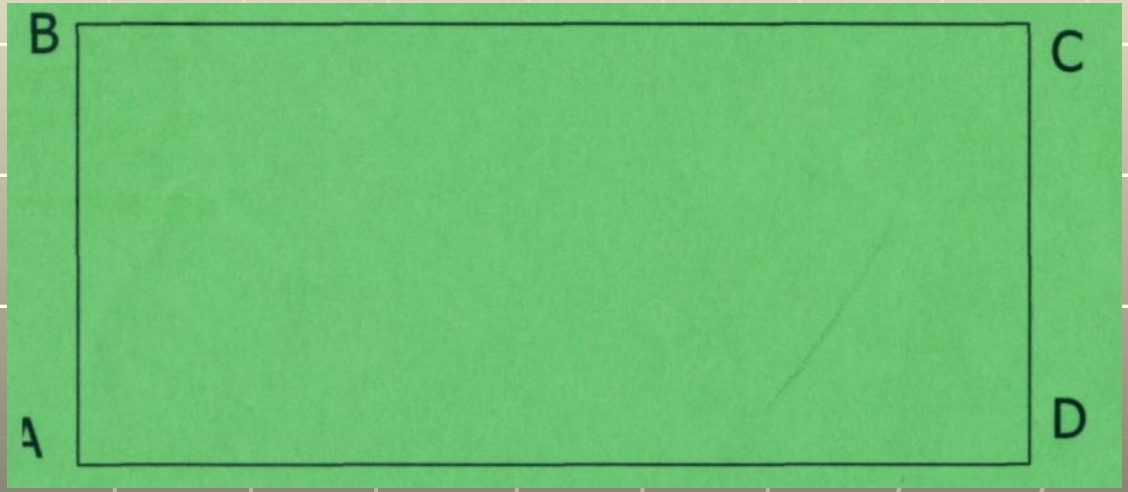
Isboti. $\beta$ - silindrning asos tekisligiga parallel tekislik bo'lsin. $\beta$ tekislikni silindrning asos tekisligi bilan ustma-ust tushiruvchi silindr o'qi yo'nalishidagi parallel ko'chirish yon sirtning $\beta$ tekislik hosil qilgan kesimini asos aylanasi bilan ustma ust tushiradi. Teorema isbotlandi.



Silindr yon sirtining yoyilmasi to'g'ri to'rtburchakdan iborat bo'lib, uning bir tamoni balandlikka va ikkinchi tamoni silindr asos aylanasining uzunligiga teng.

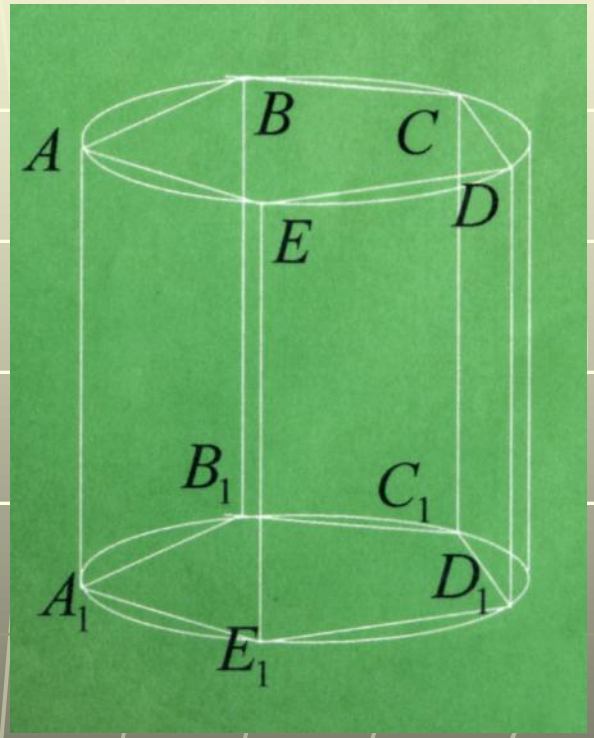
$$AB = H$$
$$BC = 2\pi R$$

$$S = 2\pi RH$$



# Ichki chizilgan va tashqi chizilgan prizmalar.

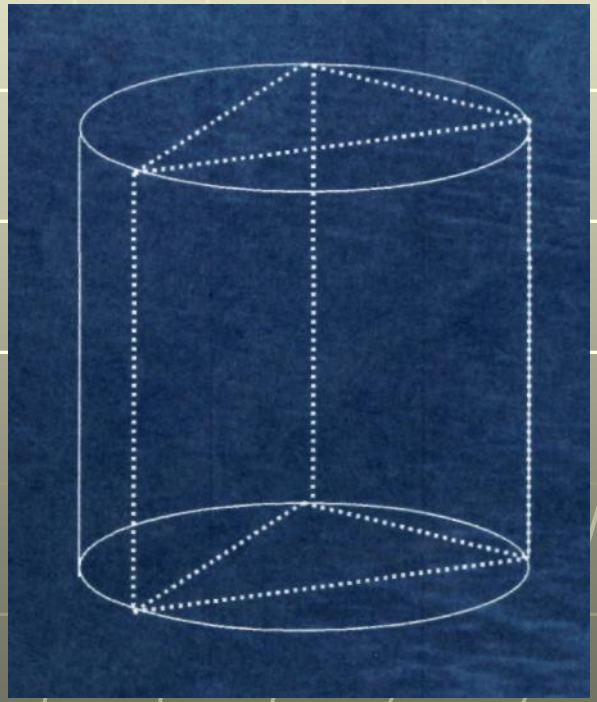
Silindrga ichki chizilgan prizma deb shunday prizmaga aytiladiki, unda silindr asoslarining tekisliklari prizma asoslarining tekisliklari, silindrning yasovchilari prizmaning yon qirrqlari bo’ladi.




$AA_1$ , $BB_1$ , $CC_1$
$DD_1$ , $EE_1$ - *qirralari*

Har qanday to'rtburchakli to'g'ri prizmani silindrga ichki chizish mumkin emas, faqat ichki chizilgan prizmaning asosining qarama-qarshi burchaklarning yig'indisi 180 ga teng bo'lgan to'rtburchak bo'lishi mumkin.

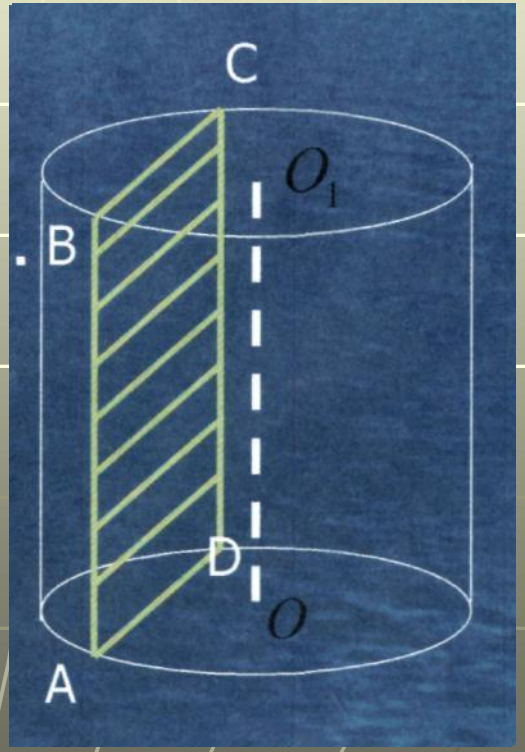
Har  qanday uchburchakli prizmani silindrga ichki chizish mumkin emas, faqat uchburchakli to’g’ri prizmani ichki chizish mumkin.



# Silindrning tekisliklar bilan kesimlari.

Silindrni uning o'qiga parallel tekislik bilan kesimi to'g'ri to'rtburchak bo'ladi.

Uning ikki tamoni silindrning yasovchilari, qolgan ikki tamoni esa asoslarining parallel vatarlaridir.




$S_{kesim}=AB*BC$

Silindrga urinma tekislik deb silindrning yasovchisi orqali o'tuvchi va bu yasovchini o'z ichiga olgan o'q kesim tekisligiga perpendikulyar tekislikka aytiladi.