***Mavzu*: Yuza tushunchasi. Kvadrat, to’g’ri to’rtburchak, parallellogramm yuzalari.**

1. Parallelogramm.

Ta'rif. *Qarama-qarshi tomonlari o'zaro parallel bo'lgan to'rtburchak* ***parallelogramm*** *deb ataladi.*

2. Parallelogrammning xossalari.

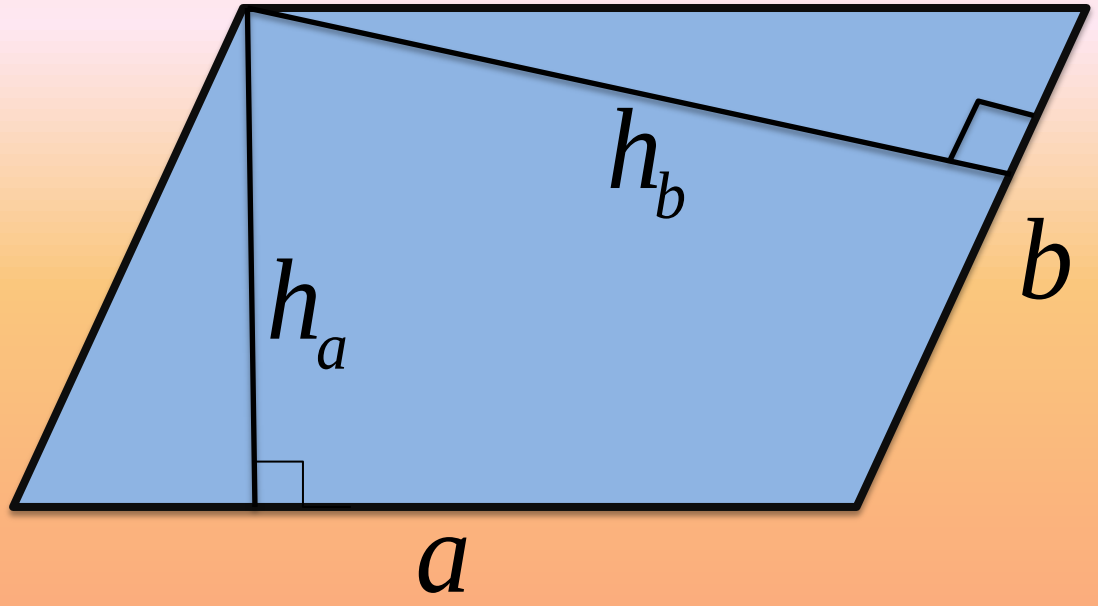
1-teorema.

Parallelogrammning diagonali uni ikkita teng uchburchakka bo'ladi.

2-teorema.

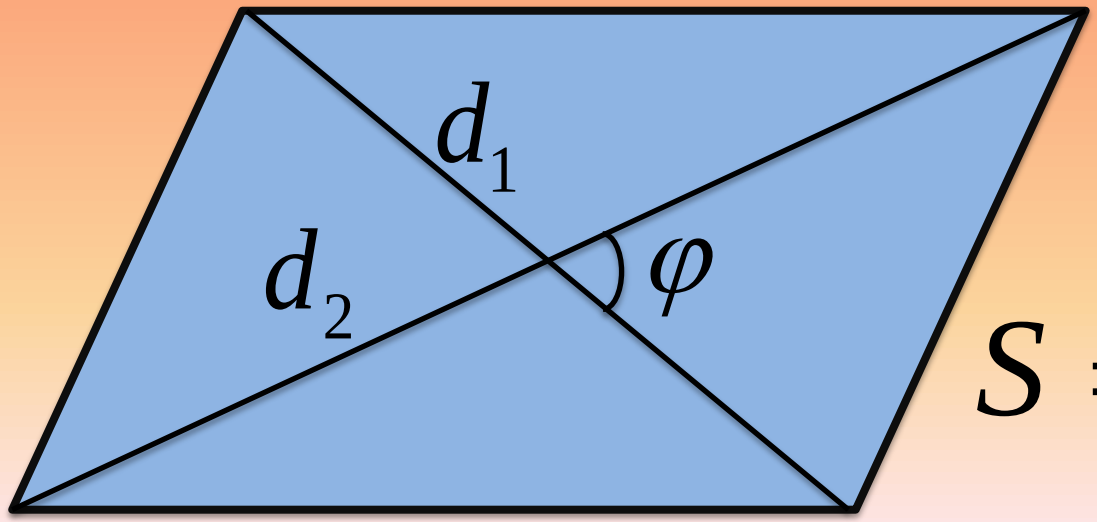
Parallelogrammning diagonallari kesishadi va kesishish nuqtasida teng ikkiga bo'linadi.

Parallellogramm yuzasi

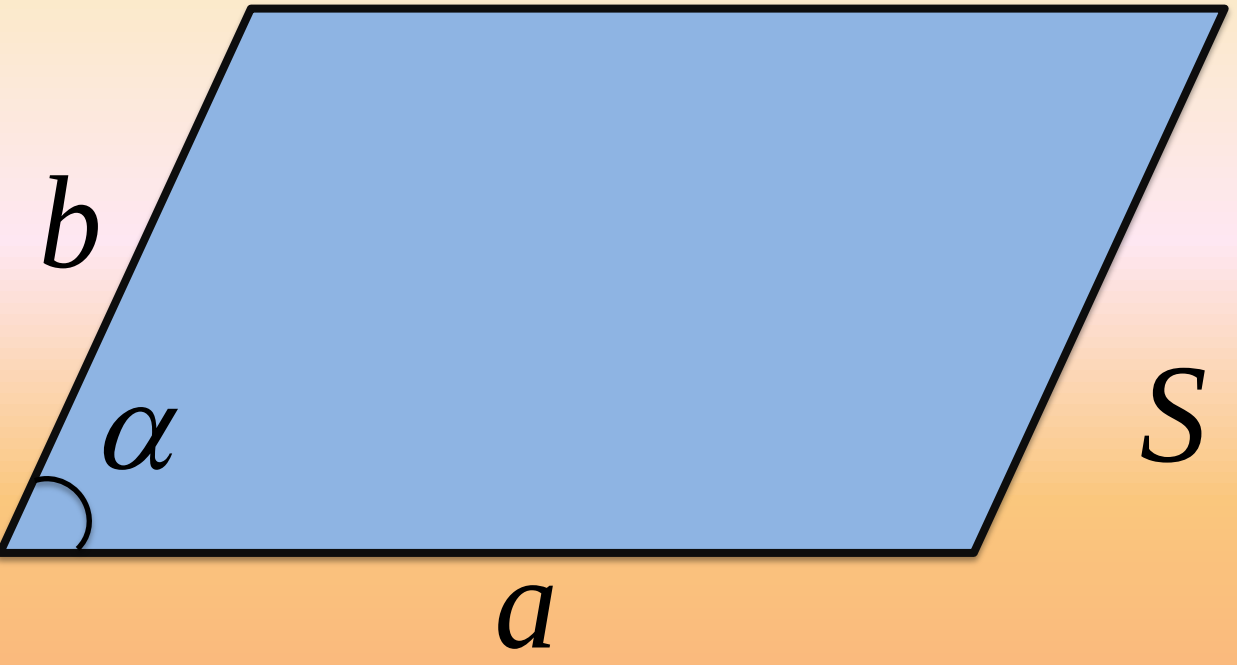


$$S = ah_a$$

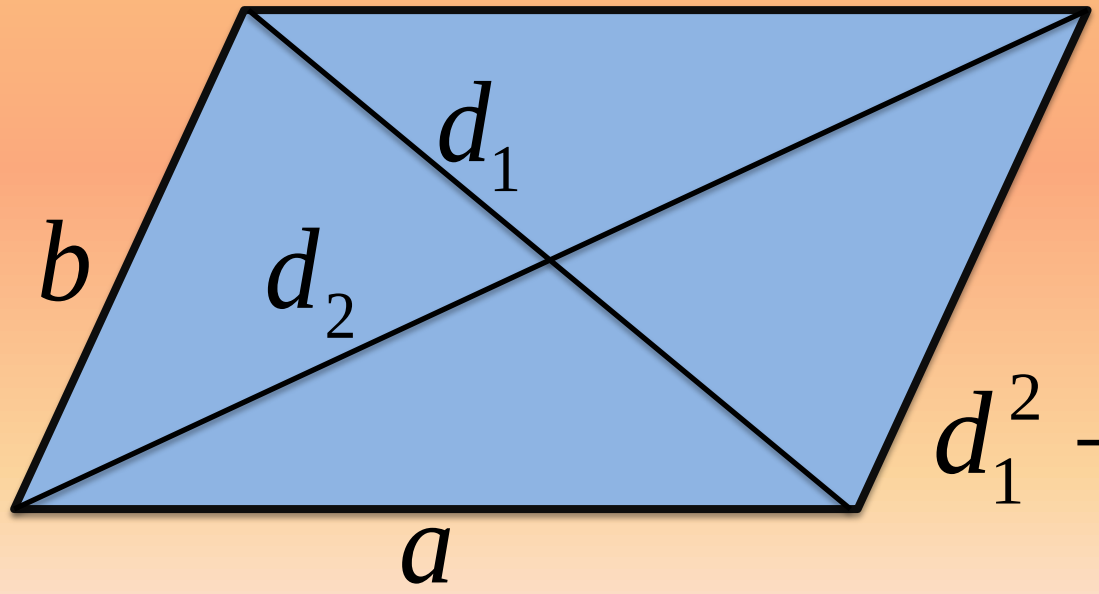
$$S = bh_b$$



$$S = \frac{1}{2} d_1 d_2 \sin\varphi$$



$$S = a \cdot b \cdot \sin\alpha$$



$$d_1^2 + d_2^2 = 2\left(a^2 + b^2\right)$$

Misol

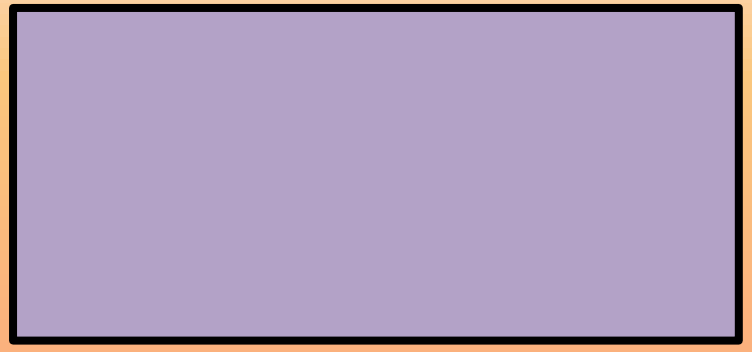
1) Parallelogrammning yuzi 72 sm^2, balandliklari 4 sm va 6 sm. Parallelogrammning perimetrini toping.

2) Parallelogrammning tomonlari 12 sm va 16 sm, balandliklaridan biri esa 15 sm. Parallelogrammning ikkinchi balandligini toping.

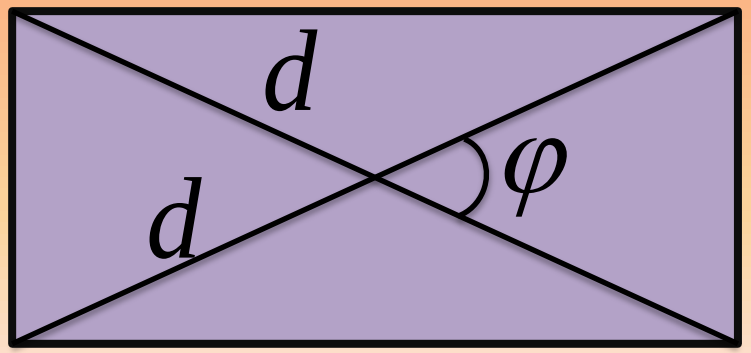
3) Parallelogrammning tomonlaridan biriga o‘tkazilgan balandligi shu tomondan 3 marta kichik. Parallelogrammning yuzi 96 sm^2. Shu tomonni va balandlikni toping.

To’g’ri to’rtburchak

Ta’rif. *Hamma burchaklari to‘g‘ri bo‘lgan parallelogramm* ***to‘g‘ri to‘rtburchak*** *deb ataladi*



$$S = a \cdot b$$



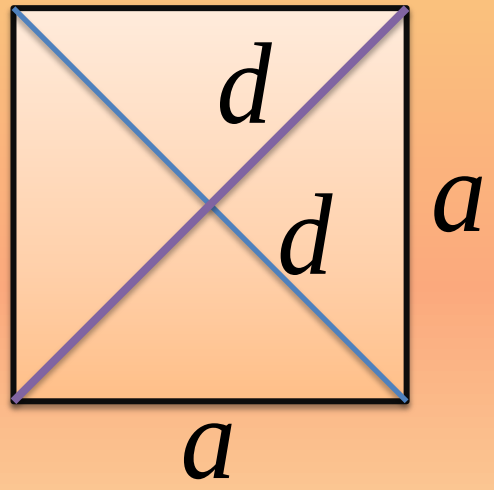
$$S = \frac{1}{2} d^2 \sin\varphi$$

Misol

1. To‘g‘ri to‘rtburchakning yuzi 400 sm^2, ikki tomonining nisbati 2 : 5 ga teng. Shu to‘g‘ri to‘rtburchakning perimetrini toping.
2. To‘g‘ri to‘rtburchakning asosini n marta, balandligini k marta uzaytirilsa, uning yuzi qanday o‘zgaradi?
3. $ABCD$ to‘g‘ri to‘rtburchak B burchagining bissektrisasi AD tomonni K nuqtada kesadi, $AK = 5$ sm va $KD = 7$ sm. To‘g‘ri to‘rtburchakning yuzini toping.

Kvadrat

Ta’rif. *Tomonlari teng bo‘lgan to‘g‘ri to‘rtburchak* ***kvadrat*** *deb ataladi.*



$$S = a^2$$

$$S = \frac{1}{2} d^2$$

1. O’lchamlari 24m X 15m bo’lgan zalni tomoni 20 sm bo’lgan kvadrat plitkalardan nechtasi bilan qoplash mumkin.

A) 900 B) 18000 C) 9000 D) 1800 E) 6000

2. Kvadrat shaklidagi tunikadan eni 3 ga teng bo’lgan qismi qirqib olindi. Agar qolgan qismining yuzi 10 ga teng bo’lsa, kvadratni tomonlarini aniqlang.

A) 10 B) 9 C) 8 D) 6 E) 5

3. Tomoni 10 m ga teng bo’lgan kvadrat tomoni 5 sm ga teng bo’lgan kvadratchalarga ajratildi. Shu kvadratchalar kengligi 10 sm bo’lgan tasma shaklida joylashtirilsa uning uzunligi qancha bo’ladi.

A) 100m B) 20m C) 200m D) 1km E) 10m

4. Katetlari 6 sm dan bo’lgan to’g’ri burchakli uchburchakka, u bilan umumiy burchakka ega bo’lgan to’g’ri to’rtburchak ichki chizilgan. Bu to’rtburchakning perimetrini toping.

A) 12 B) 16 C) 20 D) 10 E) 14

5. To’g’ri to’rtburchakning bo’yi 20% va eni 10% ga orttirilsa, uning yuzi necha % ortadi.

A) 30 B) 20 C) 27 D) 32 E) 35

6. To’g’ri to’rtburchak shaklidagi maydonning eni 32m. Agar shu maydonning yuzi 2 gektar bo’lsa, uning bo’yi necha metr bo’ladi.

A) 610 B) 615 C) 620 D) 625 E) 630

7. Olchovlari 8 va 20 ga teng bo’lgan to’g’ri to’rtburchakdan eng kamida nechtasini birlashtirib, kvadrat hosil qilish mumkin?

A) 10 B) 12 C) 6 D) 8 E) 15

8. Diagonali 18 ga teng bo’lgan to’g’ri to’rtburchakning yuzi eng ko’pi bilan nechaga teng bo’lishi mumkin?

A) aniqlab bo’lmaydi B) 180 C) 162 D) 174 E) 167

9. Parallelogrammning yon tomoni 3 ga teng va u kichik diagonalga perpendikulyar. Parallelogrammning yuzi 12 ga teng bo'lsa uning asosiga tushirilgan balandlikni toping.

10. Parallelogrammning 5 ga teng bo'lgan diagonali uning 12 ga teng bo'lgan tomoniga perpendikulyar. Parallelogrammning perimetrini toping.

11. Parallelogrammning dioganali 6 sm va 8 sm, ular orasidagi burchak 30^0. Parallelogrammning yuzini toping.

12. Parallelogrammning tomoni a va b ga, o'tmas burchagi α ga teng. Parallelogrammning yuzini hisoblash uchun qo'yidagilarni qaysi biri to'g'ri.

A) $ab\cos\alpha$ B) $0{,}5\,ab\cos\alpha$ C) $ab\sin\alpha$ D) $\frac{ab}{2\sin\alpha}$ E) $0{,}5ab\sin\alpha$

13. Balandliklari $12\sqrt{3}$ va 4 ga, ular orasidagi burchak 60 ga teng parallelogrammning yuzini toping.

A) $48\sqrt{3}$ B) 48 C) $24\sqrt{3}$ D) 96 E) 72

14. Parallelogrammning tomonlari 11 va 23 ga, dioganallarining nisbati 2:6:3 ga teng. Uning katta dioganalini toping.

A) 18 B) 20 C) 24 D) 25 E) 30

15. Parallelogrammning ikki qo'shni tomonlari o'rtalarini tutashtiruvchi to'g'ri chiziq undan yuzi 32 ga teng bo'lgan uchburchak ajratildi. Parallelogrammning yuzini toping.

A) 250 B) 256 C) 254 D) 258 E) 255

16. Parallelogrammning tomonlari 3 va 5 ga, uning kichik dioganali 4ga teng. Shu parallelogrammning yuzini toping

A) 6 B) 8 C) 10 D) 12 E) 14

17. Dioganallari 16 va 12 ga teng barcha Parallelogrammlardan yuzasi eng katta bo'lganining perimetrini toping.

A) 28 B) 32 C) 64 D) 48 E) 40