So‘zboshi

“AHA! Matematika” – qo‘lingizdagi darslikni shunday nomladik. “AHA!” so‘zi, bir tomondan, matematika fani sirlarini kashf qilish jarayonidagi zavqli hayqiriq bo‘lsa, ikkinchi tomondan, bu mo‘jizakor fanga berilgan “aniq”, “hayratlanarli” va “ajoyib” ta’riflarining bosh harflaridan yasalgan so‘zdir.

“AHA! Matematika” O‘zbekiston sharoitiga moslab mahalliylashtirilgan darslikdir. U “Moddiy-rasmli-timsolli” yondashuviga asoslangan bo‘lib, AKT yordamida matematik tushunchalarni yaxshiroq o‘rganishga yordam beradi. Darslik tarkibidagi amaliy topshiriqlar matematikani o‘qitish samaradorligini oshirishga xizmat qiladi.

Darslikdagi ruknlar o‘quvchilarning faol o‘rganishini rivojlantirishga yo‘naltirilgan. O‘quvchilar ushbu darslik yordamida nafaqat yangi matematik bilim va ko‘nikmalarni o‘zlashtiradi, balki muammoli vaziyatlarda kerak bo‘ladigan mantiqiy fikrlash va mulohaza yuritish kabi hayotiy ko‘nikmalarga ham ega bo‘ladi.

Matematika olamiga sayohatingiz qiziqarli va maroqli bo‘lsin!

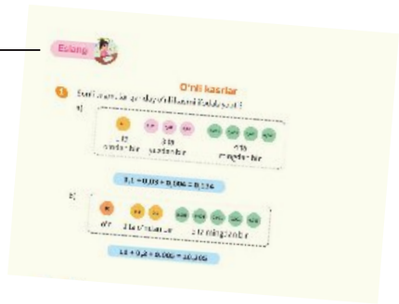


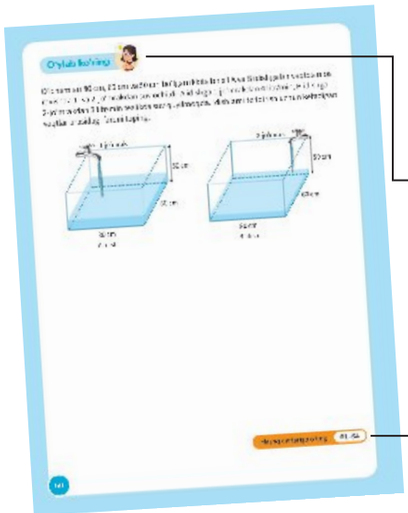
Muhokama qiling

rukni o‘quvchilarni yangi matematik tushunchalarni o‘rganishga tayyorlaydi. O‘qituvchi o‘quvchilarni mavzuga oid rasm yoki video asosida suhbat (muhokama)ga jalb qiladi va uni boshqaradi.

Eslang

rukni o‘quvchilarni yangi mavzuga oid oldin o‘rgangan tayanch bilimlarini takrorlashga yo‘naltiradi.



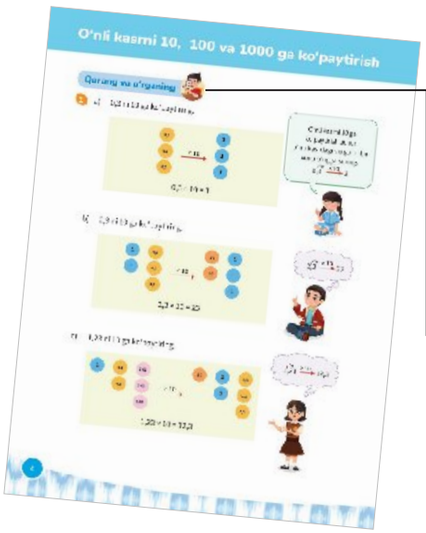


O‘ylab ko‘ring

rukni o‘quvchilarni topshiriq yoki mashqlarni bajarishdan oldin o‘ylashga va mulohaza yuritishga undaydi.

Mashq daftariga o‘ting

darslikning tegishli joylariga qo‘yilgan bo‘lib, mashq daftari bilan ishlash zarurligini bildiradi.



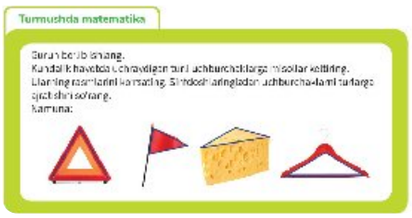
Qarang va o‘rganing

rukni matematik tushunchalarni rasm orqali tanishtiradi, ularni abstrakt (timsolli) darajada tushunishga yordam beradi.

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Turmushda matematika

rukni o‘quvchilarga kundalik turmushda uchraydigan vaziyatlarda matematikaning qo‘llanishini ko‘rsatadi.



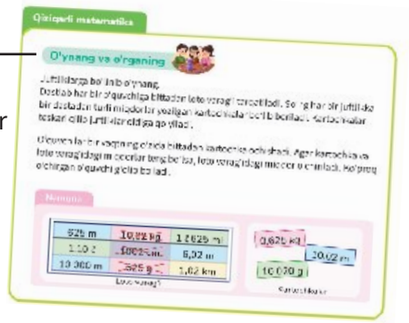


AKT mashqi

rukni egallangan bilimlarni maxsus platformadagi axborot texnologiyalaridan foydalangan holda namoyish qilish kerakligini anglatadi.

O‘ynang va o‘rganing

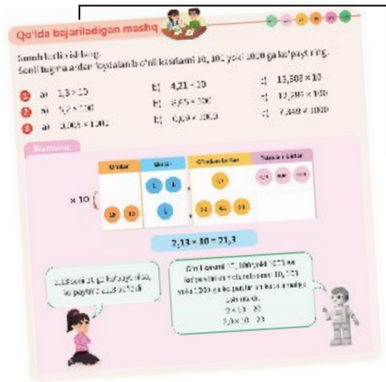
rukni o‘quvchilarda topshiriq va o‘yinlar orqali matematik tushunchalarni mustahkamlaydi.





Juftlikda ishlang

rukni o‘quvchilarga bir-birining o‘rganganlarini baholash uchun juft bo‘lib ishlash sharoitini yaratadi.



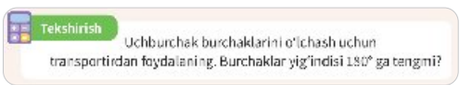
Qo‘lda bajariladigan mashq

rukni o‘quvchilarni matematik tushunchalarini rivojlantirish uchun maxsus ko‘rgazmali materiallardan foydalanishga undaydi.



O‘zingizni tekshiring

rukni o‘quvchilarga bilimini tekshirish va o‘z-o‘zini baholashda yordam beradi.

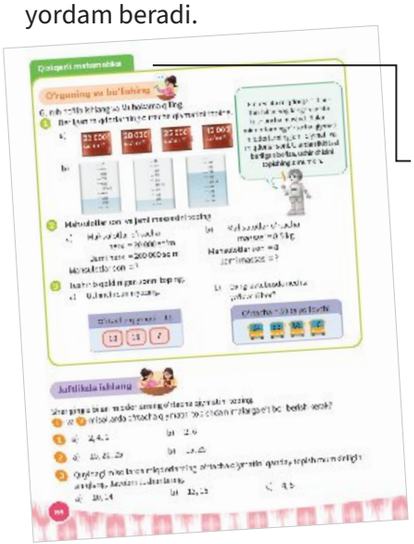


Tekshirish

O‘quvchilar masalalar javoblarini tekshirish uchun kalkulyatordan foydalanishi mumkin.

Bajaring va o‘rganing

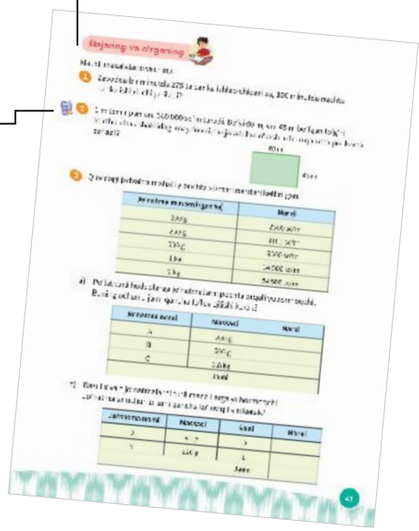
ruknida o‘quvchilar mashqlarni bajarish orqali o‘z bilimlarini tekshiradi.



O‘rganing va bo‘lishing

rukni o‘quvchilarga muloqot qilish va o‘rganganbilimlarini bir-birlari bilan bo‘lishish imkonini beradi.

Masalani yechishda kalkulyatordan foydalanishga ruxsat beriladi.



Hamrohlar

Madina, Aziza, Akmal, Sardor va Robi – qalin do‘stlar. Ular o‘zlarining fikrlari, takliflari, izohlari va savollari orqali siz bilan birgalikda matematikani o‘rganadi.



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7 O‘nli kasrlar

Muhokama qiling



Aziza va Madina oziq-ovqat mahsulotlarining narxi va tarkibini ko‘rib chiqmoqda.



Uzum shinnisi

24 250 so‘m



Olma sharbati

10 200 so‘m



Shokolad

9500 so‘m

Donli yorma tarkibi
(Har 100 g mahsulotda)

Energetik qiymati	377 kkal
Oqsillar	5,0 g
Yog‘lar	0,5 g
Uglevodlar	2,0 g
A vitamini	266 mg



8650 so‘m

Sut tarkibi
(Har 250 ml mahsulotda)

Energetik qiymati	133 kkal
Oqsillar	9,5 g
Yog‘lar	3,8 g
Uglevodlar	0,0 g
D vitamini	1,8 mg



18 600 so‘m

AJOYIB TAKLIF!



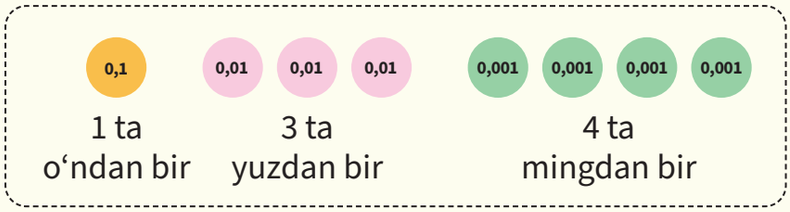
Eslang



O‘nli kasrlar

1 Sonli tugmalar qanday o‘nli kasrni ifodalayapti?

a)



0,1 + 0,03 + 0,004 = 0,134

b)



10 + 0,2 + 0,005 = 10,205

2 Hisoblang.

a) 3,675 + 4,13 = 7,805

$$\begin{array}{r} {\scriptstyle 1} \\ 3,675 \\ +\ 4,13 \\ \hline 7,805 \end{array}$$

b) 9,056 – 2,484 = 6,572

$$\begin{array}{r} {\scriptstyle \ 9\ \ 15} \\ {\scriptstyle 8\ \ \cancel{10}} \\ \cancel{9},\cancel{0}\,\cancel{5}\,6 \\ -\ 2,484 \\ \hline 6,572 \end{array}$$

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3 2,36 va 4 ning ko‘paytmasini toping.

$2{,}36 \times 4 = 9{,}44$

$$\begin{array}{r} {\scriptstyle 1\quad 2} \\ 2,36 \\ \times \quad 4 \\ \hline 9,44 \end{array}$$

4 5,93 ni 5 ga bo‘ling.
Javobni yuzdan birlar xonasigacha yaxlitlang.

$5{,}93 \div 5 = 1{,}19$ (yuzdan birlar xonasigacha yaxlitlangan)

$$\begin{array}{r|l} 5,930 & 5 \\ \hline -\,5 & 1,186 \\ \hline 9 & \\ -\,5 & \\ \hline 43 & \\ -\,40 & \\ \hline 30 & \\ -\,30 & \\ \hline 0 & \end{array}$$

5 $3\frac{2}{5}$ ni o‘nli kasr ko‘rinishida ifodalang.

$$3\frac{2}{5} = 3\frac{4}{10}$$

$$= 3{,}4$$

6 8,25 ni qisqarmas aralash son ko‘rinishida ifodalang.

$$8{,}25 = 8 + 0{,}25$$

$$= 8 + \frac{25}{100}$$

$$= 8\frac{1}{4}$$

Mashq daftariga o‘ting **1–4**

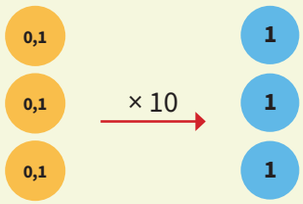
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O‘nli kasrni 10, 100 va 1000 ga ko‘paytirish

Qarang va o‘rganing



1 a) 0,3 ni 10 ga ko‘paytiring.



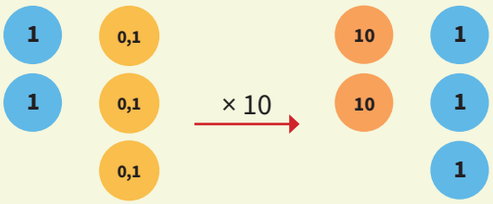
$0{,}3 \times 10 = 3$

O‘nli kasrni 10 ga ko‘paytirish uchun o‘nli kasrdagi vergulni bir xona o‘ngga suring.

$0{,}3 \xrightarrow{\times 10} 3$



b) 2,3 ni 10 ga ko‘paytiring.

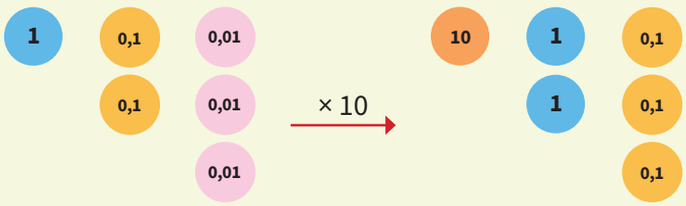


$2{,}3 \times 10 = 23$

$2{,}3 \xrightarrow{\times 10} 23$



c) 1,23 ni 10 ga ko‘paytiring.



$1{,}23 \times 10 = 12{,}3$

$1{,}23 \xrightarrow{\times 10} 12{,}3$



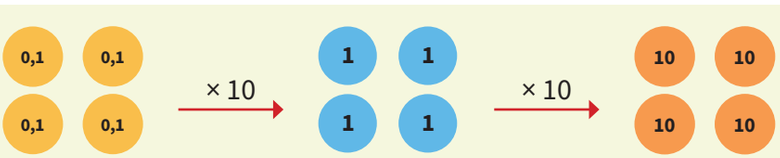
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2 2,134 × 10 = ?

	O‘nlar	Birlar		O‘ndan birlar	Yuzdan birlar	Mingdan birlar
		2	,	1	3	4
× 10	2	1	,	3	4	

2,134 × 10 = 21,34

3 a) 0,4 ni 100 ga ko‘paytiring.



0,4 × 10 = 4 4 × 10 = 40

0,4 × 100 = 40

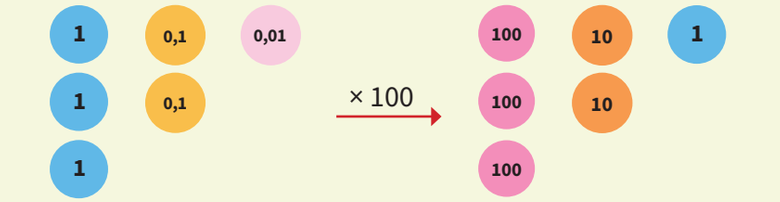




O‘nli kasrni 100 ga ko‘paytirish uchun o‘nli kasrdagi vergulni ikki xona o‘ngga suring.

0,4 ×100→ 40

b) 3,21 va 100 ning ko‘paytmasini toping.



3,21 × 100 = 321



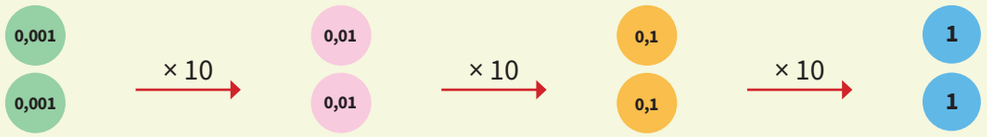
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4 4,163 × 100 = ?

	Yuzlar	O‘nlar	Birlar	O‘ndan birlar	Yuzdan birlar	Mingdan birlar
			4 ,	1	6	3
× 100	4	1	6 ,	3		

4,163 × 100 = 416,3

5 a) 0,002 ni 1000 ga ko‘paytiring.



0,002 × 10 = 0,02 0,02 × 10 = 0,2 0,2 × 10 = 2

0,002 × 1000 = 2



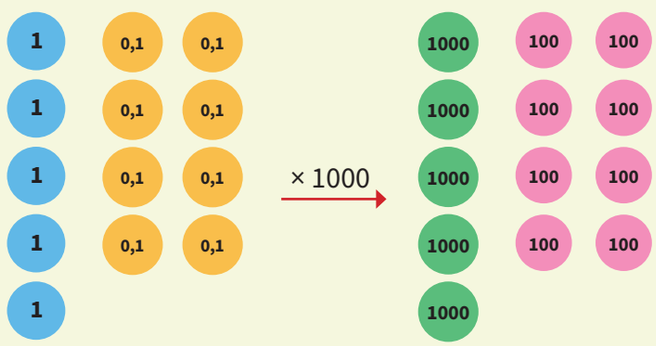
O‘nli kasrni 1000 ga ko‘paytirish uchun o‘nli kasrdagi vergulni uch xona o‘ngga suring.

0,002 ×1000 → 2

1000 = 10 × 10 × 10



b) 5,8 va 1000 ning ko‘paytmasini toping.



5,8 × 1000 = 5800

5,8 ×1000 → 5800



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6 8,765 x 1000 = ?

× 1000

Minglar	Yuzlar	O‘nlar	Birlar		O‘ndan birlar	Yuzdan birlar	Mingdan birlar
			8	,	7	6	5
8	7	6	5	,			

8,765 × 1000 = 8765

Qo‘lda bajariladigan mashq



0,001 0,01 0,1 10 100 1000

Guruh bo‘lib ishlang.
Sonli tugmalardan foydalanib o‘nli kasrlarni 10, 100 yoki 1000 ga ko‘paytiring.

1. a) 1,3 × 10 b) 4,21 × 10 c) 15,308 × 10
2. a) 5,2 × 100 b) 8,65 × 100 c) 12,286 × 100
3. a) 0,005 × 1000 b) 0,09 × 1000 c) 7,349 × 1000

Namuna

× 10

O‘nlar		Birlar		O‘ndan birlar	Yuzdan birlar		
		1	1	0,1	0,01	0,01	0,01
10	10	1	,	0,1	0,1	0,1	

2,13 × 10 = 21,3

2,13 soni 10 ga ko‘paytirilsa, ko‘paytma 21,3 bo‘ladi.



O‘nli kasrni 10, 100 yoki 1000 ga ko‘paytirish natural sonni 10, 100 yoki 1000 ga ko‘paytirish kabi amalga oshiriladi.
2 × 10 = 20
2,0 × 10 = 20



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Bajaring va o‘rganing



1 Ko‘paytmani toping.

a) $0{,}9 \times 10$

b) $0{,}08 \times 10$

c) $1{,}84 \times 10$

d) $0{,}8 \times 100$

e) $0{,}03 \times 100$

f) $1{,}537 \times 100$

g) $0{,}05 \times 1000$

h) $4{,}75 \times 1000$

i) $13{,}03 \times 1000$

j) $120{,}068 \times 1000$

2 Tushirib qoldirilgan sonlarni toping.

a) $0{,}105 \times \square = 1{,}05$

b) $20{,}432 \times \square = 2043{,}2$

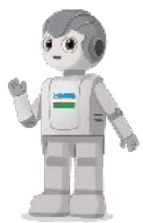
c) $1{,}894 \times \square = 1894$

d) $\square \times 0{,}09 = 90$

e) $\square \times 30{,}08 = 3008$

f) $\square \times 163{,}8 = 1638$

O‘nli kasrni 10, 100 yoki 1000 ga ko‘paytirishdagi har bir holatda o‘nli kasrning verguli necha xona o‘ngga suriladi?



Mashq daftariga o‘ting **5–8**

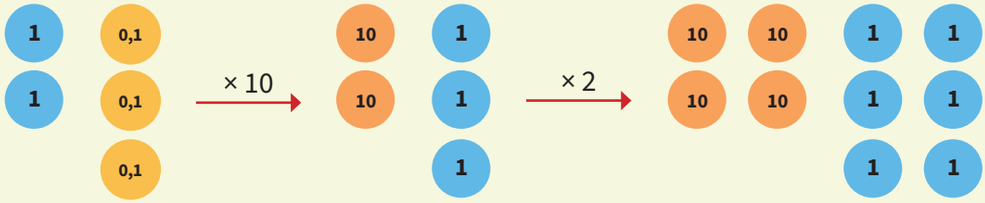
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O‘nli kasrni o‘nlik, yuzlik va mingliklarga ko‘paytirish

Qarang va o‘rganing

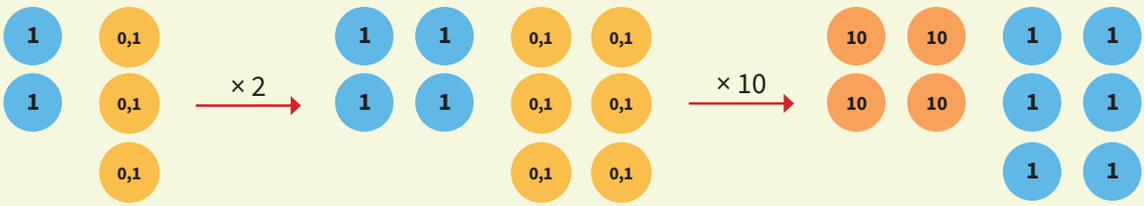


1 a) 2,3 ni 20 ga ko‘paytiring.

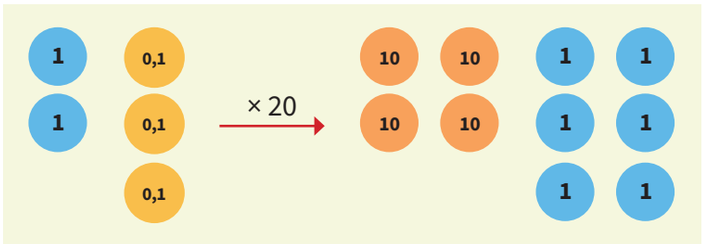


$2,3 \times 10 = 23$ $23 \times 2 = 46$

yoki



$2,3 \times 2 = 4,6$ $4,6 \times 10 = 46$



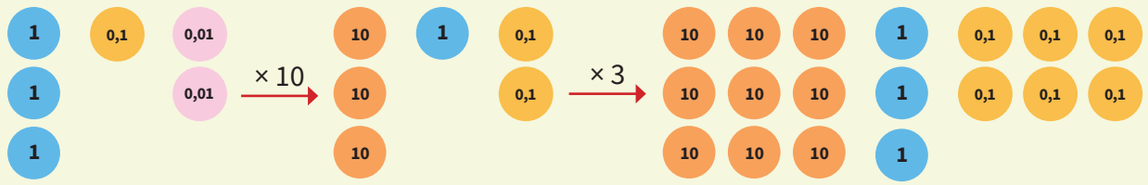
$2,3 \times 20 = 46$

$2,3 \times \mathbf{20} = 2,3 \times \mathbf{10} \times \mathbf{2}$
$= 2,3 \times \mathbf{2} \times \mathbf{10}$



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b) 3,12 va 30 ning ko‘paytmasini toping.



$3,12 \times 10 = 31,2$ $31,2 \times 3 = 93,6$

Men ko‘paytmani quyidagicha topishim ham mumkin:

$3,12 \xrightarrow{\times 3} 9,36 \xrightarrow{\times 10} 93,6$



2 6,085 ni 500 ga ko‘paytiring.

$6,085 \times 500 = 6,085 \times 100 \times 5$
$= 608,5 \times 5$
$= 3042,5$

3 9,124 ni 7000 ga ko‘paytiring.

$9,124 \times 7000 = 9,124 \times 1000 \times 7$
$= 9124 \times 7$
$= 63\,868$

4 Akmal qurilish uchun har biri 0,10 kg dan bo‘lgan 200 ta mix ishlatdi. U jami necha kilogramm mix ishlatgan?

$0,10 \text{ kg} \times 200 = 0,10 \text{ kg} \times 100 \times 2$
$= 10 \text{ kg} \times 2$
$= 20 \text{ kg}$

Jami 20 kg mix ishlatgan.

5 Laylo 80 ta shisha idishda suv buyurtma qildi. Har bir shisha 0,5 litr sig‘imga ega bo‘lsa, Laylo jami necha litr suv buyurtma qilgan?

$0,5 \times 80 = 0,5 \times 10 \times 8$
$= 5 \times 8$
$= 40$

Jami 40 ℓ suv buyurtma qilgan.

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Juftlikda ishlang



Jadvalni do‘stingiz bilan to‘ldiring.
Javoblaringizni muhokama qiling.

	× 20	× 200	× 2000
0,08			
2,08			
12,08			

Bajaring va o‘rganing



1 Ko‘paytiring.

a) 0,42 × 20

b) 0,06 × 30

c) 4,453 × 50

d) 0,19 × 200

e) 0,432 × 400

f) 51,04 × 800

g) 0,62 × 3000

h) 2,67 × 2000

i) 8,905 × 6000

j) 65,73 × 4000

2 Jami miqdorni toping.

		Massasi	Soni	Jami miqdori
a)	Sovun qutisi	0,20 kg	600 ta	
b)	Choy qutisi	0,175 kg	40 ta	kg

3 Ali hafta davomida 2000 dona muzqaymoq sotdi.
Agar bitta muzqaymoq massasi 0,15 kg bo‘lsa, Ali hafta davomida necha kilogramm muzqaymoq sotgan?

Mashq daftariga o‘ting 9–12

O‘zingizni tekshiring



a) Men o‘nli kasrni 10, 100 va 1000 ga ko‘paytirishni bilaman.

b) Men o‘nli kasrni o‘nliklar, yuzliklar va mingliklarga ko‘paytirishni bilaman.

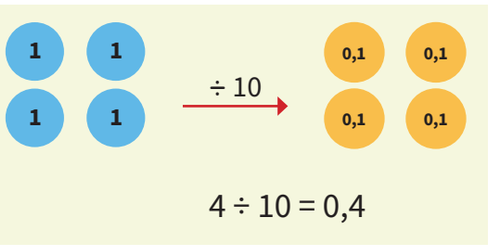
51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 11 13/11/24 14:49

O‘nli kasrni 10, 100 va 1000 ga bo‘lish

Qarang va o‘rganing



1 a) 4 ni 10 ga bo‘ling.



Sonni 10 ga bo‘lish:

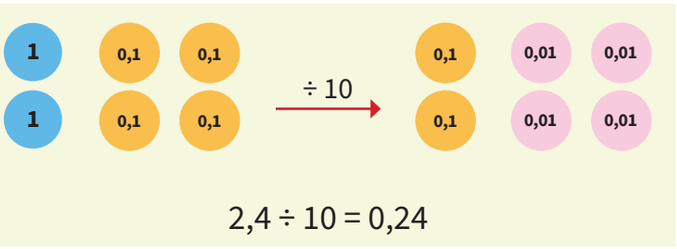
4 ÷ 10 = 4,0 ÷ 10

O‘nli kasrdagi vergulni bir xona chapga suring.

4,0 ÷ 10 → 0,4



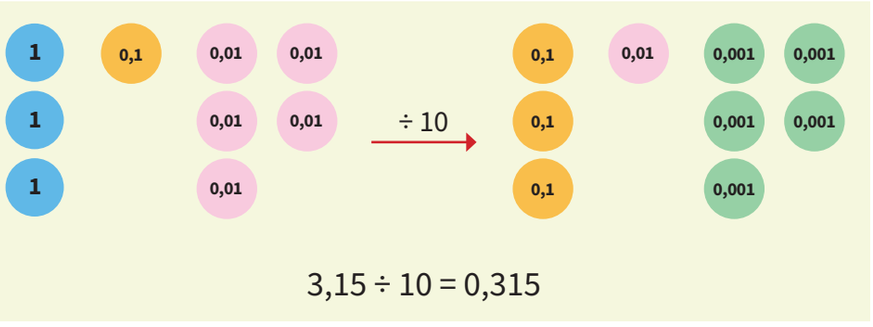
b) 2,4 ni 10 ga bo‘ling.



2,4 ÷ 10 → 0,24



c) 3,15 ni 10 ga bo‘ling.



3,15 ÷10 → 0,315



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2 5,76 ÷ 10 = ?

÷ 10

Birlar		O‘ndan birlar	Yuzdan birlar	Mingdan birlar
5	,	7	6	
0	,	5	7	6

5,76 ÷10 → 0,576



5,76 ÷ 10 = 0,576

3 a) 3 ni 100 ga bo‘ling.



3 ÷ 10 = 0,3 0,3 ÷ 10 = 0,03

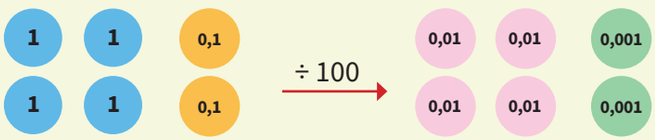
3 ÷ 100 = 0,03

Sonni 100 ga bo‘lish:
3 ÷ 100 = 3,0 ÷ 100
O‘nli kasrdagi vergulni ikki xona chapga suring.

3,0 ÷100 → 0,03

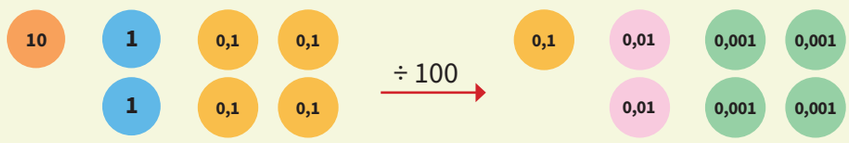


b) 4,2 ni 100 ga bo‘ling.



4,2 ÷ 100 = 0,042

c) 12,4 ni 100 ga bo‘ling.



12,4 ÷ 100 = 0,124

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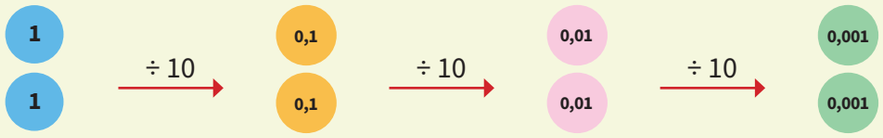
4 237,9 ÷ 100 = ?

÷ 100

Yuzlar	O‘nlar	Birlar		O‘ndan birlar	Yuzdan birlar	Mingdan birlar
2	3	7	,	9		
		2	,	3	7	9

237,9 ÷ 100 = 2,379

5 a) 2 ni 1000 ga bo‘ling.



0,2 ÷ 10 = 0,02 0,02 ÷ 10 = 0,002

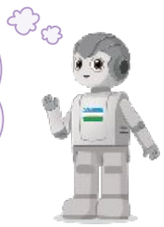
2 ÷ 1000 = 0,002

Sonni 1000 ga bo‘lish:

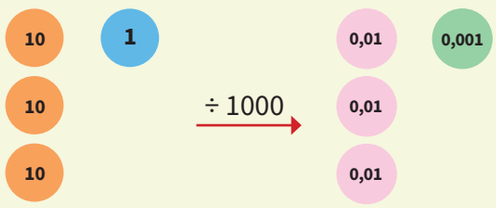
2 ÷ 1000 = 2,0 ÷ 1000

O‘nli kasrdagi vergulni uch xona chapga suring.

2,0 ÷1000 → 0,002



b) 31 ni 1000 ga bo‘ling.



31 ÷ 1000 = 0,031

3 1,0 ÷1000 → 0,031



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6 9378 ÷ 1000 = ?

÷ 1000

Minglar	Yuzlar	O‘nlar	Birlar	,	O‘ndan birlar	Yuzdan birlar	Mingdan birlar
9	3	7	8	,			
			9	,	3	7	8

9378 ÷ 1000 = 9,378

Qo‘lda bajariladigan mashq



1 10 100 1000 10 000 100 000 1 000 000 0,1 0,01

Guruh bo‘lib ishlang.
Sonli tugmalardan foydalanib o‘nli kasrlarni 10, 100 va 1000 ga bo‘ling.

1 a) 0,7 ÷ 10 b) 2,64 ÷ 10 c) 32,09 ÷ 10

2 a) 0,9 ÷ 100 b) 40,3 ÷ 100 c) 743,5 ÷ 100

3 a) 18 ÷ 1000 b) 208 ÷ 1000 c) 10 341 ÷ 1000

Namuna

4,8 ni 10 ga bo‘ling.

÷ 10

Birlar	O‘ndan birlar	Yuzdan birlar
1 1 1 1	0,1 0,1 0,1 0,1 0,1 0,1 0,1 0,1	
	0,1 0,1 0,1 0,1	0,01 0,01 0,01 0,01 0,01 0,01 0,01 0,01



4,8 soni 10 ga bo‘linsa, bo‘linma 0,48 chiqadi.

O‘nli kasrni 10, 100 yoki 1000 ga bo‘lish bilan natural sonni 10, 100 yoki 1000 ga bo‘lish orasida bog‘liqlik bormi? Ularning qanday o‘xshashligi bor?



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Juftlikda ishlang



Jadvalni do‘stingiz bilan to‘ldiring.
Javobingizni Muhokama qiling.

	÷ 10	÷ 100	÷ 1000
4			
35			

Bajaring va o‘rganing



1 Bo‘lishni bajaring.

a) 0,9 ÷ 10

b) 1,47 ÷ 10

c) 16,09 ÷ 10

d) 0,5 ÷ 100

e) 1,6 ÷ 100

f) 743,5 ÷ 100

g) 25 ÷ 1000

h) 647 ÷ 1000

i) 12 984 ÷ 1000

j) 937 400 ÷ 1000

2 Qaysi sonlar tushirib qoldirilgan?

a) 8,5 ÷ ____ = 0,085

b) 30,43 ÷ ____ = 3,043

c) 1894 ÷ ____ = 1,894

d) 925 ÷ ____ = 9,25

Mashq daftariga o‘ting **13–16**

O‘nli kasrni 10, 100 yoki 1000 ga bo‘lishda har bir holatda o‘nli kasr verguli necha xona chapga suriladi?



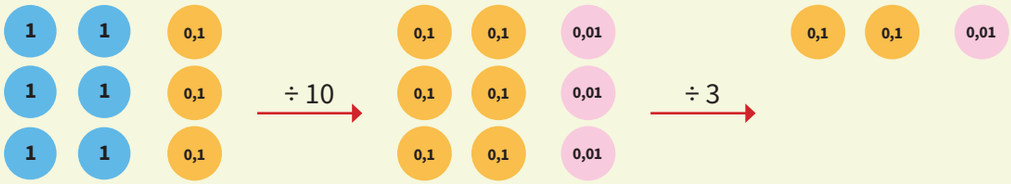
51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 16 13/11/24 14:49

O‘nli kasrni o‘nliklar, yuzliklar va mingliklarga bo‘lish

Qarang va o‘rganing

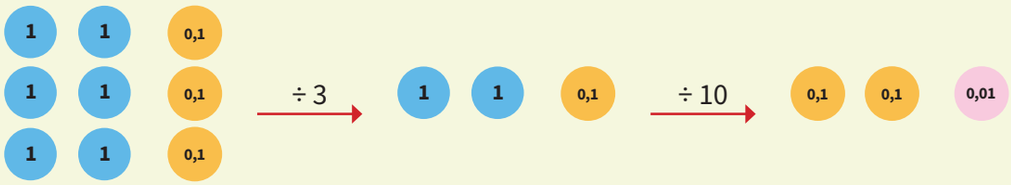


1 a) 6,3 ni 30 ga bo‘ling.



$6,3 \div 10 = 0,63$ $0,63 \div 3 = 0,21$

yoki



$6,3 \div 3 = 2,1$ $2,1 \div 10 = 0,21$

$6,3 \div 30 = 0,21$

$6,3 \div 30 = 6,3 \div 10 \div 3$
$= 6,3 \div 3 \div 10$



b) 20,85 ni 50 ga bo‘ling.

$20,85 \div 50 = 20,85 \div 5 \div 10$
$= 4,17 \div 10$
$= 0,417$

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2 12,4 ni 400 ga bo‘ling.

$12{,}4 \div 400 = 12{,}4 \div 4 \div 100$
$= 3{,}1 \div 100$
$= 0{,}031$

3 208 ni 8000 ga bo‘ling.

$208 \div 8000 = 208 \div 8 \div 1000$
$= 26 \div 1000$
$= 0{,}026$

Juftlikda ishlang



Jadvalni do‘stingiz bilan to‘ldiring.
Javobingizni Muhokama qiling.

	÷ 20	÷ 200	÷ 2000
128			
1280			

Bajaring va o‘rganing



Bo‘lishni bajaring.

a) 0,84 ÷ 20 b) 3,45 ÷ 30 c) 0,9 ÷ 300

d) 4,8 ÷ 600 e) 75,5 ÷ 500 f) 14 ÷ 2000

g) 252 ÷ 4000 h) 8256 ÷ 6000 i) 9084 ÷ 3000

Mashq daftariga o‘ting **17–20**

O‘zingizni tekshiring



a) Men sonni 10, 100 va 1000 ga bo‘lishni bilaman.

b) Men sonni o‘nliklar, yuzliklar va mingliklarga bo‘lishni bilaman.

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Eslang

Uzunlik, massa, hajm va sig‘im o‘lchov birliklarini almashtirish

1 Metr va santimetr orasidagi munosabat.

a) 1 m = 100 cm

b) 3 m 28 cm = 300 cm + 28 cm
= 328 cm

c) 285 cm = 200 cm + 85 cm
= 2 m 85 cm

Metr – santimetrdan katta o‘lchov birligi.



2 Metr va kilometr orasidagi munosabat.

a) 1 km = 1000 m

b) 2 km 315 m = 2000 m + 315 m
= 2315 m

c) 4018 m = 4000 m + 18 m
= 4 km 18 m

Kilometr metrdan katta o‘lchov birligimi?



3 Kilogramm va gramm orasidagi munosabat.

a) 1 kg = 1000 g

b) 5 kg 482 g = 5000 g + 482 g
= 5482 g

c) 3109 g = 3000 g + 109 g
= 3 kg 109 g

Kilogramm kichikroq o‘lchov birligimi yoki gramm?



4 Litr va millilitr orasidagi munosabat.

a) 1 ℓ = 1000 ml

b) 2 ℓ 5 ml = 2000 ml + 5 ml
= 2005 ml

c) 4625 ml = 4000 ml + 625 ml
= 4 ℓ 625 ml

Litr kichikroq o‘lchov birligimi yoki millilitr?



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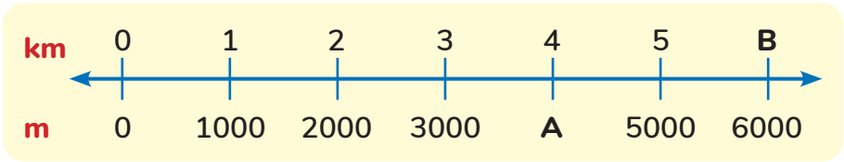
O‘lchov birliklarini almashtirish

Qarang va o‘rganing



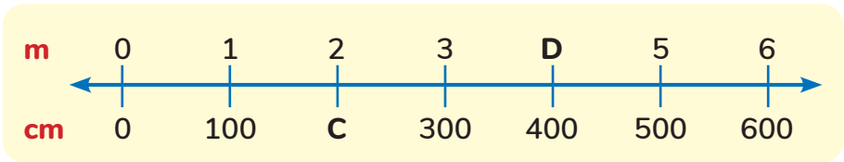
1 Sonlar o‘qida katta va kichik o‘lchov birliklari ifodalangan.

a) A va B harflariga qanday miqdor mos keladi?



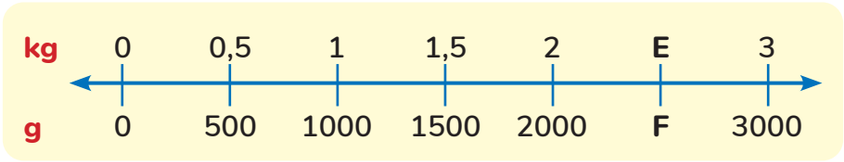
A = 4000 m, **B** = 6 km

b) C va D harflariga qanday miqdor mos keladi?



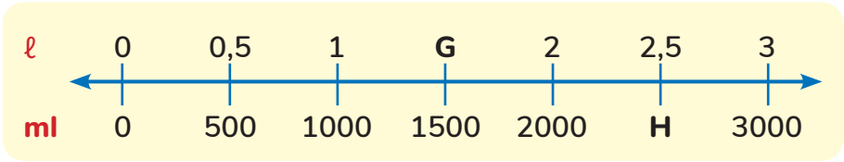
C = 200 cm, **D** = 4 m

c) E va F harflariga qanday miqdor mos keladi?



E = 2,5 kg, **F** = 2500 g

d) G va H harflariga qanday miqdor mos keladi?



G = 1,5 ℓ **H** = 2500 ml

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2 Quyidagi o‘lchov birliklarini kichkinasiga almashtiring.

a) 0,9 m = 0,9 × 100
= 90 cm

b) 4,7 m = 4,7 × 100
= 470 cm

c) 1,8 km = 1,8 × 1000
= 1800 m

d) 5,64 km = 5,64 × 1000
= 5640 m

e) 19,3 kg = 19,3 × 1000
= 19 300 g

f) 2,42 kg = 2,42 × 1000
= 2420 g

g) 4,06 ℓ = 4,06 × 1000
= 4060 ml

h) 8,314 ℓ = 8,314 × 1000
= 8314 ml

3 Quyidagi o‘lchov birliklarini kattasiga almashtiring.

a) 78 cm = 78 ÷ 100
= 0,78 m

b) 5 cm = 5 ÷ 100
= 0,05 m

c) 60 m = 60 ÷ 1000
= 0,06 km

d) 132 m = 132 ÷ 1000
= 0,132 km

e) 64 g = 64 ÷ 1000
= 0,064 kg

f) 2176 g = 2176 ÷ 1000
= 2,176 kg

g) 20 ml = 20 ÷ 1000
= 0,02 ℓ

h) 509 ml = 509 ÷ 1000
= 0,509 ℓ

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4 a) Metrda ifodalang.

6 m 47 cm = 6 m + 47 cm
= 6 m + 0,47 m
= 6,47 m

1 m = 100 cm
47 cm = 47 ÷ 100
= 0,47 m



b) Kilometrda ifodalang.

6 km 13 m = 6 km + 0,013 km
= 6,013 km

1 km = 1000 m
13 m = 13 ÷ 1000
= 0,013 km



c) Kilogrammda ifodalang.

4 kg 250 g = 4 kg + 250 g
= 4 kg + 0,25 kg
= 4,25 kg

1 kg = 1000 g
250 g = 250 ÷ 1000
= 0,25 kg



d) Litrda ifodalang.

7 ℓ 5 ml = 7 ℓ + 5 ml
= 7 ℓ + 0,005 ℓ
= 7,005 ℓ

1 ℓ = 1000 ml
5 ml = 5 ÷ 1000
= 0,005 ℓ



5 a) Metr va santimetrda ifodalang.

5,04 m = 5 m + 0,04 m
= 5 m 4 cm

1 m = 100 cm
0,04 m = 0,04 × 100
= 4 cm



b) Kilometr va metrda ifodalang.

8,35 km = 8 km + 0,35 km
= 8 km 350 m

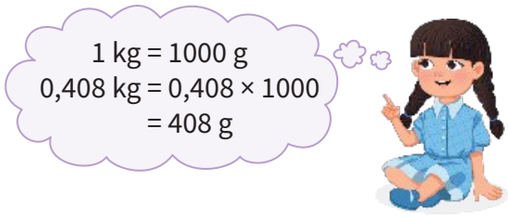
1 km = 1000 m
0,35 km = 0,35 × 1000
= 350 m



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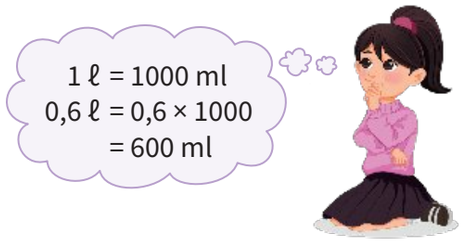
c) Kilogramm va grammda ifodalang.

10,408 kg = 10 kg + 0,408 kg
= 10 kg 408 g



d) Litr va millilitrda ifodalang.

24,6 ℓ = 24 ℓ + 0,6 ℓ
= 24 ℓ 600 ml



Qiziqarli matematika

O‘rganing va bo‘lishing

Guruh bo‘lib ishlang.

1. Turli o‘lchov birliklariga doir hayotiy misollar keltiring (masalan: cm, m, km, g, kg, ml va ℓ). Qaysi o‘lchov birliklari ishlatilganini boshqalarga ayting.

Namuna

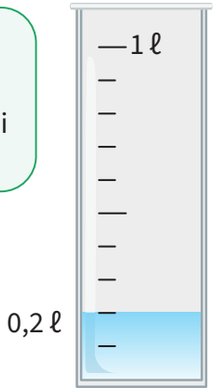
a) Avtomobil dvigatelining sig‘imi 1600 cm^3.
b) Jomolungma cho‘qqisi dengiz sathidan 8848 m balandlikda joylashgan.

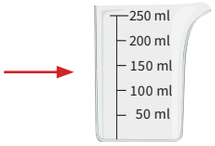
2. Suvning litrdagi hajmini millilitrga o‘tkazish uchun shkalali o‘lchov idishi va stakandan foydalaning. Natijalarni jadvalga yozing.

Litrdagi hajmi	Millilitrdagi hajmi



Shkalali o‘lchov idishida 0,2 ℓ suv bor. Idishdagi suvning millilitrdagi hajmi qancha?





Keling, buni aniqlash uchun suvni shkalali stakanga quyib ko‘ramiz.



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Qiziqarli matematika

O‘ynang va o‘rganing



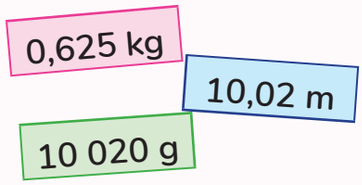
Juftliklarga bo‘linib o‘ynang.
Dastlab har bir o‘quvchiga bittadan loto varag‘i tarqatiladi. So‘ng har bir juftlikka bir dastadan turli miqdorlar yozilgan kartochkalar bo‘lib beriladi. Kartochkalar teskari qilib juftliklar oldiga qo‘yiladi.

O‘quvchilar bir vaqtning o‘zida bittadan kartochka ochishadi. Agar kartochka va loto varag‘idagi miqdorlar teng bo‘lsa, loto varag‘idagi miqdor o‘chiriladi. Ko‘proq o‘chirgan o‘quvchi g‘olib bo‘ladi.

Namuna

625 m	~~10,02 kg~~	1 ℓ 625 ml
1,10 ℓ	~~1002 cm~~	6,02 m
10 000 m	~~625 g~~	1,02 km

Loto varag‘i

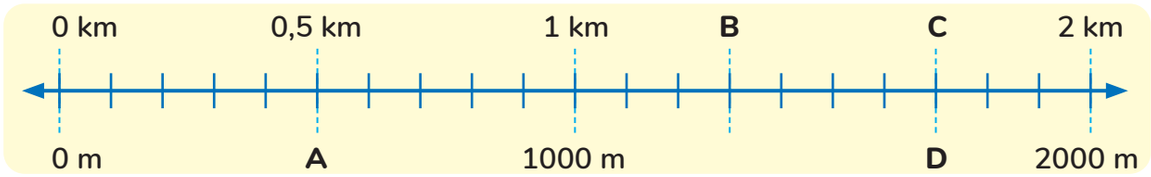


Kartochkalar

Juftlikda ishlang



a) Do‘stingiz bilan Muhokama qiling.
Ko‘rsatilgan harflarga qanday miqdor mos keladi?



b) Do‘stingiz bilan boshqa o‘lchov birliklari uchun (masalan: ℓ va ml, kg va g, m va cm) ham yuqoridagi kabi savollar tuzing. Tuzgan savollaringizni boshqa sinfdoshingizga ham bering.

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Bajaring va o‘rganing



1 Santimetrda ifodalang.

a) 0,54 m b) 3,1 m c) 10,05 m

2 Metrda ifodalang.

a) 0,23 km b) 4,5 km c) 12,06 km

d) 6 cm e) 19 cm f) 212 cm

3 Kilometrda ifodalang.

a) 75 m b) 104 m c) 9310 m

4 Grammda ifodalang.

a) 2,6 kg b) 0,042 kg c) 15 kg 16 g

5 Kilogrammda ifodalang.

a) 30 g b) 278 g c) 7040 g

6 Millilitrda ifodalang.

a) 7 ℓ b) 9,03 ℓ c) 16 ℓ 8 ml

7 Litrda ifodalang.

a) 372 ml b) 12 ml c) 5989 ml

8 Kilogramm va grammda ifodalang.

a) 9,5 kg b) 2,03 kg c) 15,672 kg

Mashq daftariga o‘ting 21–26

O‘zingizni tekshiring



a) Men o‘nli kasrda ifodalangan katta o‘lchov birligini kichikroq o‘lchov birligiga almashtirishni bilaman.

b) Men kichik o‘lchov birligini katta o‘lchov birligiga almashtirishni va uni o‘nli kasrda ifodalashni bilaman.

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Matnli masalalar

Qarang va o‘rganing



1 Idishda dastlab 5 ℓ suv bor edi. Undan har gal 150 millilitrdan 11 marta suv quyib olindi. Idishda qancha suv qoldi?
Javobni litrda ifodalang.

$150 \times 11 = 1650$

Demak, idishdan jami 1650 ml suv olingan.

$5\ ℓ = 5000\ ml$

$5000 - 1650 = 3350$
$3350\ ml = 3350 \div 1000$
$= 3{,}35\ ℓ$

Idishda 3,35 ℓ suv qoldi.

2 Dastlab ishchida 150 m sim bor edi. U 73,6 m sim ishlatdi va qolganini 40 ta teng bo‘lakka bo‘ldi.
Sim bo‘laklarining har biri necha santimetr uzunlikda bo‘lgan?

$150 - 73{,}6 = 76{,}4\ m$
$76{,}4 \div 40 = 1{,}91\ m$
$1{,}91\ m = 1{,}91 \times 100$
$= 191\ cm$

Sim bo‘laklarining har biri 191 cm uzunlikda bo‘lgan.

Buni quyidagicha hisoblash ham mumkin:
$(150 - 73{,}6) \div 40 \times 100 = 191$

Tekshirish

AC tugmasini bosing.
So‘ng quyidagi tugmalarni bosing:

(1 5 0 − 7 3 , 6) ÷ 4 0 × 1 0 0 =



150 – 73,6
↓ ↓
150 – 70 = 80
80 ÷ 40 = 2 m
= 200 cm

191 cm uzunlikning 200 cm ga yaqinligidan javobning to‘g‘riligiga ishonch hosil qilish mumkin.

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3 To‘g‘ri to‘rtburchak shaklidagi yer maydonining yuzi 112,8 m^2. Uning bo‘yi 16 m bo‘lsa, maydonning perimetrini toping.

112,8 ÷ 16 = 7,05

Maydonning eni 7,05 m ekan.

16 + 7,05= 23,05
2 × 23,05 = 46,1

Demak, yer maydonining perimetri 46,1 m.

Buni quyidagicha topish ham mumkin:
(112,8 ÷ 16 + 16) × 2 = 46,1

Tekshirish

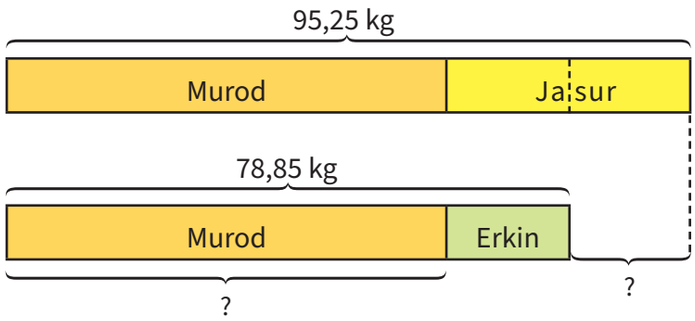
AC tugmasini bosing.
So‘ng tugmalarni quyidagi tartibda bosing:

(1 1 2 , 8 ÷ 1 6 + 1 6) × 2 =

Javob to‘g‘rimi?



4 Murod va Jasurning umumiy vazni 95,25 kg. Murod va Erkinning umumiy vazni esa 78,85 kg. Jasur Erkindan ikki barobar og‘irroq bo‘lsa, Murodning vazni qancha?

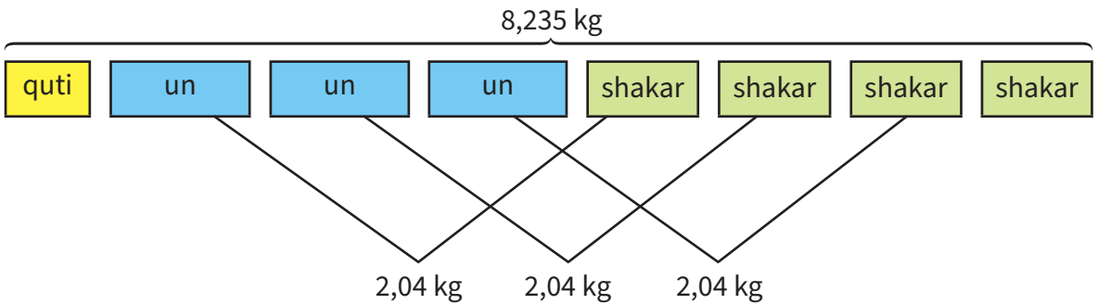


95,25 – 78,85 = 16,4
78,85 – 16,4 = 62,45

Murodning vazni 62,45 kg.

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5 3 xalta un va 4 xalta shakar solingan qutining umumiy massasi 8,235 kg. Bir xalta un va bir xalta shakarning umumiy massasi esa 2,04 kg. Bo‘sh qutining massasi bir xalta shakar massasidan ikki marta og‘ir bo‘lsa, qutining massasi qanchaga teng?

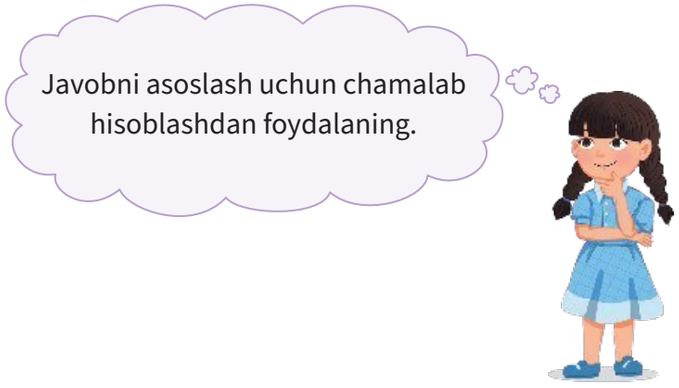


$3 \times 2{,}04 = 6{,}12$
$8{,}235 - 6{,}12 = 2{,}115$

Demak, bo‘sh quti va bir xalta shakarning umumiy massasi 2,115 kg.

$2{,}115 \div 3 = 0{,}705$
$2 \times 0{,}705 = 1{,}41$

Bo‘sh qutining massasi 1,41 kg.



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Juftlikda ishlang



Javobni chamalash orqali toping. Chamalab topgan javobingiz bilan kalkulyatorda topilgan javobni solishtiring. Chamalash orqali topgan javobingiz aniq javobga qanchalik yaqin?

a) 81,5 + 68,01

b) 79,01 – 6,45

c) 40,08 × 9

d) 65,7 ÷ 9

e) 312,98 × 6

f) 0,96 ÷ 8

Qiziqarli matematika

O‘ynang va o‘rganing



Bo‘lish amalini kalkulyatordan foydalanib bajaring. Yulduzcha qo‘yilgan misollarda kalkulyatordan foydalanmang va javobni qanday topganingizni tushuntiring.

	Amal	Javob
3 ga bo‘ling	1 ÷ 3	
	* 2 ÷ 3	
7 ga bo‘ling	1 ÷ 7	
	2 ÷ 7	
	3 ÷ 7	
	* 4 ÷ 7	
	* 5 ÷ 7	
9 ga bo‘ling	1 ÷ 9	
	2 ÷ 9	
	3 ÷ 9	
	* 4 ÷ 9	
	* 5 ÷ 9	

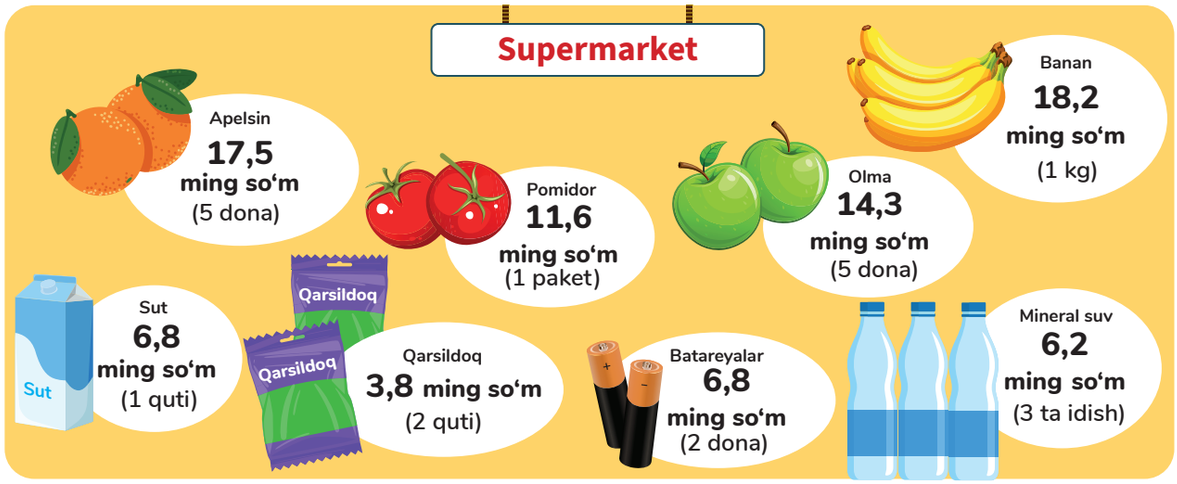
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Qiziqarli matematika

O‘rganing va bo‘lishing



Guruh bo‘lib ishlang. Keltirilgan ma’lumotlardan foydalanib ikkita matnli masala tuzing. Tuzilgan masalalarni sinfdoshingiz bilan birgalikda yeching.



Bajaring va o‘rganing



Matnli masalalarni yeching va javobingizni asoslang.

1 Katta idishda 4,5 ℓ meva sharbati bor edi. Dilshoda undan 8 ta bir xil stakanga teng miqdorda sharbat quyganidan keyin idishda 1,3 ℓ sharbat qoldi. Har bir stakanga qanchadan sharbat quyilgan?

2 Ko‘k tasma qizil tasmadan 7 marta uzunroq. Sariq tasma esa qizilidan 33,3 cm uzun. Ko‘k tasmaning uzunligi 4,06 m bo‘lsa, sariq tasmaning uzunligini toping.

3 Kolbaning $\frac{1}{4}$ qismida suv bor. Kolba to‘lishi uchun yana 0,72 ℓ suv quyish kerak. Kolbaning sig‘imi necha litr?

4 A idishda B idishdagidan 5 marta ko‘p suv bor. A idishdan 15,5 ℓ suv B idishga quyilgach, har ikki idishdagi suv miqdori tenglashdi. Dastlab A idishda qancha suv bo‘lgan?

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5 Muzlatkichda jami 6,25 kg qiyma go‘sht bor edi. Undan 200 ta kotlet tayyorlandi. Har bir kotletga 25 g qiyma go‘sht ishlatildi. Muzlatkichda qancha qiyma go‘sht qoldi? Javobni kilogrammda ifodalang.

6 6,576 kg guruch 12 ta idishga teng miqdorda taqsimlandi. So‘ng 4 ta idishdagi guruch taom tayyorlash uchun ishlatildi. Necha kilogramm guruch ishlatilmay qoldi?

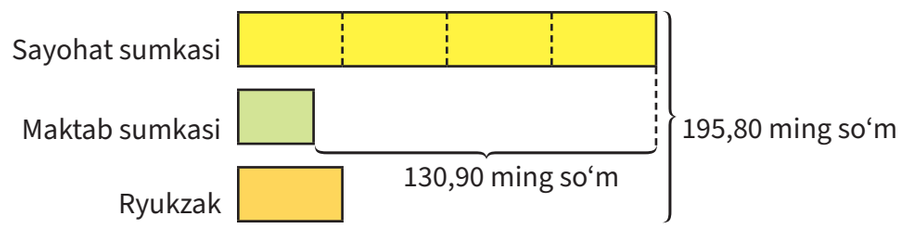
7 Jamila va Sitoraning umumiy vazni 109,45 kg. Jamila va Diyoraning umumiy vazni esa 73,65 kg. Sitora Diyoradan 3 baravar og‘irroq bo‘lsa, Jamilaning vazni qancha?

8 4 ta futbolka va 8 ta shortining jami narxi 490 000 so‘m. Bitta futbolka bitta shortidan 3 baravar qimmat turadi. Bir dona futbolkaning narxi qancha?

9 Qandolatchi 3,12 kg un va 2,43 kg shakarni aralashtirib xamir qordi va uni bir nechta idishga teng miqdorda taqsimlab chiqdi. Agar har biriga 0,111 kg dan xamir solingan bo‘lsa, qandolatchi nechta idishdan foydalangan?

10 9 ta gulkaramning massasi 13,05 kg ni, 6 ta karamning massasi esa 12,90 kg ni tashkil etadi. Xuddi shunday 3 ta gulkaram va 3 ta karamning umumiy massasi qancha?

11 Sayohat sumkasi maktab sumkasidan 130,90 ming so‘mga, ryukzakdan esa 4 marta qimmat turadi. Sayohat sumkasi, maktab sumkasi va ryukzakning umumiy narxi 195,80 ming so‘m. Maktab sumkasining narxini toping. Yechimni qanday topganingizni tushuntiring.



Mashq daftariga o‘ting 27–36

O‘zingizni tekshiring



Men o‘nli kasrlar ustida to‘rt amalga doir matnli masalalarni yechishni bilaman.

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O‘ylab ko‘ring



Sitora, Jamila va Xolidaning 63,50 ming so‘m puli bor. Jamilada Sitoradan 11,30 ming so‘m, Xolidadan esa 24,80 ming so‘m ko‘p pul bor. Sitora va Xolidaning jami qancha puli bor?

Mashq daftariga o‘ting **37–40**

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8 Me’yor

Muhokama qiling



Sardor va uning onasi supermarketda.

1 kg olma 14 000 so‘m. 3 kg olmani 40 000 so‘mga sotib olish arzonroq tushar ekan.

NOK	OLMA	LIMON	BANAN	PAPAYYA	APELSIN
1 kg 12 000 so‘m, 3 kg 30 000 so‘m	1 kg 14 000 so‘m, 3 kg 40 000 so‘m	5 tasi 12 000 so‘m	1 shodasi 18 000 so‘m	100 grammi 5000 so‘m	1 qutisi 5000 so‘m, 3 qutisi 13 000 so‘m

Har bir idishda 1,5 litr limon choy bor. Biz 10 ta idishda limon choy sotib oldik. Oyi, jami necha litr limon choy sotib oldik?

Me’yorni topish

Qarang va o‘rganing

1 Printer 5 minutda 600 sahifa chop etadi. U har minutda bir xil miqdordagi sahifalarni chop etsa, bir minutda nechta sahifa chop etadi?



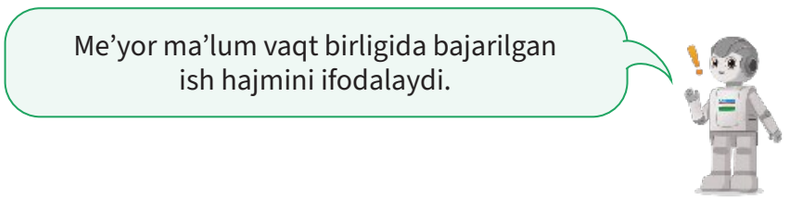


5 min → 600 sahifa
1 min → 600 ÷ 5 = 120 sahifa

Printer minutiga 120 sahifa chop etadi.







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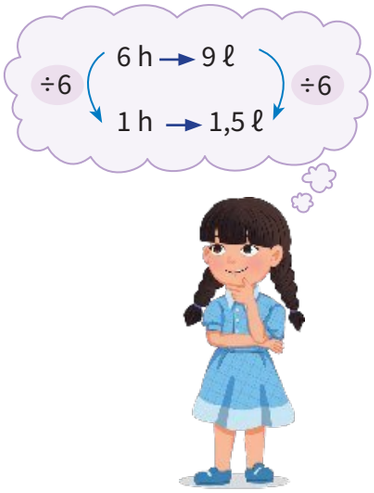
2 Ali 6 soatda idishga jo‘mrakdan tomchilatib 9 litr suv to‘pladi.
Bu jo‘mrakdan soatiga necha litr suv tomadi?



6 h → 9 ℓ

1 h → 9 ÷ 6 = 1,5 ℓ

Jo‘mrakdan bir soatda 1,5 ℓ suv tomar ekan.



3 Supermarketda kir yuvish kukuni ikki xil qadoqda sotilmoqda.
3 kg li A qadoq narxi 69 000 so‘m. 5 kg li B qadoq narxi 90 000 so‘m.
Qaysi qadoqdagi kukun arzonroq?



A qadoq
3 kg → 69 000 so‘m
1 kg → 69 0000 ÷ 3 = 23 000 so‘m



B qadoq
5 kg → 90 000 so‘m
1 kg → 90 000 ÷ 5 = 18 000 so‘m

A qadoqdagi kir yuvish kukunining bir kilogrammi 23 000 so‘m.
B qadoqdagi kir yuvish kukunining bir kilogrammi 18 000 so‘m.
Demak, B qadoqdagi kir yuvish kukuni arzonroq ekan.

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Qo‘lda bajariladigan mashq



Guruh bo‘lib ishlang.
Dastlab yuragingiz bir minutda necha marta urishini sanang. Keyin 2–3 minut sakrang va yuragingiz bir minutda necha marta urishini qayta sanang. Natijalarni jadvalga yozing.
Sakraganingizdan so‘ng yurak urishida qanday o‘zgarishni his qildingiz?



Ism	Sakrashdan oldin		Sakrashdan keyin	
	Soni	Me’yor	Soni	Me’yor

Qiziqarli matematika

O‘rganing va bo‘lishing



Guruh bo‘lib ishlang.
Kundalik hayotingizda uchraydigan mahsulot va xizmatlarga doir misollarni Muhokama qiling. Narxlarni ifodalaydigan rasm, e’lon yoki cheklarni to‘plang va ularni sinfdoshlaringiz bilan bo‘lishing.

Namuna

Joriy oyda foydalanilgan kommunal xizmat turlari va xarajatlari
(30.04.2023 sanasidagi yoki undan keyingi to‘lovlar bu hisobga kiritilmaydi)

Joriy oydagi kommunal xizmat turlari va ko‘rsatkichlar	Ishlatilgan miqdor	1 birlik uchun narx me’yori (ming so‘m)	Umumiy narxi (ming so‘m)
Elektr ta’minoti. 30.04.2023 sanasidagi ko‘rsatkich **44969**	167 kWh	0,295	49,265
Tabiiy gaz. 30.04.2023 sanasidagi ko‘rsatkich **12348**	126 m^3	0,38	47,88
Sovuq suv. 30.04.2023 sanasidagi ko‘rsatkich **284,4**	13,4 m^3	2,6	34,84
Chiqindi. 30.04.2023 sanasigacha **4 nafar kishi uchun**	4	7,5	30
Issiq suv. 30.04.2023 sanasidagi ko‘rsatkich **3714**	25,6 m^3	5,24	134,144
Jami xarajat			355,547

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Bajaring va o‘rganing

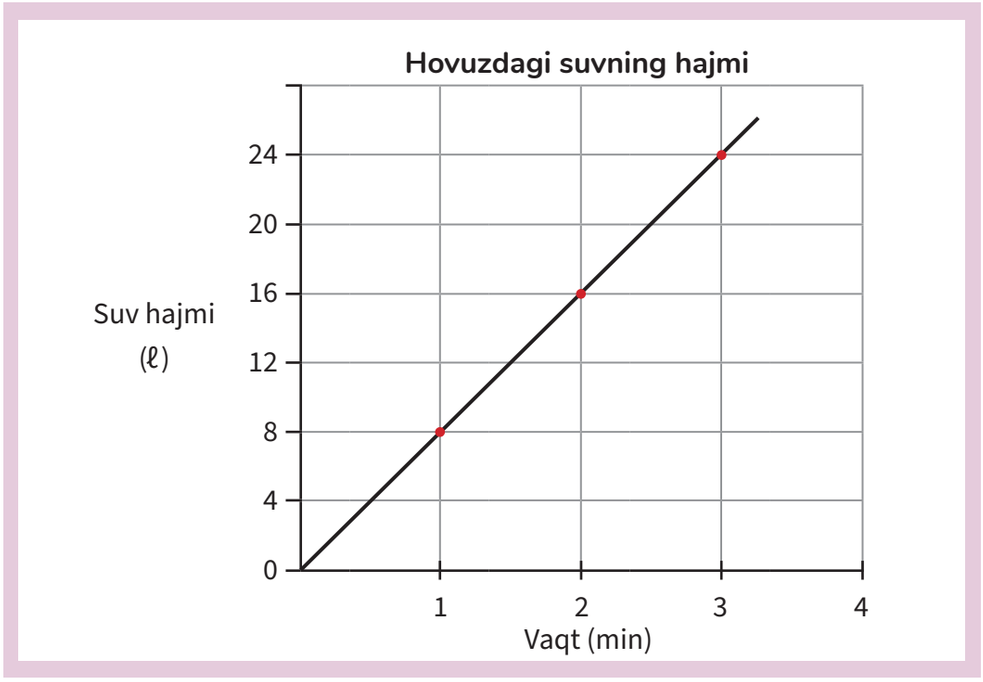


Matnli masalalarni yeching.

1 Hovuzga 4 minutda 30 litr suv quyildi. Hovuzga bir minutda qancha suv quyilgan?

2 Mebel ishlab chiqaruvchi korxona 9 kunda 828 ta stul ishlab chiqaradi. Bu korxona bir kunda nechta stul ishlab chiqaradi?

3 Quyidagi grafikda har minutda hovuzga quyilayotgan suv hajmini ifodalovchi chiziq berilgan.



Hovuzga har minutda necha litr suv quyilmoqda?

4 A do‘konda 2 m atlasning narxi 84 000 so‘m. B do‘konda esa 5 m atlasning narxi 135 000 so‘m. Qaysi do‘konda atlasning narxi qimmatroq?

Mashq daftariga o‘ting **41–44**

O‘zingizni tekshiring



Men berilgan miqdorga asosan me’yorni topishni bilaman.

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Me’yorga ko‘ra umumiy miqdorni topish

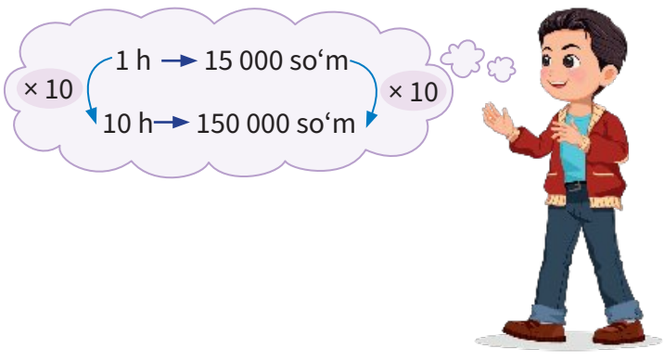
Qarang va o‘rganing

1 Malika kafeda ishlaydi. Kelishuvga ko‘ra, uning bir soatlik ish haqi 15 000 so‘m. Agar Malika shu sur’atda 10 soat ishlasa, jami qancha ish haqi oladi?

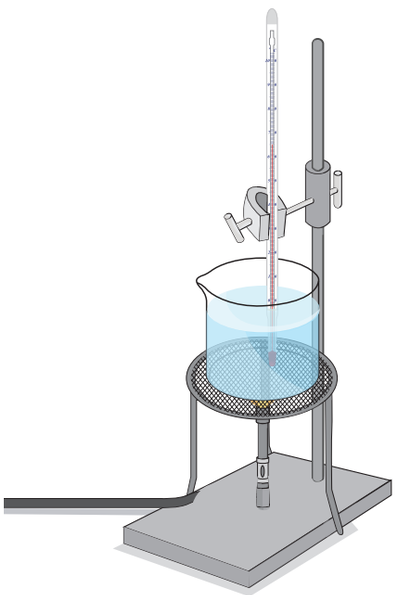


1 h → 15 000 so‘m
10 h → 15 000 so‘m × 10 = 150 000 so‘m

Malika 10 soat ishlab, 150 000 so‘m ish haqi oladi.

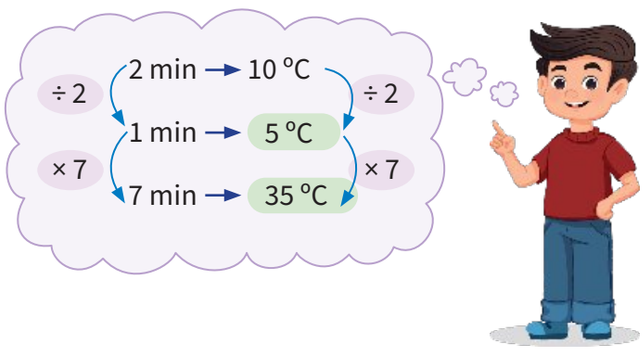


2 Ma’lum suyuqlik qizdirilganda uning harorati 2 minutda 10 °C ga ko‘tariladi. Suyuqlik shunday sur’atda qizdirib borilsa, uning harorati 7 minutda qanchaga ko‘tariladi?



2 min → 10 °C
1 min → 10 °C ÷ 2 = 5 °C
7 min → 5 °C × 7 = 35 °C

7 minutda harorat 35 °C ga ko‘tariladi.

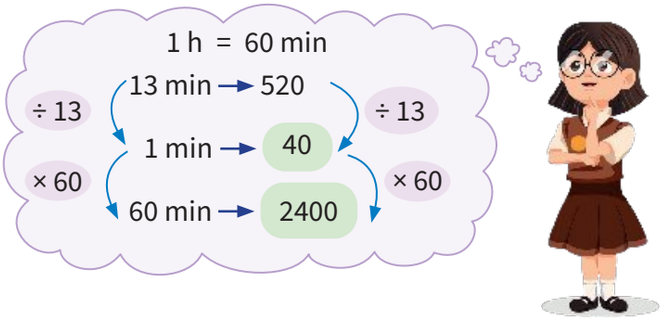


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3 Zavodda 13 minutda 520 ta banka ishlab chiqariladi. Agar ishlab chiqarish shunday sur'atda davom ettirilsa, 1 soatda nechta banka ishlab chiqariladi?

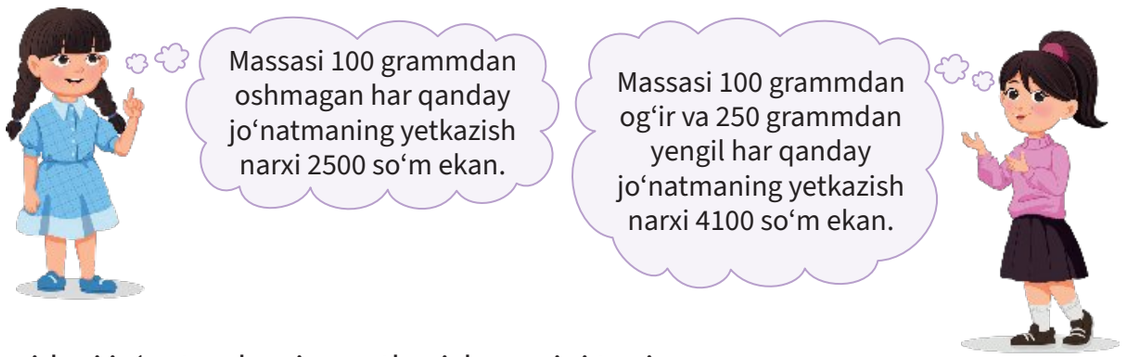
13 min → 520 ta banka
1 min → 520 ÷ 13 = 40 ta banka
60 min → 40 × 60 = 2400 ta banka

Zavodda 1 soatda 2400 ta banka ishlab chiqariladi.



4 Quyidagi jadvalda mahalliy pochta xizmati narxlari keltirilgan.

Jo'natma massasi (gacha)	Yetkazish narxi
100 g	2500 so'm
250 g	4100 so'm
500 g	8500 so'm
1 kg	14 900 so'm
2 kg	24 500 so'm



Quyidagi jo'natmalarning yetkazish narxini toping:

a) 80 g

b) 300 g

c) 1,5 kg

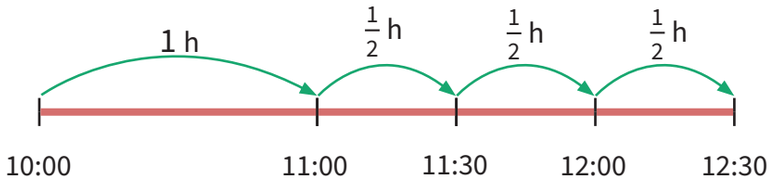


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5 Quyidagi jadvalda avtoturargoh narxi berilgan.

Avtoturargoh to‘lovlari	
Dastlabki bir soatgacha	3000 so‘m
Keyingi har yarim soat uchun	1000 so‘m

Nodir avtomobilini ertalab soat 10:00 dan 12:30 gacha avtoturargohda qoldirdi. U avtoturargoh uchun qancha pul to‘lagan?



1-soat → 3000 so‘m

Keyingi 3 ta yarim soat uchun → 3 × 1000 so‘m = 3000 so‘m

3000 so‘m + 3000 so‘m = 6000 so‘m

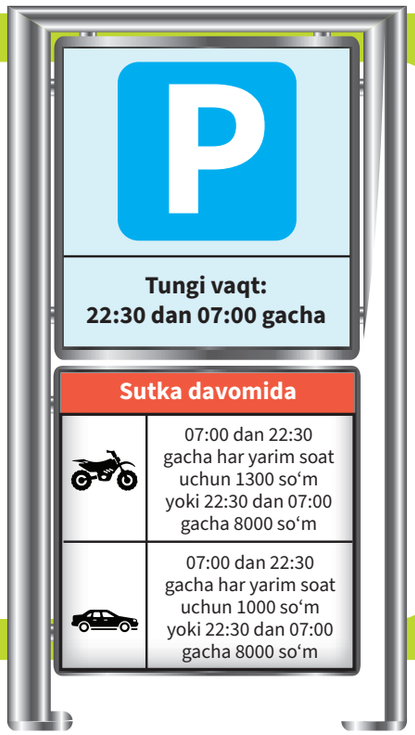
Nodir avtoturargoh uchun 6000 so‘m to‘lagan.

Turmushda matematika

Avtomobil haydovchisi ushbu avtoturargohdan foydalangani uchun qancha to‘lov qilishi lozimligini toping.

a) 07:00 dan 10:30 gacha.

b) 20:00 dan 00:15 gacha.



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Bajaring va o‘rganing

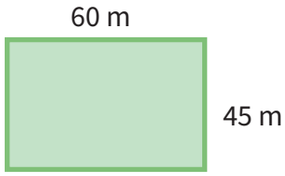


Matnli masalalarni yeching.

1 Zavodda bir minutda 275 ta banka ishlab chiqarilsa, 100 minutda nechta banka ishlab chiqariladi?



2 1 m temir panjara 380 000 so‘m turadi. Bo‘yi 60 m, eni 45 m bo‘lgan to‘g‘ri to‘rtburchak shaklidagi maydonni panjara bilan o‘rash uchun qancha pul kerak bo‘ladi?



3 Quyidagi jadvalda mahalliy pochta xizmati narxlari keltirilgan.

Jo‘natma massasi (gacha)	Narxi
100 g	2500 so‘m
250 g	4100 so‘m
500 g	8500 so‘m
1 kg	14 900 so‘m
2 kg	24 500 so‘m

a) Po‘lat turli hududlarga jo‘natmalarni pochta orqali yubormoqchi. Buning uchun u jami qancha to‘lov qilishi kerak?

Jo‘natma nomi	Massasi	Narxi
A	200 g	
B	600 g	
C	1,8 kg	
	Jami	

b) Rasul X va Y jo‘natmalarni turli manzillarga yubormoqchi. Jo‘natmalar uchun u jami qancha to‘lov qilishi kerak?

Jo‘natma nomi	Massasi	Soni	Narxi
X	90 g	2	
Y	120 g	1	
		Jami	

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4 Quyidagi jadvalda mobil aloqa kompaniyasining Qozog‘istondan O‘zbekistonga kiruvchi va chiquvchi qo‘ng‘iroq narxlari berilgan.

Qozog‘istondan kiruvchi qo‘ng‘iroq	Qozog‘istonga chiquvchi qo‘ng‘iroq
1 minuti 2,5 ming so‘m	1 minuti 2,35 ming so‘m

a) Tolibga Qozog‘istondan qo‘ng‘iroq bo‘ldi va u 7 minut gaplashdi. U kompaniyaga qancha to‘lagan?
b) Kamol Qozog‘istonga qo‘ng‘iroq qilib, 9 minut gaplashdi. U kompaniyaga qancha to‘lagan?

5 Changyutkich har 4 minutda 10 m^2 maydonni tozalaydi. Ushbu changyutkich bilan 0,5 soatda qancha maydonni tozalash mumkin?

6 Siz quyidagi tarif jadvali asosida xizmat ko‘rsatuvchi taksiga buyurtma berishingiz mumkin:

Taksi tariflari	
Buyurtma va 1 km dan kamroq masofa uchun	1,2 ming so‘m
1 km dan keyin 10 km gacha har 500 m uchun	0,35 ming so‘m
10 km dan keyin har 500 m uchun	0,25 ming so‘m

Quyidagi masofalarga taksi xizmatidan foydalanish uchun siz qancha to‘laysiz?

a) 0,85 km
b) 4,5 km

Mashq daftariga o‘ting 45–50

O‘zingizni tekshiring



Men berilgan me’yorga ko‘ra umumiy miqdorni topishni bilaman.

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Birliklar sonini topish

Qarang va o‘rganing



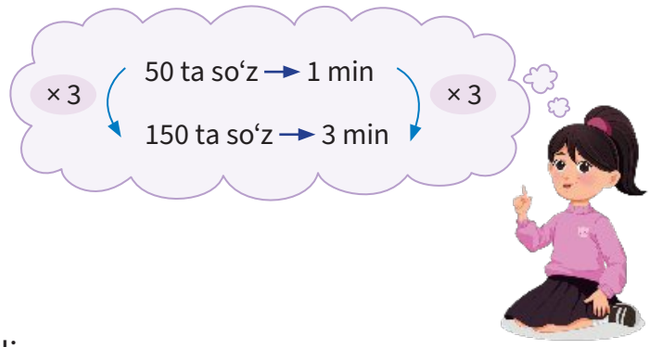
1 Po‘lat kompyuterda bir minutda 50 ta so‘z yozadi. U 150 ta so‘zni yozish uchun qancha vaqt sarflaydi?

50 ta so‘z → 1 min

1 ta so‘z → $\frac{1}{50}$ min

1 ta so‘z → $\frac{1}{50} \times 150 = 3$ min

Po‘lat 150 ta so‘zni 3 minutda yozadi.



2 Bo‘yi 90 cm, eni 30 cm va balandligi 20 cm bo‘lgan kuboid shaklidagi bo‘sh idishga minutiga 6 litrdan suv quyilmoqda. Idish qancha vaqtda to‘ladi?

Idish hajmi = 90 × 30 × 20

= 54 000 cm^3

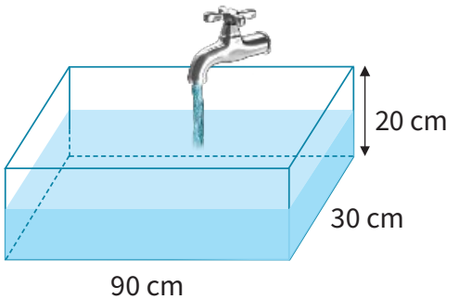
54 000 cm^3 = 54 ℓ

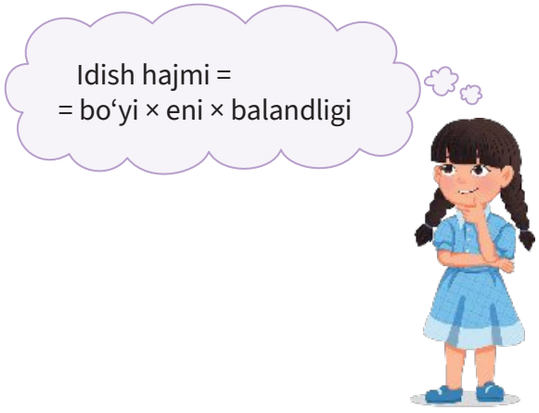
6 ℓ → 1 min

1 ℓ → $\frac{1}{6}$ min

54 ℓ → $\frac{1}{6} \times 54 = 9$ min

Idish 9 minutda to‘ladi.





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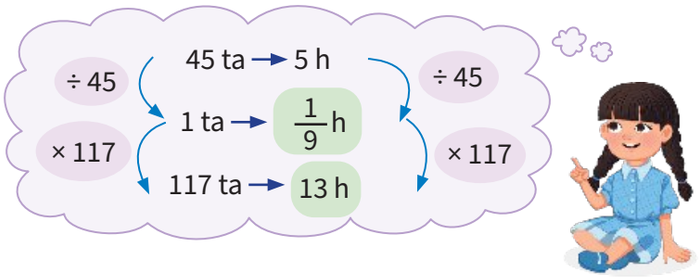
3 Chilangar 5 soat ishlasa, 45 ta detal yasay oladi. U 117 ta detal yasashi uchun qancha vaqt ishlashi kerak?

45 ta → 5 h

1 ta → $\frac{5}{45} = \frac{1}{9}$ h

117 ta → $\frac{1}{9} \times 117 = 13$ h

13 soat ishlashi kerak.



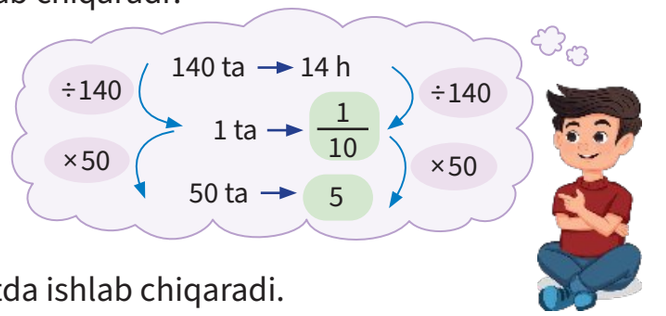
4 Uskuna 14 soatda 140 ta qo‘g‘irchoq ishlab chiqaradi. Bu uskuna 50 ta qo‘g‘irchoqni qancha vaqtda ishlab chiqaradi?

140 ta qo‘g‘irchoq → 14 h

1 ta qo‘g‘irchoq → $\frac{14}{140} = \frac{1}{10}$ h

50 ta qo‘g‘irchoq → $\frac{1}{10} \times 50 = 5$ h

Uskuna 50 ta qo‘g‘irchoqni 5 soatda ishlab chiqaradi.



Qiziqarli matematika

O‘rganing va bo‘lishing



Guruh bo‘lib ishlang.
Bir-biriga bog‘liq miqdorlar: me’yor, umumiy miqdor va birliklar sonini misollar orqali Muhokama qiling. Bir miqdor qolgan ikkitasi orqali qanday topilishini tushuntiring.







Juftlikda ishlang



Matnli masalani yeching va Muhokama qiling.
Yuzi 12 m^2 bo‘lgan maydonni kafel bilan qoplash uchun 3 360 000 so‘m mablag‘ sarflandi.

a) Bir kvadrat metrni kafel bilan qoplash uchun sarflangan mablag‘ni toping.
b) Yuzi 20 m^2 bo‘lgan maydonni kafel bilan qoplashga qancha mablag‘ ketishini toping.

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Bajaring va o‘rganing



Matnli masalalarni yeching.

1 Quyidagi jadvalda 3 nafar o‘quvchining kompyuterda matn yozish me’yori berilgan. Har bir o‘quvchi berilgan miqdordagi so‘zlarni yozish uchun qancha vaqt sarflashini toping.

Ismi	Yozish me’yori (so‘z/min)	So‘zlar soni	Yozish vaqti
Jamila	40	240	
Sitora	45	180	
Rahima	35	350	

2 Quyidagi jadvalda turli o‘chirg‘ichlar narxi berilgan. Ali sotib olmoqchi bo‘lgan o‘chirg‘ichlar sonini toping.

O‘chirg‘ich turi	Donasining narxi	Soni	Jami narxi
A	0,60 ming so‘m		6,00 ming so‘m
B	1,00 ming so‘m		8,00 ming so‘m
C	1,50 ming so‘m		18,00 ming so‘m

3 Doniyor do‘konda ishlaydi. U bir soat uchun 6000 so‘m ish haqi oladi. Agar hafta davomida 4 kun ishlab, jami 144 000 so‘m ish haqi olgan bo‘lsa, ushbu haftada Doniyor necha soat ishlagan?

4 Quyidagi jadvalda mototsikl ijarasining narxlari berilgan.

Mototsikl ijarasi narxlari	
Dastlabki 1 soat uchun	4 ming so‘m
Keyingi har 1 soat uchun	2 ming so‘m

Po‘lat mototsikl ijarasi uchun 10 ming so‘m to‘ladi. U mototsiklni qancha vaqtga ijaraga olgan?

O‘zingizni tekshiring



Mashq daftariga o‘ting 51–52

Men berilgan me’yor va umumiy miqdorga ko‘ra birliklar sonini topishni bilaman.

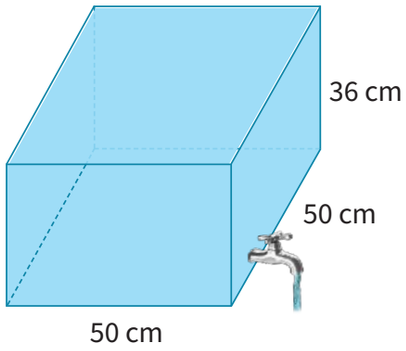
51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 45 13/11/24 14:49

Matnli masalalar

Qarang va o‘rganing



1 O‘lchamlari 50 cm, 50 cm va 36 cm bo‘lgan kuboid shaklidagi idish suv bilan to‘ldirildi. Idishdagi suvni unga o‘rnatilgan jo‘mrak orqali to‘kish mumkin. Suvning jo‘mrak orqali chiqish me’yori 18 litr/min bo‘lsa, idishdagi suvning yarmini to‘kish uchun qancha vaqt ketadi?



Idish hajmi = $50 \times 50 \times 36$

$= 90\,000\ cm^3$

$= 90\ \ell$

Idishning yarmidagi suv miqdori = $\frac{90}{2}$

$= 45\ \ell$

$18\ \ell \rightarrow 1$ min

$1\ \ell \rightarrow \frac{1}{18}$ min

$45\ \ell \rightarrow \frac{1}{\cancel{18}_{2}} \times \cancel{45}^{5} = 2\frac{1}{2}$ min

Demak, idishdagi suvning yarmini to‘kish uchun $2\frac{1}{2}$ minut ketadi.

2 Avtomobil 7 litr benzin bilan 98 km masofani bosib o‘tadi. Bir litr benzin narxi 7,2 ming so‘m bo‘lsa, ...

a) avtomobil 12 litr benzin bilan necha kilometr yuradi?

b) 126 km masofaga yetadigan benzin uchun qancha mablag‘ kerak bo‘ladi?

a) $7\ \ell \rightarrow 98$ km

$1\ \ell \rightarrow 98 \div 7 = 14$ km

$12\ \ell \rightarrow 12 \times 14 = 168$ km

Avtomobil 12 litr benzin bilan 168 km yuradi.



b) 98 km $\rightarrow 7\ \ell$

1 km $\rightarrow \frac{7}{98}\ \ell$

126 km $\rightarrow \frac{7}{98} \times 126 = 9\ \ell$

$9 \times 7{,}2$ ming so‘m $= 64{,}8$ ming so‘m

Avtomobil 126 km masofani bosib o‘tish uchun 64,8 ming so‘mlik benzin sarflaydi.

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3 Meva do‘konida 100 gramm do‘lana 4500 so‘mdan sotilyapti.

a) 1 kg do‘lana necha so‘m?

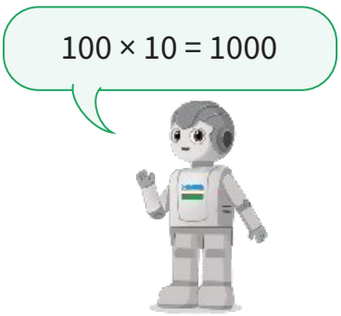
b) Ravshan 1,5 kg do‘lana sotib olmoqchi. Buning uchun u qancha to‘lashi kerak?



a) 100 g → 4500 so‘m

1000 g → 4500 so‘m × 10 = 45 000 so‘m

1 kg do‘lana narxi 45 000 so‘m.



b) 1,5 kg = 1500 g

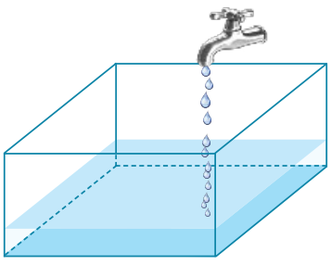
1500 g → 4500 so‘m × 15 = 67 500 so‘m

Ravshan 67 500 so‘m to‘lashi kerak.

4 Bo‘sh idishga jo‘mrakdan sekundiga 4 ml dan suv quyilmoqda. Idishning sig‘imi 12 litr bo‘lsa, ...

a) 1 minutda idishga qancha suv quyiladi?

b) idish qancha vaqtda to‘ladi?



a) 1 min = 60 s

1 s → 4 ml

60 s → 4 × 60 = 240 ml

Idishga 1 minutda 240 ml suv quyiladi.

b) 12 ℓ = 12 000 ml

240 ml → 1 min

1 ml → $\frac{1}{240}$ min

12 000 ml → = $\frac{1}{240}$ × 12 000 = 50 min

Idish 50 minutda to‘ladi.

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Bajaring va o‘rganing



Matnli masalalarni yeching.

1 Temur 9 soat ishlagani uchun 72 000 so‘m ish haqi oldi.

a) Uning bir soatlik ish haqi qancha?
b) Temur 120 000 so‘m ish haqi olish uchun qancha ishlashi kerak?

2 Printer 10 sekundda 25 sahifani chop etadi.

a) Printer shu me’yorda ishlasa, 1 minutda nechta sahifani chop etadi?
b) Printer 180 sahifani chop etishi uchun qancha vaqt talab etiladi? Javobni sekundda ifodalang.

3 Said kompyuterda 90 ta so‘zni 5 minutda yozadi.

a) U bir minutda nechta so‘z yozishini toping.
b) U so‘zlarni shu me’yorda yozsa, 288 ta so‘z yozishga qancha vaqt sarflaydi?

4 Yuk mashinasi 80 litr yonilg‘i bilan 240 km masofani bosib o‘tadi. Bir litr yonilg‘i narxi 7,2 ming so‘m bo‘lsa, ...

a) yuk mashinasi 1 litr yonilg‘i bilan qancha masofani bosib o‘tadi?
b) yuk mashinasi 360 km masofani bosib o‘tishi uchun necha litr yonilg‘i kerak?
c) yuk mashinasi 360 km masofani bosib o‘tishga ishlatadigan yonilg‘i uchun sarflanadigan mablag‘ni toping.

5 O‘lchamlari 50 cm, 40 cm va 15 cm bo‘lgan bo‘sh idishni to‘ldirish uchun jo‘mrak ochildi. Jo‘mrakdan suvning quyilish me’yori 6 litr/min va 3 minutdan keyin jo‘mrak yopildi. Idish to‘lishi uchun yana qancha suv kerak? Javobni litrda ifodalang.

6 Quyidagi jadvalda istirohat bog‘i chiptalarining narxlari berilgan.

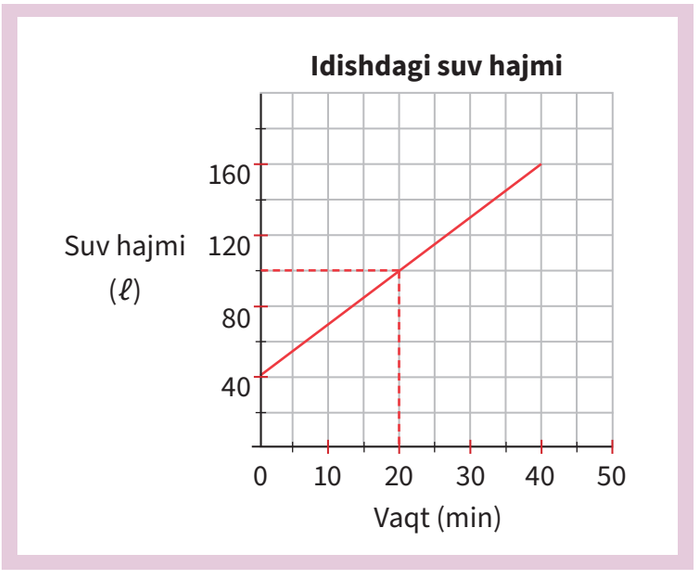
	A tarifi (qo‘shimcha xizmatlarsiz)	**B tarifi (qo‘shimcha xizmatlar bilan)**
Kattalar	3000 so‘m	5500 so‘m
Bolalar	2200 so‘m	3200 so‘m

Bilol amaki o‘zi va rafiqasiga chipta uchun jami 11 000 so‘m to‘ladi. Ular qaysi tarifni tanlagan?

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7 Tohir restoranlardan biriga ishga kirmoqchi. A restoranda 7 soatlik ish vaqti uchun 45,50 ming so‘m, B restoranda esa 6 soatlik ish vaqti uchun 40,80 ming so‘m to‘lanadi. Tohir 5 soat ishlamoqchi bo‘lsa, qaysi restoranga ishga kirgani foydaliroq? Javobingizni asoslang.

8 Kuboid shaklidagi idish qisman suv bilan to‘ldirildi. So‘ng idish butunlay to‘lishi uchun jo‘mrak 40 minut ochib qo‘yildi.
Quyidagi grafikda har 10 minutda idishga quyilayotgan suv miqdori berilgan.



a) O‘quvchi grafikka qaradi va jo‘mrakdan quyilayotgan suvning tezligi 4 litr/minut ekanini aniqladi. Uning javobi to‘g‘rimi? Tushuntiring.
b) Idishga jo‘mrak orqali 60 litr suv quyish uchun qancha vaqt sarflangan?

Mashq daftariga o‘ting 53–60

O‘zingizni tekshiring



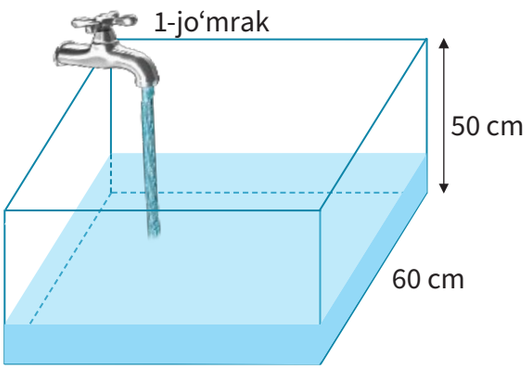
Men me’yorga doir matnli masalalarni yechishni bilaman.

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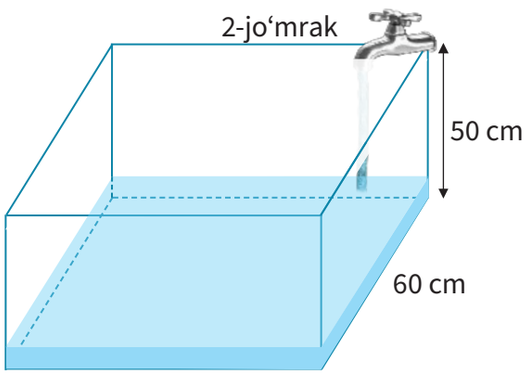
O‘ylab ko‘ring



O‘lchamlari 80 cm, 60 cm va 50 cm bo‘lgan ikkita bir xil A va B idishga bir vaqtda mos ravishda 1- va 2-jo‘mrakdan suv ochildi. A idishga 1-jo‘mrakdan 4 litr/min, B idishga 2-jo‘mrakdan 3 litr/min tezlikda suv quyilmoqda. Idishlarni to‘ldirish uchun ketadigan vaqtlar orasidagi farqni toping.



A idish



B idish

Mashq daftariga o‘ting **61–64**

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9 Foizlar

Muhokama qiling



Akmal va uning otasi mobil aloqa tariflarining narxlarini o‘rganib chiqmoqda.

“Yulduz” mobil aloqa kompaniyasi xizmatlari

Oylik tarif 40 000 so‘m

Ro‘yxatdan o‘ting va ikki yil davomida oylik tarifdan 10% chegirmaga ega bo‘ling.

2 kishiga 20% chegirma

3 kishiga 25% chegirma

4 kishiga 30% chegirma

Akmal, mening hisobim orqali ro‘yxatdan o‘tsang, 20% chegirmaga ega bo‘lasan.

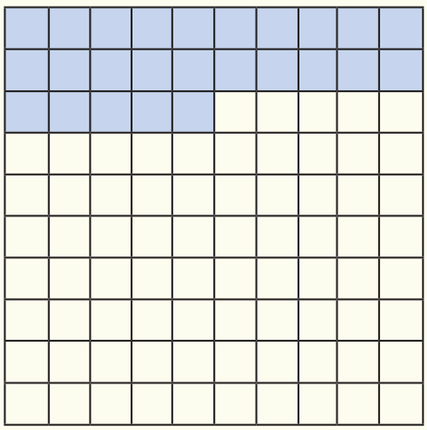
Rahmat, dada

Eslang



Bir butunning qismlari

1 Kvadrat 100 ta bir xil katakka bo‘lingan va ulardan 25 tasi bo‘yalgan.



100 tadan 25 tasi $= \frac{25}{100}$

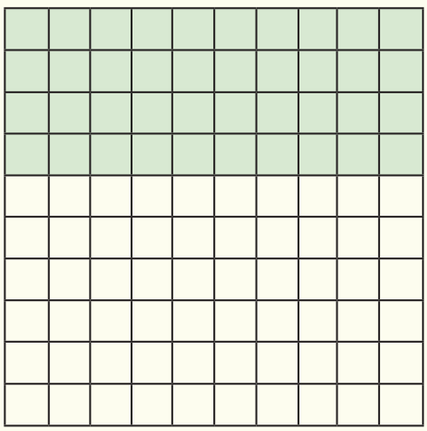
$\frac{25}{100} = 0{,}25$

Demak, kvadratning $\frac{25}{100}$ yoki 0,25 qismi bo‘yalgan.

$\frac{25}{100} = \frac{5}{20} = \frac{1}{4}$



2 Butunning qanday qismi bo‘yalgan?
Javobni kasrning qisqarmas ko‘rinishida va o‘nli kasr shaklida ifodalang.



100 tadan 40 ta $= \frac{40}{100}$

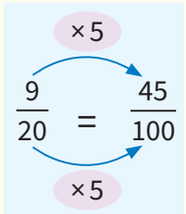
$\frac{40}{100} = \frac{4}{10} = \frac{2}{5}$

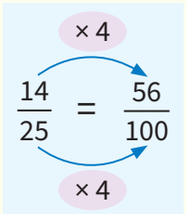
$\frac{2}{5} = 0{,}4$

$\frac{2}{5}$ yoki 0,4 qismi bo‘yalgan.

3 Oddiy va o‘nli kasrlarni maxraji 100 bo‘lgan oddiy kasrlarga aylantiring.

a) $\frac{9}{20} = \frac{45}{100}$ b) $\frac{14}{25} = \frac{56}{100}$ c) $0{,}06 = \frac{6}{100}$ d) $0{,}28 = \frac{28}{100}$





Mashq daftariga o‘ting 65–66

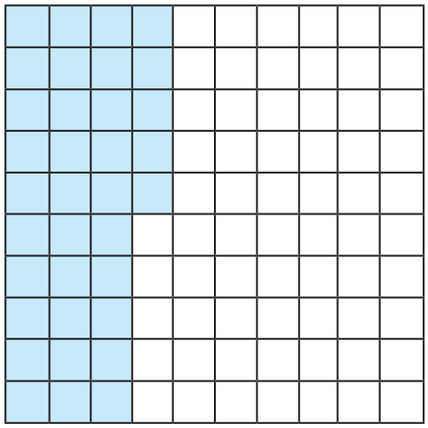
51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 52 13/11/24 14:50

Foiz tushunchasi

Qarang va o‘rganing



1 Kvadrat 100 ta bir xil katakka bo‘lingan va ulardan 35 tasi bo‘yalgan.



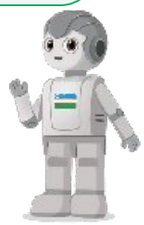
100 tadan 35 ta = $\frac{35}{100}$

$\frac{35}{100}$ kasrni 100 dan 35 yoki 35 foiz deb o‘qiymiz.

$\frac{35}{100}$ = 35% kabi yozamiz.

Demak, kvadratning 35% i bo‘yalgan.

% belgisi foizni belgilash uchun ishlatiladi.



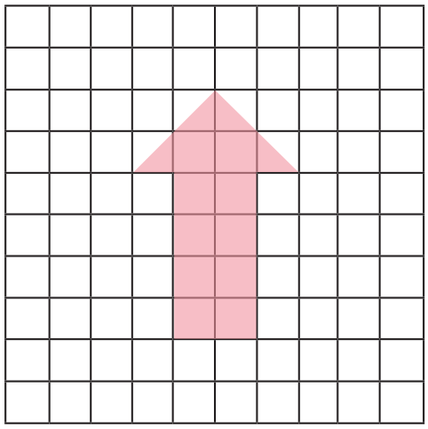
Bir butun 100% deb olinadi.



1% bu $\frac{1}{100}$ yoki yuzdan birni bildiradi.



2 Kvadratning necha foizi bo‘yalgan?



$\frac{12}{100}$ = 12%

Butun kvadratning 12% i bo‘yalgan.

$\frac{12}{100}$ va 0,12 o‘zaro teng.
Demak, 0,12 = 12%.



100% – 12% = 88%
Butun kvadratning 88% i bo‘yalmagan.



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3 Konsertga kelgan 100 nafar tomoshabindan 62 nafari erkak, qolgani esa ayollardan iborat.

a) Tomoshabinlarning necha foizi erkaklar?
b) Tomoshabinlarning necha foizi ayollar?

a) $\frac{62}{100} = 62\%$

Erkaklar 62% ni tashkil etadi.

b) $100\% - 62\% = 38\%$
Ayollar esa 38% ni tashkil etadi.

4 a) 0,91 ni foiz ko‘rinishida ifodalang.

$0{,}91 = \frac{91}{100} = 91\%$

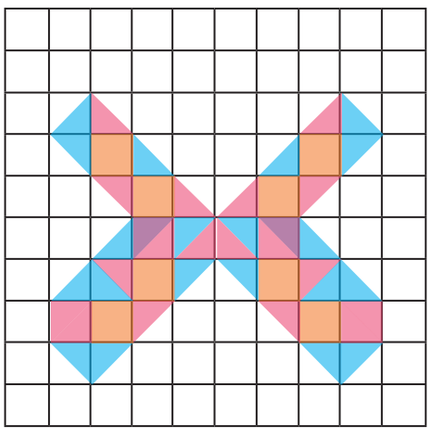
b) 0,05 ni foiz ko‘rinishida ifodalang.

$0{,}05 = \frac{5}{100} = 5\%$

Juftlikda ishlang



Do‘stingiz bilan Muhokama qiling.





a) Ko‘k kataklar kvadratning necha foizini tashkil etadi?
b) Pushti kataklar kvadratning necha foizini tashkil etadi?
c) To‘q sariq kataklar kvadratning necha foizini tashkil etadi?

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Qiziqarli matematika

O‘rganing va bo‘lishing



Guruh bo‘lib ishlang.
Kundalik hayotda uchraydigan foizga doir misollardan o‘ylab ko‘ring.
Rasmlar to‘plab keling. Qanday foizlar ishlatilgani haqida sinfdoshlaringizga aytib bering.

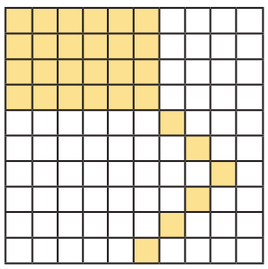
Namuna

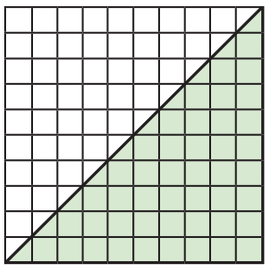


Bajaring va o‘rganing



1 Berilgan shakllarning necha foizi bo‘yalgan?

a) 

b) 

2 Kasrlarni foiz ko‘rinishida ifodalang.

a) $\frac{2}{100}$ b) $\frac{42}{100}$ c) $\frac{100}{100}$

3 O‘nli kasrlarni foiz ko‘rinishida ifodalang.

a) 0,43 b) 0,04 c) 0,89

4 Jamilaning 100 000 so‘m puli bor edi. U 15 000 so‘mni ishlatdi.

a) U pulining necha foizini ishlatgan?

b) Unda jami pulining necha foizi qoldi?

Mashq daftariga o‘ting **67–68**

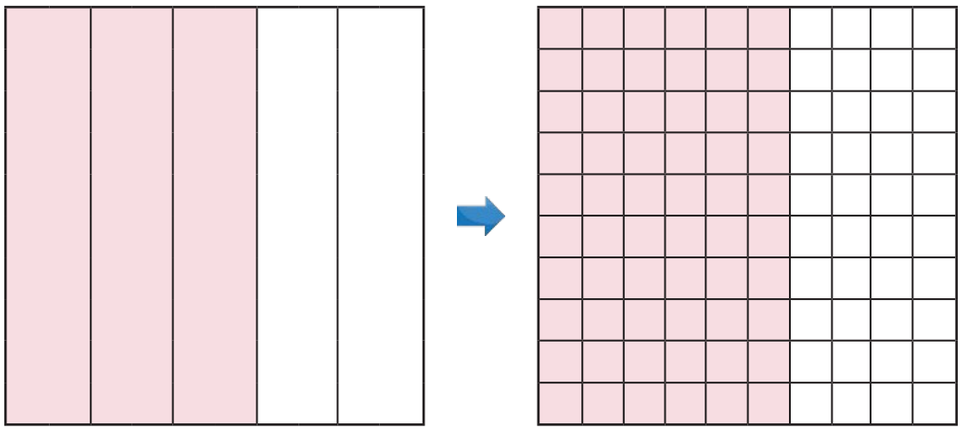
51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 55 13/11/24 14:50

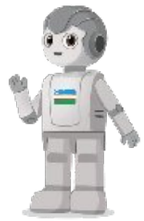
Oddiy kasr, o‘nli kasr va foizlar orasidagi munosabatlar

Qarang va o‘rganing



1 $\frac{3}{5}$ ni foiz ko‘rinishida ifodalang.





5 ta teng qismga ajratilgan kvadratni 100 ta teng kataklarga bo‘lingan kvadratga aylantiring.

Demak, $\frac{3}{5} = \frac{60}{100}$.

Quyida kasrni foiz ko‘rinishida ifodalashning bir nechta usuli berilgan.

1-usul

Berilgan kasrni maxraji 100 bo‘lgan oddiy kasrga aylantiring.

$$\frac{3}{5} \overset{\times 20}{=} \frac{60}{100} = 60\%$$

2-usul

Berilgan kasrni 100% ga ko‘paytiring.

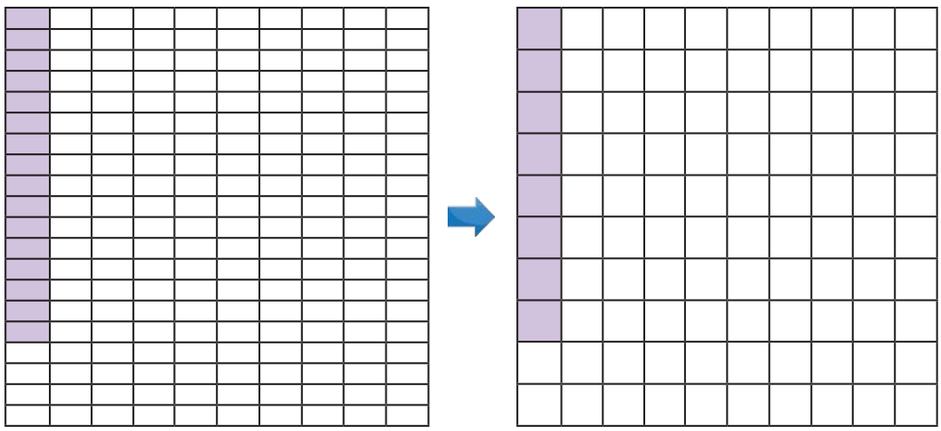
$$\frac{3}{\cancel{5}_{1}} \times \cancel{100}^{20}\% = 60\%$$

$\frac{100}{100}$ kasrni foiz ko‘rinishida ifodalay olasizmi?



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2 $\frac{16}{200}$ ni foiz ko‘rinishida ifodalang.



200 ta teng qismga ajratilgan kvadratni 100 ta teng katakka bo‘lingan kvadratga aylantiring.

Demak, $\frac{16}{200} = \frac{8}{100}$.



1-usul

$\frac{16}{200} \overset{\div 2}{=} \frac{8}{100} = 8\%$

2-usul

$\frac{16}{200_{2}} \times 100^{1}\% = 8\%$

3 Kasrlarni foiz ko‘rinishida ifodalang.

a) $\frac{8}{25}$

1-usul

$\frac{8}{25} \overset{\times 4}{=} \frac{32}{100} = 32\%$

2-usul

$\frac{8}{25_{1}} \times 100^{4}\% = 32\%$

b) $\frac{3}{20}$

1-usul

$\frac{3}{20} \overset{\times 5}{=} \frac{15}{100} = 15\%$

2-usul

$\frac{3}{20_{1}} \times 100^{5}\% = 15\%$

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4 Kasrlarni foiz ko‘rinishida ifodalang. Javoblarni yuzdan birlar xonasigacha yaxlitlang.

a) $\frac{3}{22}$

$\frac{3}{22} \times 100\% \approx 13{,}636\%$

$= 13{,}64\%$

(yuzdan birlar xonasigacha yaxlitlangan)

b) $\frac{8}{15}$

$\frac{8}{15} \times 100\% \approx 53{,}333\%$

$= 53{,}33\%$

(yuzdan birlar xonasigacha yaxlitlangan)

5 0,7 ni foiz ko‘rinishida ifodalang.

1-usul

$0{,}7 = \frac{7}{10}$

$= \frac{70}{100}$

$= 70\%$

2-usul

$0{,}7 = 0{,}7 \times 100\%$

$= 70\%$

6 Foizni qisqarmas oddiy kasr ko‘rinishida ifodalang.

a) 75%

$75\% = \frac{75}{100}$

$\frac{75}{100} \overset{\div 25}{=} \frac{3}{4}$

$75\% = \frac{3}{4}$

b) 80%

$80\% = \frac{\cancel{80}^{4}}{\cancel{100}_{5}}$

$= \frac{4}{5}$

c) 6%

$6\% = \frac{\cancel{6}^{3}}{\cancel{100}_{50}}$

$= \frac{3}{50}$

7 Foizni o‘nli kasr ko‘rinishida ifodalang.

a) 52%

$52\% = \frac{52}{100}$

$= 0{,}52$

b) 99%

$99\% = \frac{99}{100}$

$= 0{,}99$

c) 7%

$7\% = \frac{7}{100}$

$= 0{,}07$

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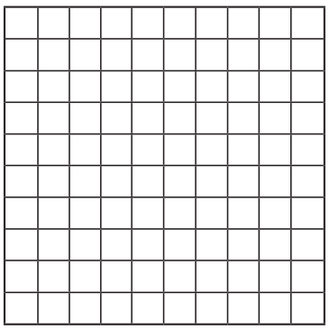
Qiziqarli matematika

O‘rganing va bo‘lishing



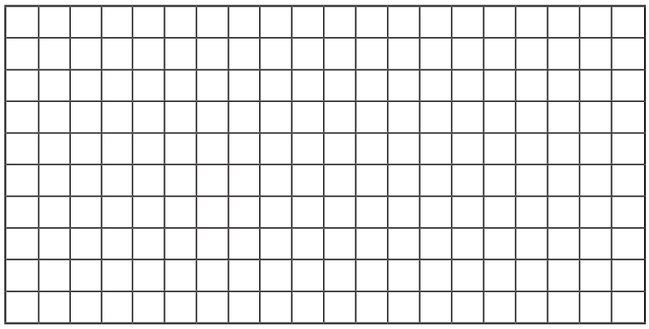
Guruh bo‘lib ishlang.
Butunning qismini ifodalash usullarini Muhokama qiling. Berilgan foizlarni 100 katakli va 200 katakli to‘rda aniqlang.

a) Maydonning 30 foizi qizil va 6 foizi ko‘k.



100 katakli to‘r

b) Maydonning 30 foizi qizil va 8 foizi ko‘k.



200 katakli to‘r

AKT mashqi



“Teng kuchli kartachalar” dasturi yordamida oddiy kasr, o‘nli kasr va foizlarni biridan ikkinchisiga o‘tkazishni mashq qiling.

Turmushda matematika

O‘zbekiston aholisining necha foizi shaharlarda yashaydi?



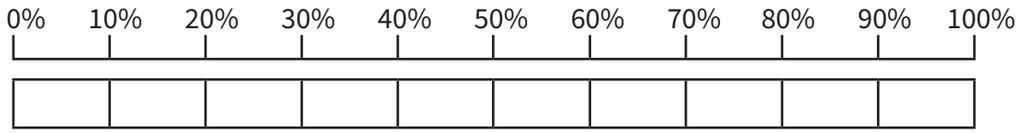
51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 59 13/11/24 14:50

Juftlikda ishlang

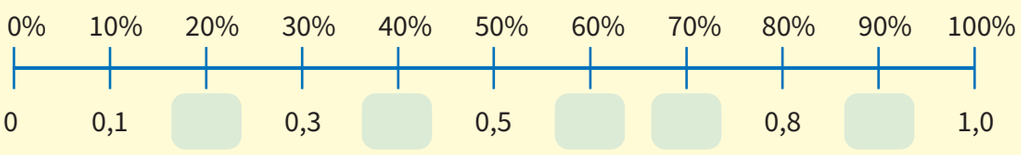


Sherigingiz bilan Muhokama qiling.

1 60% ni ko‘rsatish uchun qaysi kataklarni bo‘yash kerak? 60% ni kasr ko‘rinishida ifodalang.



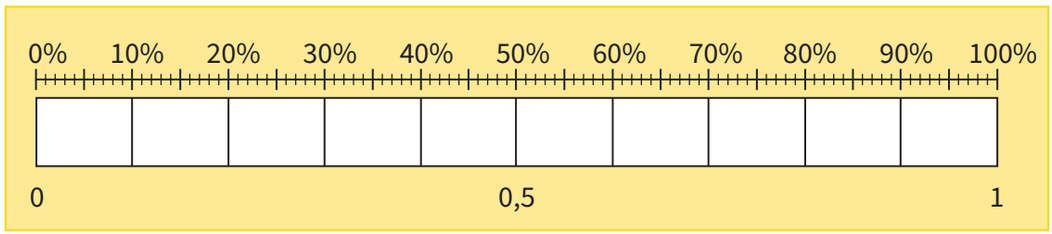
2 Tushirib qoldirilgan o‘nli kasrlarni aniqlang.



3 O‘lchov tasmasi yordamida foizlarni oddiy va o‘nli kasr ko‘rinishida ifodalang.

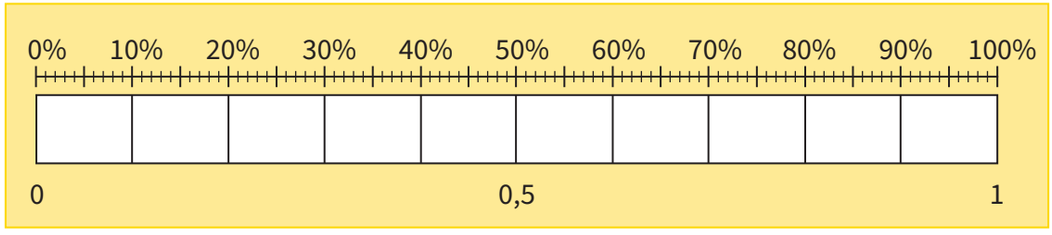
a) 20% = ____ = ____

(oddiy kasr) (o‘nli kasr)



b) 86% = ____ = ____

(oddiy kasr) (o‘nli kasr)



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Bajaring va o‘rganing



1 Kasrlarni foiz ko‘rinishida ifodalang.

a) $\frac{13}{20}$ b) $\frac{7}{10}$ c) $\frac{1}{5}$

d) $\frac{13}{50}$ e) $\frac{3}{4}$ f) $\frac{9}{25}$

g) $\frac{32}{200}$ h) $\frac{75}{500}$ i) $\frac{64}{400}$

2 O‘nli kasrlarni foiz ko‘rinishida ifodalang.

a) 0,03 b) 0,26 c) 0,82

d) 0,78 e) 0,8 f) 1,0

3 Foizlarni qisqarmas oddiy kasr ko‘rinishida ifodalang.

a) 1% b) 14% c) 27%

d) 40% e) 85% f) 74%

4 Foizlarni o‘nli kasr ko‘rinishida ifodalang.

a) 34% b) 90% c) 5%

d) 62% e) 81% f) 93%

Mashq daftariga o‘ting 69–72

O‘zingizni tekshiring



a) Men butunning qismini foiz ko‘rinishida ifodalashni bilaman.

b) Men oddiy kasrni foiz ko‘rinishida va foizni kasr ko‘rinishida ifodalashni bilaman.

c) Men o‘nli kasrni foiz ko‘rinishida va foizni o‘nli kasr ko‘rinishida ifodalashni bilaman.

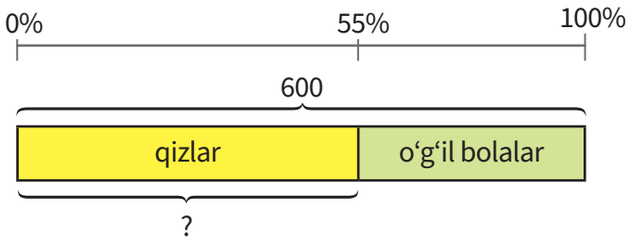
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Miqdorning foizi

Qarang va o‘rganing



1 Maktabda 600 nafar o‘quvchi bor. Ularning 55 foizi – qizlar. Maktabda o‘qiydigan qizlar sonini toping.





1-usul

$$55\% = \frac{55}{100}$$

$$600 \text{ ning } \frac{55}{100} \text{ qismi} = \frac{55}{\cancel{100}_{1}} \times \cancel{600}^{6}$$

$$= 330$$

2-usul

$100\% \rightarrow 600$

$1\% \rightarrow 600 \div 100 = 6$

$55\% \rightarrow 55 \times 6 = 330$

Tekshirish

Maktabda 330 nafar qiz o‘qiydi.

2 Diyoraning uyida 200 ta ertak kitobi bor. Ulardan 60 tasi rus tilida. Rus tilidagi ertak kitoblari jami kitoblarning necha foizini tashkil qiladi?

1-usul

$$\frac{60}{\cancel{200}_{2}} \times \cancel{100}^{1}\% = 30\%$$

2-usul

$$\frac{60}{200} = \frac{30}{100}$$

$$= 30\%$$

Tekshirish

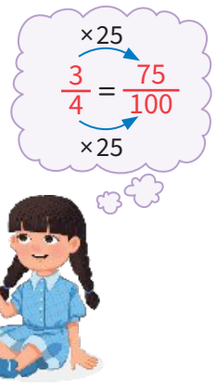
Barcha ertak kitoblarining 30% i rus tilida.

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3 80 kg ning necha foizi 60 kg ga teng?

$$\frac{60}{80} \times 100\% = \frac{3}{4} \times 100\%$$
$$= 75\%$$

Demak, 80 kg ning 75 foizi 60 kg ga teng ekan.



300 ml 800 ml ning necha foizini tashkil etadi?

$$\frac{300}{800} \times 100\% = \frac{3}{8} \times 100\%$$
$$= 37{,}5\%$$

300 ml 800 ml ning 37,5 foiziga teng ekan.

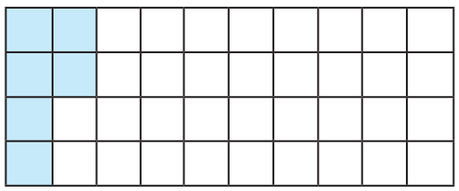
Tekshirish

Juftlikda ishlang



1 280 litrning 15% ini toping.

2 Butun shaklning bo‘yalgan qismini foizda ifodalashning turli usullarini ayting.



Masalan, quyidagi usuldan foydalanish mumkin:

$$\frac{6}{40} \times 100\% =$$

Yana qanday usullarni bilasiz?



Qiziqarli matematika

O‘rganing va bo‘lishing



Guruh bo‘lib ishlang.
Sinfingizdagi quyida berilgan xususiyatlarga ega o‘quvchilar sonini toping.

Sinfdoshlaringiz haqidagi boshqa ma’lumotlarni ham qo‘shishingiz mumkin.



a) ko‘zoynak taqadiganlar
b) suzishni biladiganlar
c) chapaqaylar
d) maktabga piyoda qatnaydiganlar
e) a’lochilar

Ularning sonini foizda ifodalang. Natijalarni sinfdoshlaringiz bilan o‘rtoqlashing.

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Bajaring va o‘rganing



1 Hisoblang.

a) 150 ning 30 foizi
b) 300 ning 55 foizi
c) 75 kg ning 62 foizi
d) 480 g ning 90 foizi
e) 45 litrning 78 foizi
f) 750 ml ning 82 foizi

2 a) 20 metrning necha foizi 9 m ga teng?
b) 7500 so‘mning necha foizi 1500 so‘mga teng?

3 Rasulda 10 ta shar bor. Sharlarning 6 tasi qizil rangda. Jami sharlarning necha foizi qizil?

4 Layloda 200 ta tugma bor. Ularning 56 tasi dumaloq. Tugmalarning necha foizi dumaloq?

5 Matematika fani bo‘yicha testda jami 120 ball to‘plash mumkin. Po‘lat umumiy ballning 60 foizini to‘pladi. Po‘lat necha ball to‘plagan?

6 Sirojiddin har oy maoshining 30% ini jamg‘arib boradi. Uning oylik maoshi 5 700 000 so‘m. Sirojiddin har oy qancha mablag‘ jamg‘aradi?

7 Yoqub akada 2 800 000 so‘m pul bor edi. U pullarining 35% ini avtomobilini ta’mirlashga sarfladi. Yoqub akaning qancha puli qoldi?

8 Lolaga matematikadan 120 ta savol berildi. U savollarning 45% iga to‘g‘ri javob berdi. U nechta savolga to‘g‘ri javob bergan?

9 Jasur 42 km li masofaning 75% ini yugurib, qolgan qismini esa yugurmasdan sekin yurib bosib o‘tdi. U qancha masofani yugurmasdan sekin yurib bosib o‘tgan?



10 Kamol kitobning 12% ini dushanba kuni, 24% ini seshanba kuni o‘qidi. Kitob 175 sahifa bo‘lsa, uni tugatish uchun yana necha sahifa o‘qish kerak?

Mashq daftariga o‘ting 73–76

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Matnli masalalar

Qarang va o‘rganing

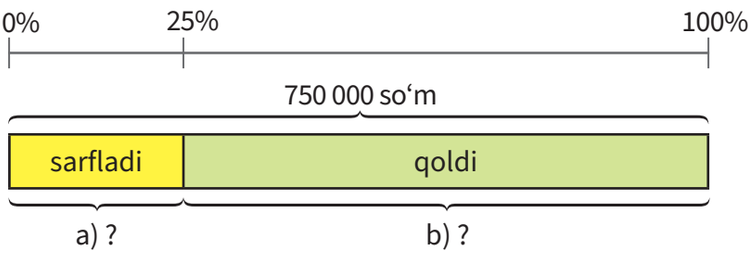


1 Akmalning 750 000 so‘m puli bor edi. U sport anjomi sotib olish uchun pulining 25% ini sarfladi.

a) U sport anjomini qanchaga sotib olgan?

b) Uning qancha puli qoldi?

a)





1-usul

$25\% = \frac{25}{100}$

750 000 so‘mning 25% i $= \frac{25}{100} \times$ 750 000 so‘m

$= 187\,500$ so‘m

2-usul

100% → 750 000 so‘m

1% → 750 000 so‘m ÷ 100 = 7500 so‘m

25% → 25 × 7500 so‘m = 187 500 so‘m

U 187 500 so‘m sarfladi.

b)

1-usul

750 000 so‘m – 187 500 so‘m

= 562 500 so‘m

2-usul

100% – 25% = 75%

750 000 so‘mning 75% i $= \frac{75}{100} \times$ 750 000

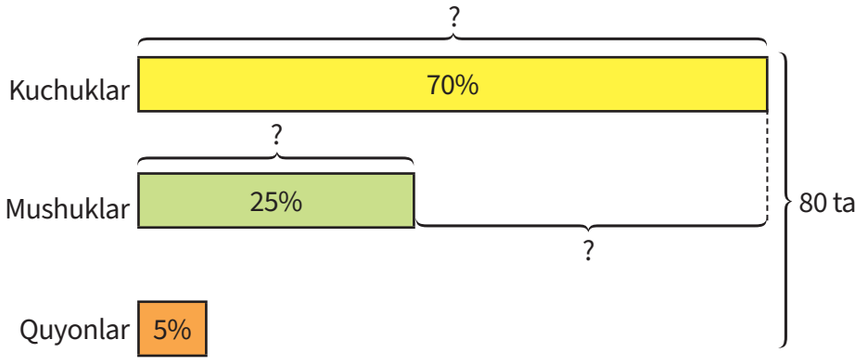
= 562 500 so‘m

Unda 562 500 so‘m pul qoldi.

Tekshirish

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2 Uy hayvonlari ko‘rgazmasiga 80 ta hayvon olib kelindi. Hayvonlarning 70% i kuchuklar, 25% i mushuklar, qolganlari esa quyonlar. Ko‘rgazmadagi kuchuklar soni mushuklar sonidan nechta ko‘p?



1-usul

$\frac{70}{100} \times 80 = 56$

56 ta kuchuk bo‘lgan.

$\frac{25}{100} \times 80 = 20$

20 ta mushuk bo‘lgan.

$56 - 20 = 36$

2-usul

$70\% - 25\% = 45\%$

$\frac{45}{\cancel{100}_{5}} \times \cancel{80}^{4} = \frac{\cancel{45}^{9}}{\cancel{5}_{1}} \times 4$

$= 36$

Kuchuklar soni mushuklar sonidan 36 ta ko‘p ekan.

3 Jadvalda 5-sinf o‘quvchilarining soni keltirilgan. 4 ta sinfda jami 160 nafar o‘quvchi bor. 5-sinf o‘quvchilarining necha foizi 5-“E” sinfda o‘qiydi?

Sinf	O‘quvchilar soni
5-“A”	42
5-“B”	38
5-“D”	40
5-“E”	?

$160 - (42 + 38 + 40) = 160 - 120$

$= 40$

$\frac{40}{160} \times 100\% = 25\%$

5-sinf o‘quvchilarining 25% i 5-“E” sinfda o‘qiydi.

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4 Quyidagi jadvalda kutubxona javonidagi badiiy kitob, gazeta va jurnallar uchun ajratilgan joylar mos ranglarda ko‘rsatilgan.

<table>
<tr><td colspan="3">Badiiy
kitoblar</td><td></td><td rowspan="2">Gazetalar</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="2">Jurnallar</td><td></td><td></td><td></td></tr>
</table>

a) Badiiy kitoblar javonning necha foizini egallagan?

$\frac{6}{\cancel{20}_{1}} \times \cancel{100}^{5}\% = 30\%$

Badiiy kitoblar javonning 30% ini egallagan.

b) Gazetalar javonning necha foizini egallagan?

$\frac{3}{\cancel{20}_{1}} \times \cancel{100}^{5}\% = 15\%$

Gazetalar javonning 15% ini egallagan.

c) Jurnallar javonning necha foizini egallagan?

$\frac{2}{\cancel{20}_{1}} \times \cancel{100}^{5}\% = 10\%$

Jurnallar javonning 10% ini egallagan.

Juftlikda ishlang



Matnli masalalarni yeching.
Sherigingiz bilan matnli masalalarni yechish usullarini Muhokama qiling.

1 Konsertni 350 nafar erkak, 280 nafar ayol, 200 nafar qiz va 170 nafar o‘g‘il bola tomosha qilmoqda. Tomoshabinlarning necha foizi ayollar?

2 Yugurish musobaqasida 700 nafar o‘quvchi qatnashmoqda. Sportchilarning 45 foizi qiz bola. Musobaqada nechta o‘g‘il bola qatnashmoqda?

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Bajaring va o‘rganing



Matnli masalalarni yeching.

1 Basketbol o‘yinini 360 nafar tomoshabin kuzatmoqda. Ularning 45% i erkaklar, 30% i ayollar va qolganlari bolalar.

a) Tomoshabinlarning necha foizi bolalar?
b) Katta yoshdagi tomoshabinlar necha nafar?
c) Bolalar necha nafar?

2 Sarvar amakining oylik maoshi 1 500 000 so‘m. U bir oyda yo‘lkira uchun 210 000 so‘m, ovqatlanish uchun 450 000 so‘m sarflaydi. Qolgan mablag‘ni esa jamg‘arib boradi.

a) U oylik maoshining necha foizini yo‘lkiraga sarflaydi?
b) U oylik maoshining necha foizini ovqatlanishga sarflaydi?
c) U oylik maoshining necha foizini jamg‘aradi?

3 Ko‘rgazmadagi tomoshabinlarning $\frac{4}{5}$ qismi katta yoshlilar, qolgani esa bolalardan iborat.

a) Tomoshabinlarning necha foizi katta yoshlilar?
b) Tomoshabinlarning necha foizi bolalar?

4 Konsert uchun 4000 ta chipta sotuvga qo‘yildi. Ularning 800 tasi chiptaxonada, $\frac{11}{20}$ qismi esa onlayn tarzda sotildi.

a) Necha foiz chipta onlayn tarzda sotilgan?
b) Necha foiz chipta sotilmay qoldi?

5 5-sinf o‘quvchilarining 55% i o‘g‘il bolalar. 5-sinf o‘quvchilarining umumiy soni 420 nafar. O‘g‘il bolalar qizlardan qanchaga ko‘p?

6 Sport to‘garagiga 1250 nafar o‘quvchi qatnashadi. Ularning 750 nafari qizlar. To‘garakdagi o‘g‘il bolalar jami o‘quvchilarning necha foiziga teng? Javobingizni tushuntiring.

Mashq daftariga o‘ting 77–84

O‘zingizni tekshiring



a) Men berilgan miqdorning foizini topishni bilaman.
b) Men foiz qatnashgan matnli masalalarni yechishni bilaman.

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QQS (qo‘shilgan qiymat solig‘i), chegirma va omonat foizi

Qarang va o‘rganing



1 Televizorning QQS (qo‘shilgan qiymat solig‘i)siz narxi 880 000 so‘m edi. Bu narxga 12% QQS belgilandi. Belgilangan QQS miqdorini toping.

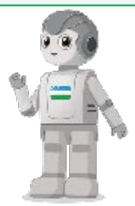
QQS miqdori = 880 000 so‘mning 12 foizi

$$= \frac{12}{100} \times 880\,000 \text{ so‘m}$$

$$= 105\,600 \text{ so‘m}$$

Demak, QQS miqdori 105 600 so‘m ekan.

QQS (qo‘shilgan qiymat solig‘i) mahsulot va xizmatlar uchun belgilangan soliq bo‘lib, uni 12% ga teng deb olamiz.



2 Jamila do‘kondan sumka xarid qildi. U sumka narxiga qo‘shimcha 12% QQS to‘ladi. Jamila jami qancha to‘lagan?



Xarid cheki	
1 ta sumka	450 000 so‘m
Jami (QQSsiz)	450 000 so‘m
QQS---	12%
QQS miqdori	54 000 so‘m
Jami (QQS bilan)	504 000 so‘m

QQS miqdori = 450 000 so‘mning 12 foizi

$$= \frac{12}{100} \times 450\,000 \text{ so‘m}$$

$$= 54\,000 \text{ so‘m}$$

450 000 so‘m + 54 000 so‘m = 504 000 so‘m

Jamila jami 504 000 so‘m to‘lagan.

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3 Po‘lat kiyim do‘konidan 25% lik chegirma bilan futbolka sotib oldi. Chegirmadan so‘ng futbolkaning narxi qancha bo‘lgan?



Chegirma = narxning 25 foizi

$$= \frac{25}{100} \times 136\,000 \text{ so‘m}$$

$$= 34\,000 \text{ so‘m}$$

Chegirmadan keyingi narx = 136 000 so‘m – 34 000 so‘m

= 102 000 so‘m

Chegirmadan so‘ng futbolkaning narxi 102 000 so‘m bo‘lgan.

4 Quyidagi jadvallarda A va B banklarning omonat miqdoriga qarab to‘laydigan foyda foizlari keltirilgan ($ – AQSH dollari belgisi).

A bank

Omonat miqdori	Yillik foizi
10 001$ – 20 000$	1%
20 000$ dan yuqori	2%

B bank

Omonat miqdori	Yillik foizi
15 001$ – 25 000$	2%
25 000$ dan yuqori	3%

a) Murod amaki A bankka bir yil muddatga 12 000$ omonat qo‘ydi. Bank belgilagan yillik foizga ko‘ra, uning mablag‘i bir yilda qanchaga ortadi?

Foyda = 12 000$ ning 1 foizi

$$= \frac{1}{100} \times 12\,000\$$$

$$= 120\$$$

Bir yilda uning mablag‘iga 120$ qo‘shiladi.

b) Sevara opa B bankka bir yil muddatga 26 000$ omonat qo‘ydi. Yil oxirida uning mablag‘i qancha bo‘ladi?

Foyda = 26 000$ ning 3 foizi

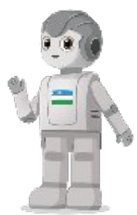
$$= \frac{3}{100} \times 26\,000\$$$

$$= 780\$$$

26 000$ + 780$ = 26 780$

Yil oxirida uning mablag‘i 26 780$ bo‘ladi.

Sevara bankka 28 000$ omonat qo‘ymoqchi. U qaysi bankni tanlagani ma’qul? Nima uchun?



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O‘rganing va bo‘lishing



Guruh bo‘lib ishlang.

a) Chegirmalar, QQS va xizmat narxlari ko‘rsatilgan xarid cheklarini to‘plang. Bu miqdorlar qanday hisoblanganini tekshirish uchun kalkulyatordan foydalaning.

Xarid cheki	
1 ta sumka	450 000 so‘m
Jami (QQSsiz)	450 000 so‘m
QQS---	12%
QQS miqdori	54 000 so‘m
Jami (QQS bilan)	**504 000 so‘m**

b) Ikkita bankning yillik omonat foizlari haqidagi ma’lumotlarni to‘plang. 25 000 AQSH dollarini omonat uchun qo‘yilganda bir yilda qancha mablag‘ qo‘shilishini hisoblang.

A bank

Omonat miqdori (AQSH dollarida)	Yillik foizi
10 001 – 20 000	1%
20 000 dan ortiq	2%

B bank

Omonat miqdori	Yillik foizi
15 001 – 25 000	2%
25 000 dan ortiq	3%

c) Supermarketning chegirmalar haqidagi e’lonlarini to‘plang. 100 000 so‘m mablag‘ uchun xarid rejangizni tuzing. Qanday mahsulotlar xarid qilishni rejalashtirganingizni sinfdoshlaringizga ham ayting.



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Bajaring va o‘rganing



1 QQS 12% bo‘lsa, quyidagi mahsulotlarni xarid qilganingizda qancha QQS to‘laysiz?

a) 

1 500 000 so‘m

QQS miqdori = _____

b) 

9 000 000 so‘m

QQS miqdori = _____

2 Chegirmani hisoblang.

a) 

5 500 000 so‘m
(chegirma 15%)

Chegirma = _____

b) 

455 000 so‘m
(chegirma 30%)

Chegirma = _____

3 Sitora 20% chegirma bilan oyoq kiyimi sotib oldi. U qancha pul to‘lagan?



4 A bank omonatlar uchun quyidagi yillik foizlarni taklif qiladi.

A Bank	Omonat miqdori (AQSH dollarida)			
	Muddat	**5 000–9 999**	**10 000–15 000**	**15 000 dan ko‘p**
	1 yil	0,5%	1%	2%

a) Aziza opa A bankka 15 000 AQSH dollar omonat qo‘ydi. Bir yildan keyin uning omonatiga qancha mablag‘ qo‘shiladi?

b) Laziza opa A bankka 8000 AQSH dollar omonat qo‘ydi. Bir yildan keyin uning omonatiga qancha mablag‘ qo‘shiladi?

Mashq daftariga o‘ting **85–88**

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Matnli masalalar

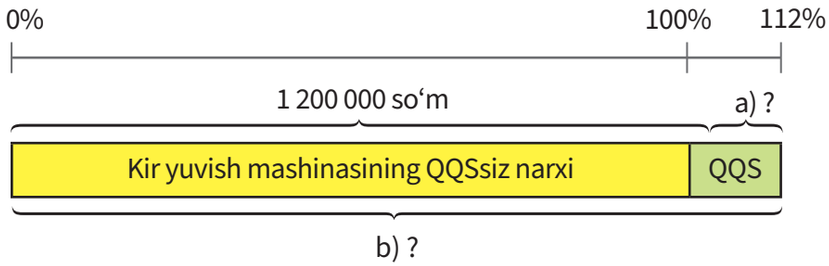
Qarang va o‘rganing



1 Kir yuvish mashinasining QQSsiz narxi 1 200 000 so‘m. Lola opa kir yuvish mashinasi sotib oldi va 12% QQS to‘ladi.

a) QQS miqdori qanchaga teng?

b) Lola opa kir yuvish mashinasi sotib olishga jami qancha mablag‘ sarflagan?



a)

1-usul

QQS miqdori = 1 200 000 so‘mning 12 foizi $= \frac{12}{100} \times 1\,200\,000$ so‘m

$= 144\,000$ so‘m

2-usul

QQSsiz narx 100% → 1 200 000 so‘m

1% → 1 200 000 so‘m ÷ 100 = 12 000 so‘m

12% → 12 × 12 000 so‘m = 144 000 so‘m

QQS miqdori 144 000 so‘mga teng.

b) 1 200 000 so‘m + 144 000 so‘m = 1 344 000 so‘m

Lola opa jami 1 344 000 so‘m mablag‘ sarflagan.

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2 Bayram munosabati bilan supermarket barcha mahsulotlarga 30% chegirma e’lon qildi. Televizorning chegirmadan oldingi narxi 2 500 000 so‘m.

a) Televizorga belgilangan chegirma miqdori qanchaga teng?
b) Chegirmadan keyin televizor narxi qancha bo‘ladi?

1-usul

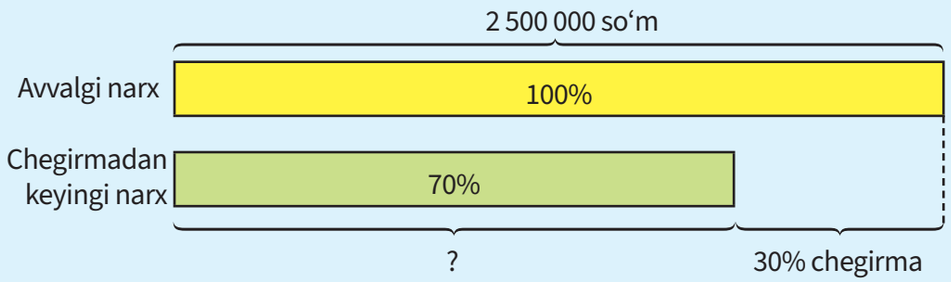
a) 2 500 000 so‘mning 30 foizi $= \frac{30}{100} \times 2\,500\,000$ so‘m
$= 750\,000$ so‘m

Televizorga 750 000 so‘m chegirma belgilangan.

b) 2 500 000 so‘m − 750 000 so‘m = 1 750 000 so‘m

Chegirmadan keyin televizor narxi 1 750 000 so‘m bo‘ladi.

2-usul



a) 100% → 2 500 000 so‘m
1% → 2 500 000 so‘m ÷ 100 = 25 000 so‘m
30% → 30 × 25 000 so‘m = 750 000 so‘m

Televizorga 750 000 so‘m chegirma belgilangan.

b) 70% → 70 × 25 000 so‘m = 1 750 000 so‘m

Chegirmadan keyin televizor narxi 1 750 000 so‘m bo‘ladi.

“Televizor narxiga 30% chegirma” degani chegirmadan keyin uning narxi avvalgi narxining 70% iga teng bo‘lishini bildiradi.

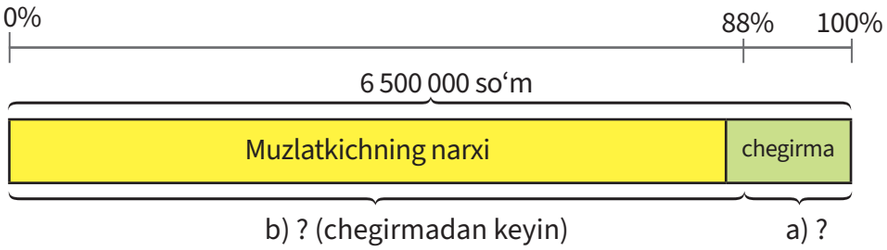


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3 Muzlatkichning narxi 6 500 000 so‘m edi. Tohir amaki uni 12% chegirma bilan sotib oldi.

a) Chegirma miqdori qanchaga teng?

b) Tohir amaki muzlatkich uchun qancha mablag‘ sarflagan?



a) $\frac{12}{100} \times 6\,500\,000$ so‘m $= 780\,000$ so‘m

Chegirma miqdori 780 000 so‘mga teng.

b) 6 500 000 so‘m – 780 000 so‘m $= 5\,720\,000$ so‘m

Tohir amaki muzlatkich uchun 5 720 000 so‘m to‘lagan.

4 Zamira opa bankka 20 000$ omonat qo‘ydi. Bankning omonat foizi yiliga 2%. Yil oxirida Zamira opaning mablag‘i qancha bo‘ladi?

Foyda = 20 000$ ning 2 foizi

$= \frac{2}{100} \times 20\,000\$$

$= 400\$$

20 000 + 400 = 20 400 ($)

Zamira opaning mablag‘i yil oxirida 20 400$ ni tashkil etadi.

Tekshirish

Javobni kalkulyator yordamida tekshiring.



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Juftlikda ishlang



Matnli masalalarni sherigingiz bilan yeching.

1. Mototsiklning QQSsiz narxi 8 000 000 so‘m edi. Tohir amaki mototsikl sotib olayotganida 12% QQS to‘ladi. U mototsikl uchun jami qancha to‘lagan?

2. Muzlatkichning narxi 2 250 000 so‘m. Laziza opa muzlatkichni 28% chegirma bilan sotib oldi. U muzlatkich xarid qilish uchun qancha mablag‘ sarflagan?

Bajaring va o‘rganing



Matnli masalalarni yeching.

1. Videokameraning narxi 1 650 000 so‘m. Akmal uni 20% chegirma bilan sotib oldi.
   a) Chegirma miqdori qanchaga teng?
   b) Videokamera qanchaga sotib olingan?

2. Ko‘ylakning QQSsiz narxi 300 000 so‘m. Diyora ko‘ylak uchun 12% QQS to‘ladi. U ko‘ylakni qanchaga sotib olgan?

3. Omina opa bankka bir yilga 2986$ omonat qo‘ydi. Uning omonatiga bir yilda 1,5% foyda qo‘shiladi. Yil oxirida uning jami mablag‘i qancha bo‘ladi?

4. Jasur amaki sarmoya jamg‘armasiga 7000$ mablag‘ qo‘ydi. Qo‘yilgan sarmoya unga yiliga 4% foyda keltiradi. Yil oxirida uning foydasi qancha bo‘ladi?

5. Restoran dushanba kunidan juma kunigacha mijozlarga tushlik uchun 10% chegirma belgiladi. Po‘lat amaki juma va yakshanba kuni restoranda tushlik qildi. Buning uchun u jami qancha to‘lagan?



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6 A va B do‘konlar bir xil rusumdagi mobil telefon narxiga chegirma e’lon qildi. Qaysi do‘konda mobil telefon narxi arzonroq? Tushuntiring.



Narxi: 6 800 000 so‘m
Chegirma: 12%



Narxi: 8 000 000 so‘m
Chegirma: 25%

7 Malika opa yillik omonat foizi 2% bo‘lgan A bankka 20 000 AQSH dollar omonat qo‘ydi. Jamila opa B bankka 10 000 AQSH dollar va C bankka esa 10 000 AQSH dollar omonat qo‘ydi. Har ikki bankning yillik omonat foizlari 1% dan belgilangan. Bir yildan so‘ng Malika opaning bankdagi pullari Jamila opanikidan ko‘proq bo‘ladimi? Javobni izohlang.

Mashq daftariga o‘ting 89–96

O‘zingizni tekshiring



a) Men chegirma, QQS va omonat foizini hisoblashni bilaman.

b) Men foizga doir matnli masalalarni yechishni bilaman.

O‘ylab ko‘ring



Guldonning narxi 64 000 so‘m. Yanvar oyida Aziza guldonni 20% chegirma bilan xarid qildi. Iyun oyidagi katta chegirmalar vaqtida esa u xuddi shunday guldonni 30% chegirma bilan xarid qildi. Agar Aziza har ikki guldonni iyundagi chegirma vaqtida sotib olganida, qancha mablag‘ tejashi mumkin edi?

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10 O‘rtacha qiymat

Muhokama qiling



Kamolaning sinfida ko‘pchilik o‘g‘il bolalarning bo‘yi 1,30 m va 1,60 m oralig‘ida.

3 nafar bolaning o‘rtacha bo‘yi qanchaga teng?

Ularning o‘rtacha vazni qancha?

Siz “o‘rtacha bo‘y” va “o‘rtacha vazn” deganda nimani tushunasiz?

1,52 m
46,3 kg

1,35 m
38,8 kg

1,48 m
44,2 kg

O‘rtacha qiymat tushunchasi

Qarang va o‘rganing



Miqdorlarning o‘rtacha qiymatini topish

1 3 ta likopchaga turli miqdordagi shirinliklar qo‘yib chiqildi.





Agar shirinliklar 3 ta likopchaga teng taqsimlansa, har bir likopchada nechtadan shirinlik bo‘ladi?

Shirinliklarni 3 ta likopchaga teng miqdorda taqsimlash orqali ularning bitta likopchaga mos keladigan o‘rtacha sonini topamiz.



Shirinliklarning bitta likopchadagi o‘rtacha miqdori 5 ga teng.
5 soni 2, 7 va 6 sonlarining o‘rtacha qiymatidir.

Miqdorlarning o‘rtacha qiymatini topish deganda ularning qiymatlarini teng taqsimlash tushuniladi.



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Qo‘lda bajariladigan mashq



Guruh bo‘lib ishlang.

a) Birinchi likopchaga 6 ta, ikkinchisiga esa 10 ta kub qo‘ying. Kublarning jami soni nechta?

b) Har ikki likopchada kublar bir xil miqdorda bo‘lishi uchun bir necha kubni bir likopchadan ikkinchisiga o‘tkazing. Har bir likopchadagi kublarning o‘rtacha soni nechaga teng?



6 ta kub 10 ta kub _____ tadan kub

c) Kublarning umumiy sonini toping va ularni teng ikki guruhga bo‘ling. Har bir guruhda nechtadan kub bor?

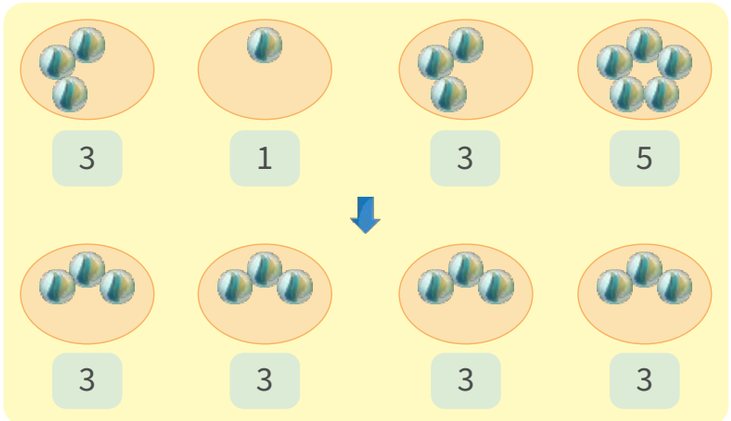


Har bir likopchadagi kublarning o‘rtacha sonini topish ularning umumiy sonini teng 2 guruhga bo‘lishga o‘xshaydimi?

Miqdorlarning o‘rtacha qiymati = **miqdorlarning jami qiymati** ÷ **miqdorlar soni**

Miqdorlarning o‘rtacha qiymati qisqa shaklda “o‘rtachasi” deb ham yuritiladi.

2 Har bir likopchadagi sharlar sonining o‘rtacha qiymatini toping.



Jami = 3 + 1 + 3 + 5
= 12

O‘rtachasi = jami ÷ miqdorlar soni
= 12 ÷ 4
= 3

Sharlarning o‘rtacha soni 3 ga teng.



Bu yerda 4 ta likopcha bo‘lgani uchun 12 ni 4 ga bo‘lamiz.

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3 Karim matematika fanidan test sinovlarida 4 marta ishtirok etdi. Uning o‘rtacha ballini aniqlang.

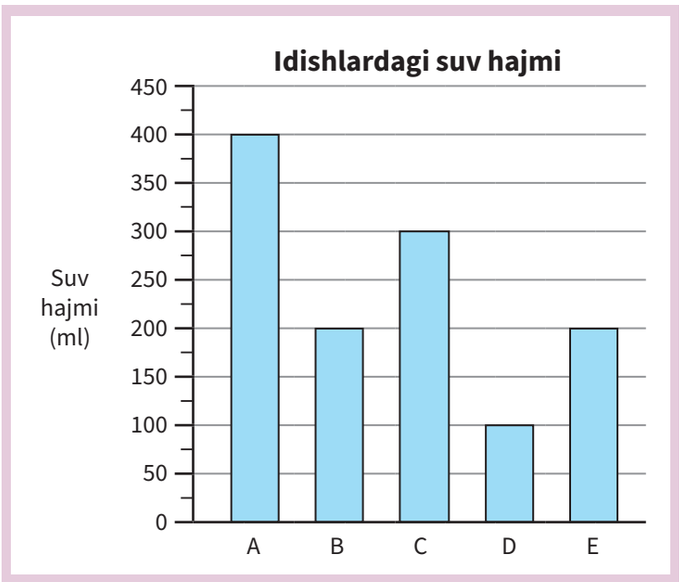
	Ball
1-test	83
2-test	76
3-test	78
4-test	80

Jami ball = 83 + 76 + 78 + 80
= 317 ball

O‘rtacha ball = 317 ÷ 4
= 79,25 ball

Karim 4 marta test topshirib, o‘rtacha 79,25 ball to‘plagan.

4 Diagrammada A, B, C, D va E idishlardagi suvning hajmi berilgan. Suv hajmining o‘rtacha hajmini aniqlang.



Suvning jami hajmi
= 400 + 200 + 300 + 100 + 200
= 1200 ml

Suvning o‘rtacha hajmi
= 1200 ÷ 5
= 240 ml

Suvning o‘rtacha hajmi 240 ml ekan.

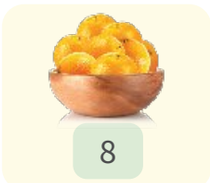
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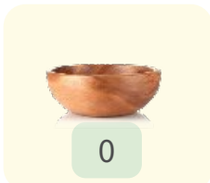


Sherigingiz bilan Muhokama qiling.

1 Apelsinlar sonining o‘rtachasini toping.









2 Kamola 7 kunda jami 45 850 so‘m sarfladi.
U bir kunda o‘rtacha qancha pul sarflagan?

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O‘ynang va o‘rganing

O‘rganing va bo‘lishing



Guruh bo‘lib ishlang.
Hayotiy misollar yordamida “o‘rtacha qiymat” tushunchasining ma’nosini Muhokama qiling. O‘rtacha qiymatga doir topgan misollaringizni sinfdoshlaringizga ayting.

Namuna

a) 3 nafar sinfdoshingizning o‘rtacha bo‘yi;
b) viloyatingiz yoki shahringizda bir oy davomidagi o‘rtacha havo harorati;
c) uy vazifalarni bajarishga ketadigan kunlik o‘rtacha vaqt;
d) mobil telefoningizga 1 hafta davomida kelgan SMS xabarlarning kunlik o‘rtacha soni.

Mashq daftariga o‘ting **115–118**

Bajaring va o‘rganing



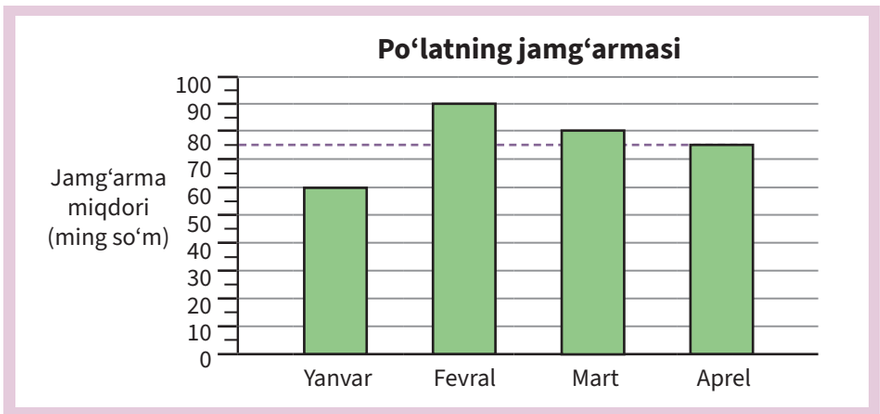
1 Quyidagi sonlarning o‘rtachasini toping.

a) 12, 18, 25, 45
b) 100, 85, 90, 112
c) 1,5, 2,3, 4,9, 8,5, 0,8
d) 3,8, 4,6, 9,2, 5,4, 10,5

2 Quyidagi miqdorlarning o‘rtachasini toping.

a) 13,2 kg, 7,1 kg, 4,36 kg, 10,12 kg
b) 1000 m, 580 m, 600 m, 350 m, 815 m

3 Quyidagi chizmada Po‘latning 4 oy davomida jamg‘argan mablag‘ ko‘rsatilgan. U har oyda o‘rtacha qanchadan mablag‘ jamg‘argan?



Miqdorlarning o‘rtacha qiymati berilgan miqdorlarning eng kichik va eng katta qiymatlari orasida bo‘ladi. Masalan, 2, 4, 6, 8 va 10 sonlarining o‘rtacha qiymati 6 ga teng.



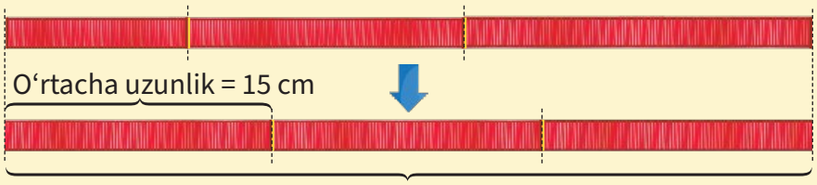
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Miqdorlarning o‘rtacha va jami qiymati hamda soni

Qarang va o‘rganing



1 3 ta tasmaning o‘rtacha uzunligi 15 cm ga teng. Tasmalarning umumiy uzunligi nechaga teng?



Umumiy uzunlik = 15 × 3 = 45 cm

Tasmalarning umumiy uzunligi 45 cm.

2 4 nafar bolaning o‘rtacha massasi 36,8 kg. Ularning umumiy massasi qancha?



O‘rtacha massasi = 36,8 kg

Umumiy massasi = 36,8 × 4 = 147,2 kg

Demak, ularning umumiy massasi 147,2 kg ga teng.



Miqdorlar jami qiymati = o‘rtacha qiymat × miqdorlar soni

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3 Rasul bir nechta kitob sotib oldi. Kitoblarning jami narxi 45 000 so‘m va o‘rtacha narxi 9000 so‘mga teng. U nechta kitob sotib olgan?

Kitoblar soni = 45 000 ÷ 9000
= 5

Rasul 5 ta kitob sotib olgan.

Miqdorlar soni = miqdorlarning jami qiymati ÷ o‘rtacha qiymat

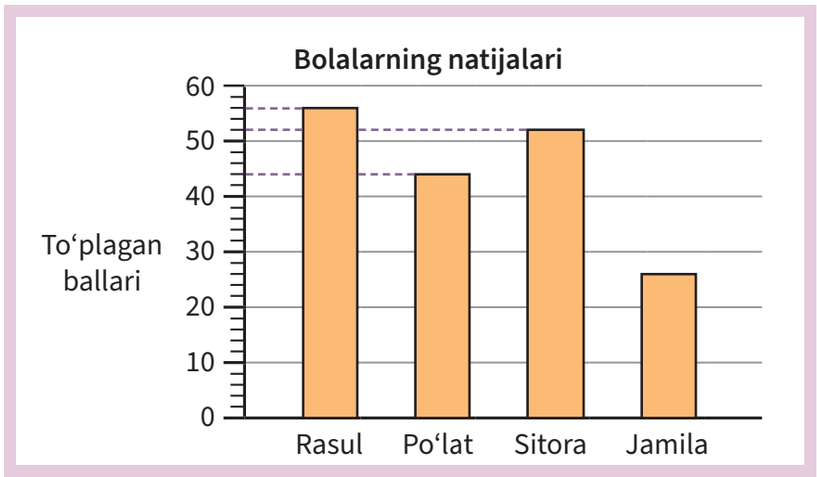
4 2 nafar talabaning o‘rtacha yoshi 19 ga teng. Ulardan biri 22 yoshda bo‘lsa, ikkinchi talaba necha yoshda?

Jami yosh = 19 × 2
= 38

Ikkinchisining yoshi = 38 – 22
= 16

Ikkinchi talaba 16 yosh.

5 Rasul, Po‘lat, Sitora va Jamila kompyuterda o‘yin o‘ynamoqda. Ularning o‘rtacha natijasi 48 ballga teng. Quyidagi diagrammada ular to‘plagan ballar berilgan. Faqat Jamilaning natijasi ko‘rinmayapti. Jamila qancha ball to‘plagan?



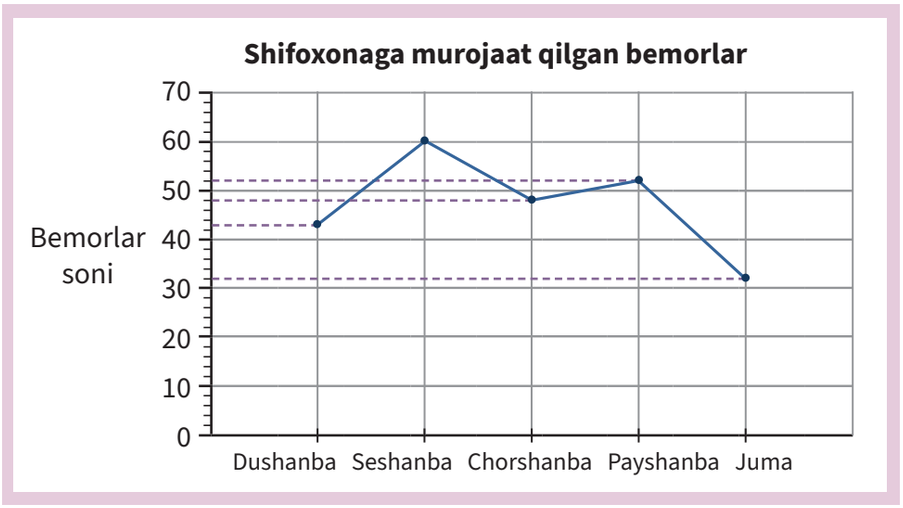
Jami ball = 48 × 4
= 192 ball

Jamilaning balli = 192 – 56 – 44 – 52
= 40 ball

Jamila o‘yinda 40 ball to‘plagan.

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6 Quyidagi grafikda shifoxonaga bir hafta davomida murojaat qilgan bemorlar soni ko‘rsatilgan.



a) Bemorlarning kunlik o‘rtacha murojaatlari sonini toping.
b) Agar dushanbadan shanbagacha har kuni o‘rtacha 45 tadan bemor murojaat qilgan bo‘lsa, shanba kuni nechta bemor murojaat qilgan?

a) $43 + 60 + 48 + 52 + 32 = 235$ $\qquad 235 \div 5 = 47$

Har kuni o‘rtacha 47 ta bemor murojaat qilgan.

b) $45 \times 6 = 270$

$270 - 235 = 35$

Shanba kuni 35 ta bemor murojaat qilgan.

7 Akmalning imtihon natijalari varag‘iga siyoh to‘kilib ketdi. Akmal 3 ta fandan o‘rtacha 89 ball to‘pladi. U matematika va fizika fanlarining har biridan necha ball to‘plagan? Javobni tushuntiring.

Test natijalari	
Ingliz tili	89
Matematika	1
Fizika	8

$89 \times 3 = 267$

U 3 ta fandan jami 267 ball to‘plagan.

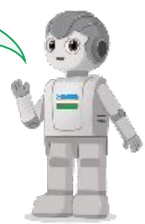
$267 - 89 = 178$

U matematika va fizika fanlaridan jami 178 ball to‘plagan.

$178 - 87 = 91$

Matematikadan 91 ball to‘plagan.

178 sonining oxirgi raqami 8. Matematikadan to‘plangan ballning oxirgi raqami esa 1. Demak, fizikadan to‘plangan ball 87 ga teng. Matematikadan esa 91 ball to‘plangan.



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Qiziqarli matematika

O‘rganing va bo‘lishing



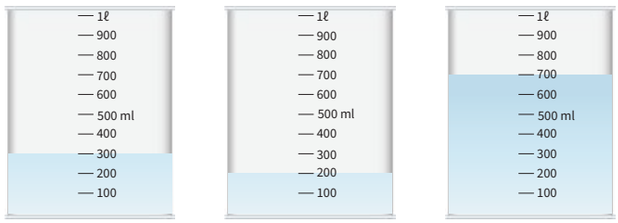
Guruh bo‘lib ishlang va Muhokama qiling.

1 Berilgan miqdorlarning o‘rtacha qiymatini toping.

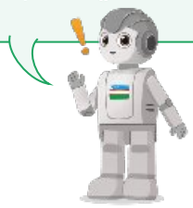
a)



b)



Bir nechta miqdorga oid bir-biri bilan bog‘langan uchta tushuncha mavjud. Bular – miqdorlarning o‘rtacha qiymati, miqdorlarning jami qiymati va miqdorlar soni. Ulardan ikkitasi berilgan bo‘lsa, uchinchisini topishingiz mumkin.



2 Mahsulotlar soni va jami massasini toping.

a) Mahsulotlar o‘rtacha narxi = 20 000 so‘m
Jami narxi = 200 000 so‘m
Mahsulotlar soni = ?

b) Mahsulotlar o‘rtacha massasi = 8,5 kg
Mahsulotlar soni = 8
Jami massasi = ?

3 Tushirib qoldirilgan sonni toping.

a) Uchinchi sonni yozing.

O‘rtacha qiymati = 12

10	18	?

b) Oxirgi avtobusda nechta yo‘lovchi bor?

O‘rtacha = 50 ta yo‘lovchi



Juftlikda ishlang



Sherigingiz bilan miqdorlarning o‘rtacha qiymatini toping.
1- va 2-misollarda o‘rtacha qiymatni topishda nimalarga e’tibor berish kerak?

1 a) 2, 4, 6 b) 2, 6

2 a) 15, 20, 25 b) 15, 25

3 Quyidagi misollarda miqdorlarning o‘rtacha qiymatini qanday topish mumkinligini aniqlang. Javobni tushuntiring.

a) 10, 14 b) 13, 15 c) 4, 5

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Bajaring va o‘rganing



Masalalarni yeching.

1 a) 3 ta sonning o‘rtachasi 28 ga teng. Ularning yig‘indisi nechaga teng?
b) 5 ta sonning o‘rtachasi 66 ga teng. Ularning yig‘indisi nechaga teng?

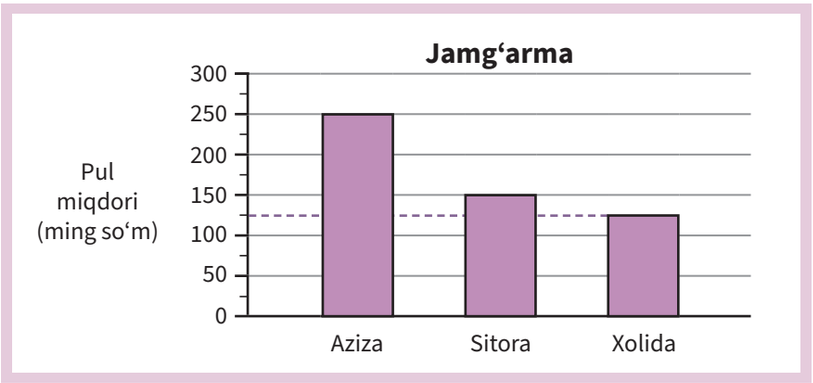
2 Jadvalda Jamila va Sitoraning imtihon natijalari berilgan.
Tushirib qoldirilgan ballni toping.

Jamilaning natijasi
O‘rtachasi = 74 ball
Ingliz tili = 68 ball
Matematika = 79 ball
Fizika = ?

Sitoraning natijasi
O‘rtachasi = 77 ball
Ingliz tili = 66 ball
Matematika = ?
Fizika = 75 ball

3 Diagrammada 3 nafar qizning jamg‘armalari miqdori keltirilgan.

a) Ular jamg‘argan o‘rtacha mablag‘ni toping.
b) Qaysi qizning jamg‘armasi o‘rtachaga yaqinroq?



4 Jadvalda 3 nafar o‘quvchining 3 ta testdan olgan natijalari keltirilgan.

Ismi	1-test	2-test	3-test
Aziza	72	76	70
Bobur	74	80	69
Charos	90	63	80

a) Har bir o‘quvchining testlardan olgan o‘rtacha ballarini toping va o‘ndan birlar xonasigacha yaxlitlang.

b) Kimning balli o‘rtacha balldan ko‘proq?

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5 Po‘lat 5 kun davomida xayriya uchun mablag‘ to‘pladi.

Dush	Sesh	Chor	Pay	Juma
34 000 so‘m	18 000 so‘m	40 000 so‘m	10 000 so‘m	?

U bir kunda o‘rtacha 24 000 so‘m mablag‘ to‘pladi. U juma kuni qancha mablag‘ to‘plagan?

6 Quyidagi jadvalda dushanbadan payshanbagacha do‘konda sotilgan nonlar soni keltirilgan. 4 kunda sotilgan nonlarning o‘rtacha miqdori 610 taga teng. Chorshanba kuni nechta non sotilgan?

Kunlar	Nonlar soni
Dushanba	600
Seshanba	680
Chorshanba	?
Payshanba	540

7 Tohir supermarketdan 3 xil mahsulot sotib oldi. Biroq uning xarid cheki yirtilib qoldi. U xarid qilgan mahsulotlarning o‘rtacha narxi 12 000 so‘mga teng. Eng arzon mahsulotning narxi 1000 ga karrali natural son ekani ma’lum. Idish yuvish geli va olma sharbati narxlarini qanday aniqlash mumkin?

Xarid cheki

Pista yog‘i	10 500 so‘m
Idish yuvish geli	18
Olma sharbati	
Jami	

Mashq daftariga o‘ting **119–128**

O‘zingizni tekshiring



a) Men miqdorlarning jami qiymati va soniga ko‘ra ularning o‘rtacha qiymatini topishni bilaman.

b) Men miqdorlarning soni va o‘rtacha qiymatiga ko‘ra ularning jami qiymatini topishni bilaman.

c) Men miqdorlarning jami va o‘rtacha qiymatiga ko‘ra ularning sonini topishni bilaman.

d) Men o‘rtacha qiymatni topishga doir matnli masalalarni yechishni bilaman.

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O‘ylab ko‘ring



Sarvar imtihon natijalari varag‘iga siyoh to‘kib qo‘ydi.
U o‘rtacha 83 ball to‘plagan edi.

a) Matematika va fizika fanlaridan to‘plangan ballar orasidagi farq eng ko‘pi bilan nechaga teng?

b) Matematika va fizika fanlaridan to‘plangan ballar orasidagi farq eng kamida nechaga teng?

Natijalar

Ingliz tili	76
Matematika	8
Fizika	9
Ona tili	79

Mashq daftariga o‘ting 129–130

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11 Burchaklar

Muhokama qiling



Quyidagi rasmlarda qanday burchak turlarini ko‘ryapsiz?

Chorraha



Charxpalak



Ko‘prik



Chorrahaga qarang. Vertikal burchaklar tengmi?

Charxpalakka qarang. Uning markazi va aylanasini bog‘lab turgan qismlar orasidagi burchakni topish mumkinmi?

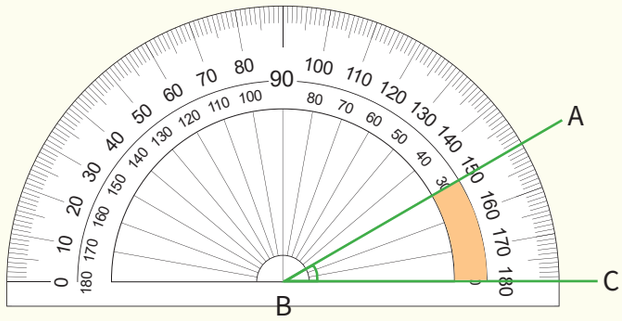
Ko‘prikka qarang. Unda qanday burchak turlarini ko‘ryapsiz?

Eslang

Burchakning gradus o‘lchovi

Burchakning gradus o‘lchovini transportir yordamida o‘lchaymiz.

a)

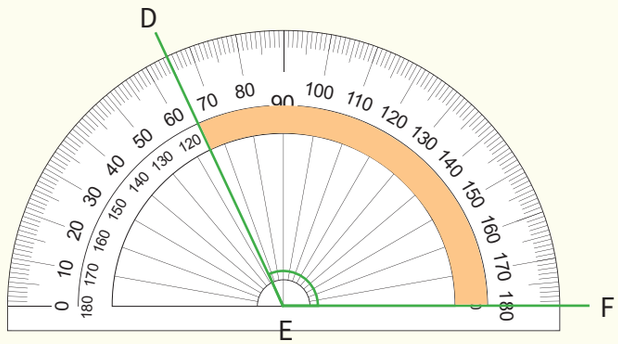


$\angle ABC = 30°$

∠ABC – o‘tkir burchak.



b)

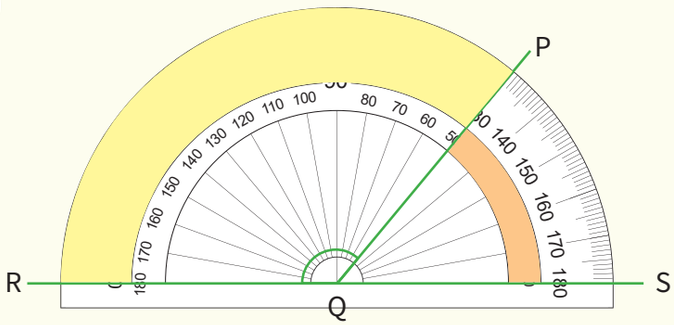


$\angle DEF = 115°$

∠DEF – o‘tmas burchak.



c)



$\angle RQP = 130°$

$\angle PQS = 50°$

Burchakni 0° dan boshlab, transportirning ichki yoki tashqi shkalasi bilan o‘lchaymiz.



Mashq daftariga o‘ting **131–132**

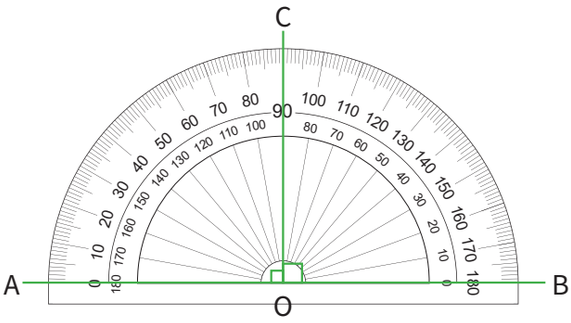
51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 91 13/11/24 14:50

To‘g‘ri chiziqdagi burchaklar

Qarang va o‘rganing



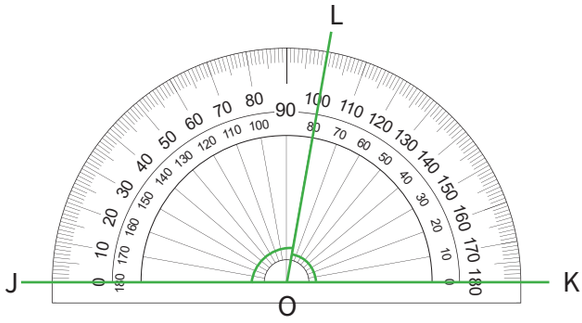
1 a) AOB to‘g‘ri chiziq berilgan.



$\angle AOC = 90°$
$\angle BOC = 90°$

$\angle AOC + \angle BOC = 90° + 90°$
$= 180°$

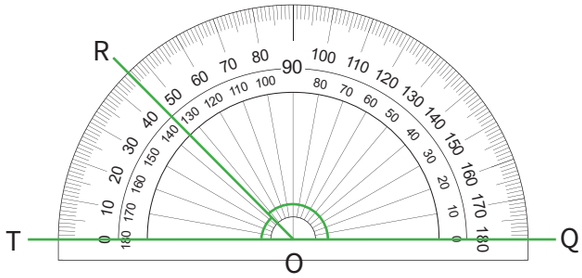
b) JOK to‘g‘ri chiziq berilgan.

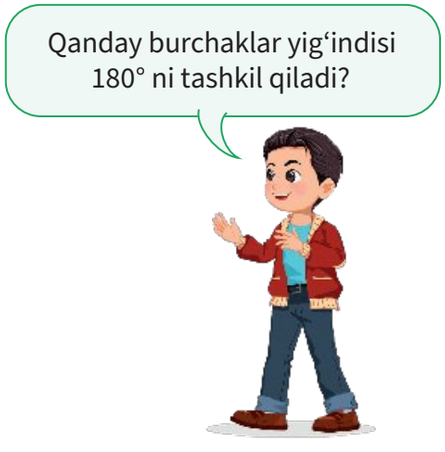


$\angle JOL = 100°$
$\angle KOL = 80°$

$\angle JOL + \angle KOL = 100° + 80°$
$= 180°$

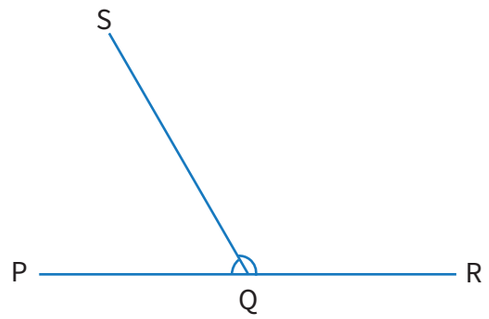
c) TOQ to‘g‘ri chiziq berilgan.





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2 a) PQR to‘g‘ri chiziq berilgan.

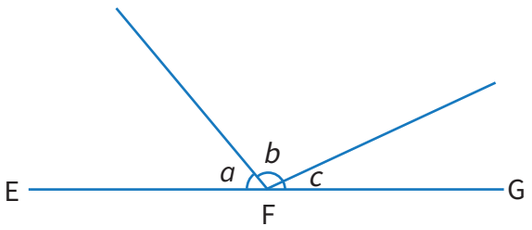


$\angle PQS = 30°$
$\angle RQS = 150°$

$\angle PQS + \angle RQS = 30° + 1500°$
$= 180°$

$\angle PQS$ va $\angle RQS$ – **to‘g‘ri chiziq**dagi burchaklar.
Ularni **qo‘shni burchak**lar deb ham ataymiz.

b) EFG to‘g‘ri chiziq berilgan.

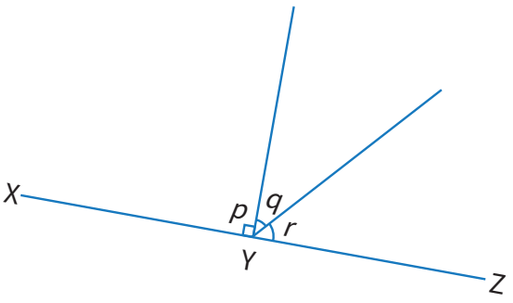


$\angle a = 50°$
$\angle b = 105°$
$\angle c = 25°$

$\angle a + \angle b + \angle c = 50° + 105° + 25°$
$= 180°$

$\angle a, \angle b$ va $\angle c$ – to‘g‘ri chiziqdagi burchaklar.

c) XYZ to‘g‘ri chiziq berilgan.



$\angle p = 90°$
$\angle q = 42°$
$\angle r = 48°$

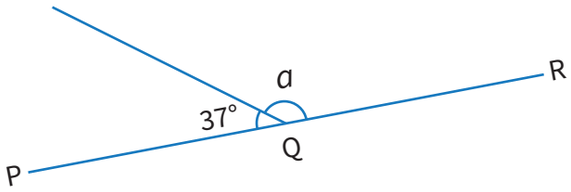
$\angle p + \angle q + \angle r = 90° + 42° + 48°$
$= 180°$

$\angle p, \angle q$ va $\angle r$ – to‘g‘ri chiziqdagi burchaklar.

To‘g‘ri chiziqdagi burchaklar yig‘indisi 180° ga teng.

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3 a) PQR to‘g‘ri chiziq berilgan. $\angle a$ ni toping.

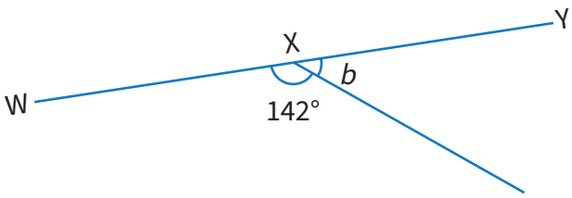


$37° + \angle a = 180°$



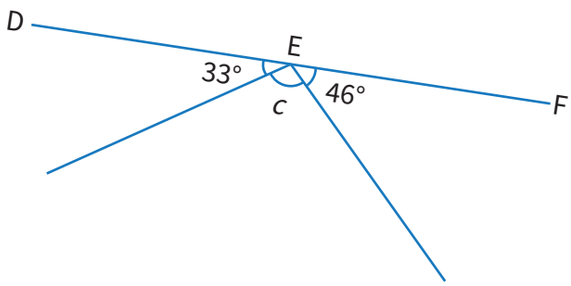
$\angle a = 180° - 37°$
$= 143°$

b) WXY to‘g‘ri chiziq berilgan. $\angle b$ ni toping.



$\angle b = 180° - 142°$
$= 38°$

c) DEF to‘g‘ri chiziq berilgan. $\angle c$ ni toping.

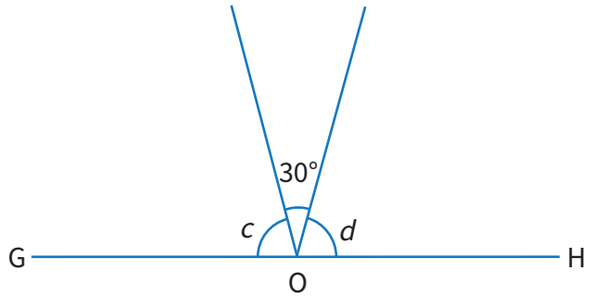


$\angle c = 180° - 33° - 46°$
$= 101°$

$33° + \angle c + 46° = 180°$



d) GOH to‘g‘ri chiziq va $\angle c = \angle d$ berilgan. $\angle d$ ni toping.



$\angle c + \angle d = 180° - 30°$
$= 150°$

$\angle d = 150° \div 2$
$= 75°$

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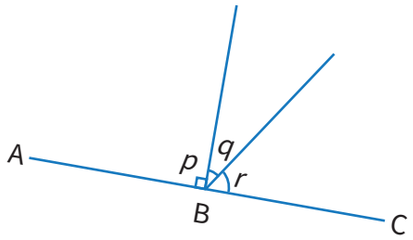
Juftlikda ishlang



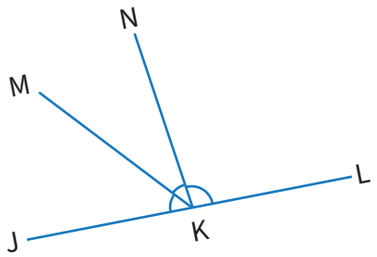
Sherigingiz javobini tekshiring.

1 Quyidagi burchaklarni transportir yordamida o‘lchang.

a) ABC – to‘g‘ri chiziq. $\angle p$, $\angle q$ va $\angle r$ larni o‘lchang. $\angle p$, $\angle q$ va $\angle r$ lar yig‘indisini toping.



b) $\angle$JKM, $\angle$MKN va $\angle$NKL larni o‘lchang. JKL to‘g‘ri chiziqmi? Tushuntiring.

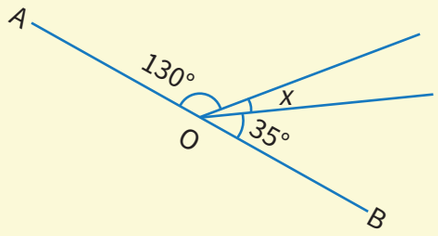


2 To‘g‘ri chiziqda 3 ta burchak chizing va ularni o‘lchang. 3 ta burchakning yig‘indisini hisoblang.

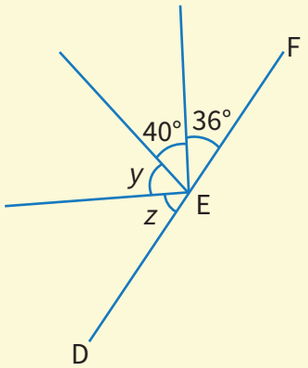
Bajaring va o‘rganing



a) AOB – to‘g‘ri chiziq. $\angle x$ =?



b) DEF – to‘g‘ri chiziq. $\angle y = \angle z$. $\angle y$ =?



Mashq daftariga o‘ting 133–136

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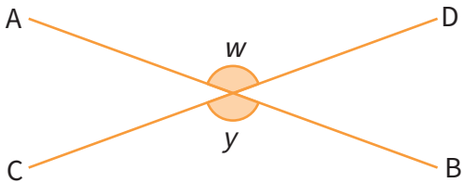
Vertikal burchaklar

Qarang va o‘rganing



1 Bir nuqtada kesishuvchi AB va CD to‘g‘ri chiziqlar berilgan.

a)



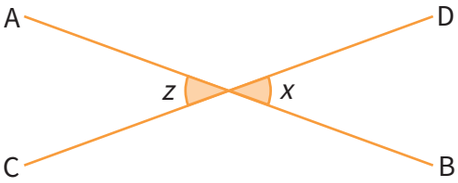
$\angle w$ va $\angle y$ **vertikal burchaklar** deyiladi.

$\angle w = \angle y = 140°$

$\angle w$ va $\angle y$ larni o‘lchang.



b)



$\angle x$ va $\angle z$ ham vertikal burchaklar bo‘ladi.

$\angle x = \angle z = 40°$

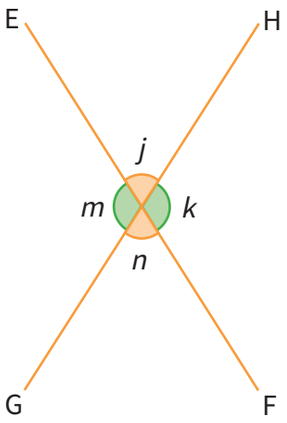
$\angle x$ va $\angle z$ larni o‘lchang.



2 EF va GH to‘g‘ri chiziqlar berilgan.

$\angle j$ va $\angle n$ – vertikal burchaklar.

$\angle m$ va $\angle k$ ham vertikal burchaklar.



$\angle j = \angle n$
$= 65°$

$\angle m = \angle k$
$= 115°$

$\angle j$ va $\angle k$ – qo‘shni burchaklar jufti.

$\angle j + \angle k = 180°$

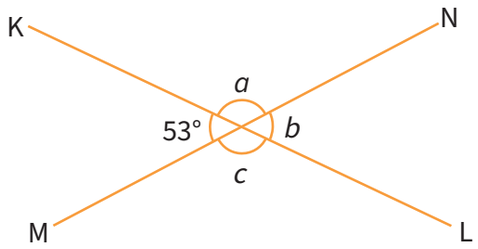
Boshqa qo‘shni burchaklar jufti ham bormi?

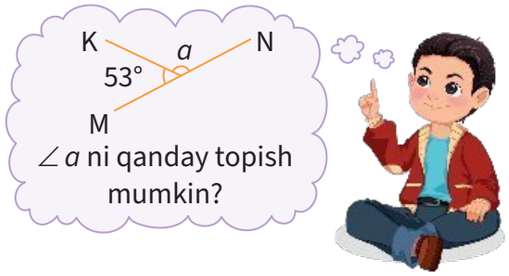


Vertikal burchaklar o‘zaro teng bo‘ladi.

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3 KL va MN – to‘g‘ri chiziqlar. Noma’lum burchaklarni toping.

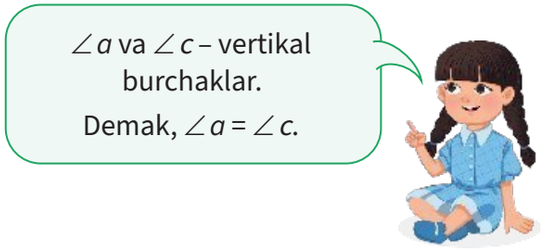




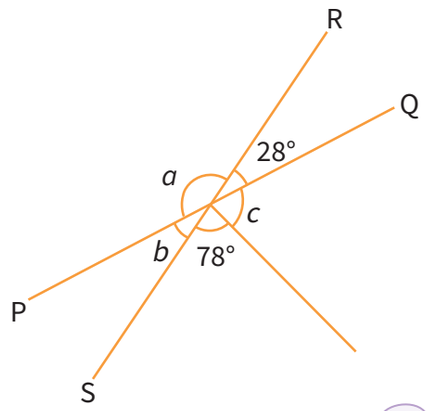
$\angle a = 180° - 53°$
$= 127°$

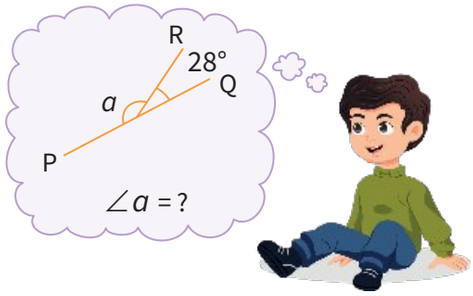
$\angle b = 53°$

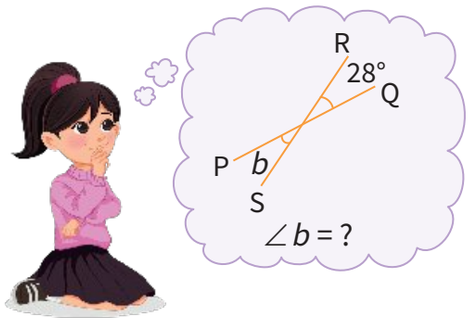
$\angle c = \angle a$
$= 127°$

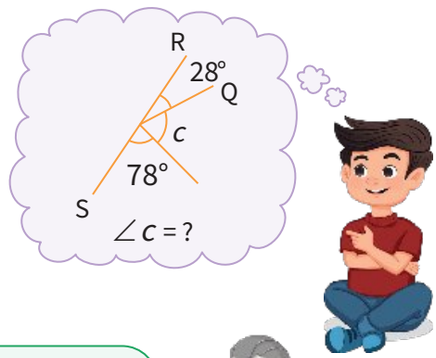


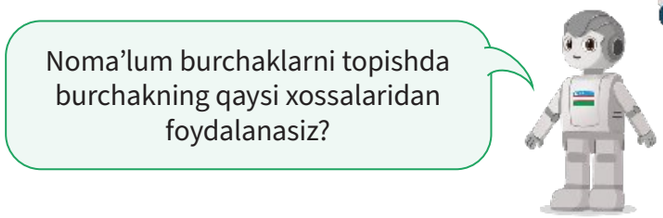
4 PQ va RS – to‘g‘ri chiziqlar. $\angle a$, $\angle b$ va $\angle c$ ni toping.











51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 97 13/11/24 14:51

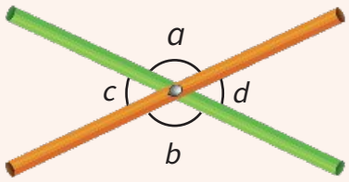
Qo‘lda bajariladigan mashq

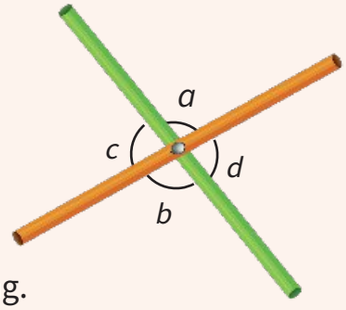




Guruh bo‘lib ishlang.
Ikkita tayoq olib, ularning o‘rtasini mix bilan mahkamlang.

Transportir bilan vertikal burchaklarni o‘lchang.
Tayoqlarni burib, burchaklar o‘lchamini o‘zgartiring va hosil bo‘lgan burchaklarni qaytadan o‘lchang.





Qanday o‘zgarishni sezdingiz? Muhokama qiling.

a) $\angle a = \angle b$ o‘rinlimi? $\angle c = \angle d$-chi?
b) $\angle a + \angle c = \angle b + \angle d$ o‘rinlimi?
c) $\angle a + \angle d = \angle b + \angle c$ o‘rinlimi?

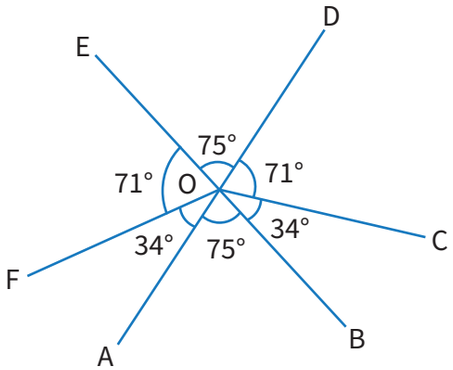
Juftlikda ishlang



Sherigingiz bilan Muhokama qiling.

AOD va BOE kesishuvchi to‘g‘ri chiziqlar berilgan.

a) Vertikal burchaklar juftligini aniqlang.
b) $\angle EOF = \angle DOC$. Bu burchaklar vertikalmi? Tushuntiring.



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Turmushda matematika

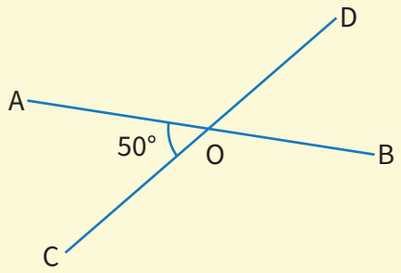
Dazmol taxtasiga qarab vertikal burchaklarni ayting. Uyingizdagi yana qaysi jihozlarda vertikal burchaklarni ko‘rish mumkin?



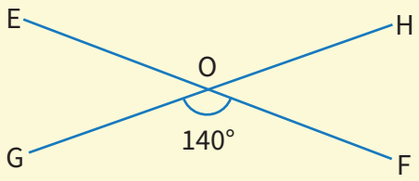
Bajaring va o‘rganing



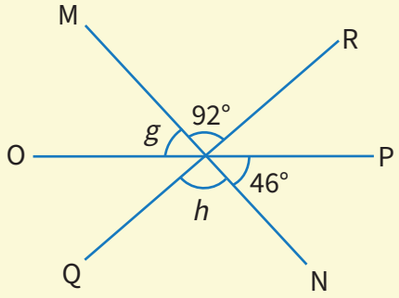
a) AOB va COD – to‘g‘ri chiziqlar. Qaysi burchak AOC burchakka teng?



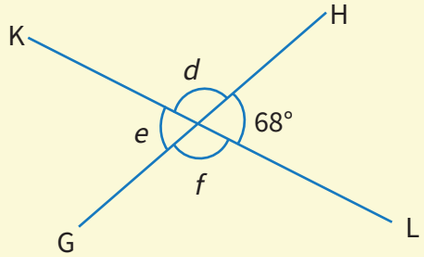
b) EOF va GOH – to‘g‘ri chiziqlar. Qaysi burchak GOF burchakka teng?



c) MN, OP va QR – to‘g‘ri chiziqlar. $\angle g$ va $\angle h$ larni toping.



d) GH va KL – to‘g‘ri chiziqlar. $\angle d$, $\angle e$ va $\angle f$ larni toping.



Mashq daftariga o‘ting **137–140**

51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 99 13/11/24 14:51

Nuqta atrofidagi burchaklar

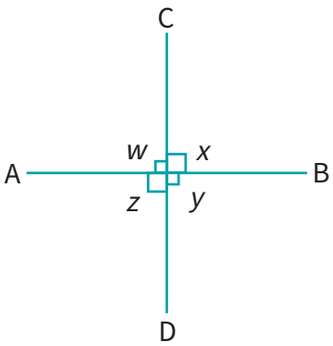
Qarang va o‘rganing

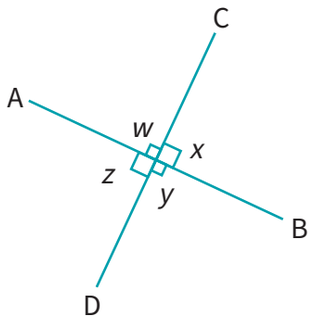


1 Nuqta atrofida bir marta to‘liq aylanishdan 360° li burchak hosil bo‘ladi.



2 Quyidagi chizmalarda AB va CD perpendikulyar to‘g‘ri chiziqlar berilgan. $\angle w$, $\angle x$, $\angle y$ va $\angle z$ – to‘g‘ri burchaklar.



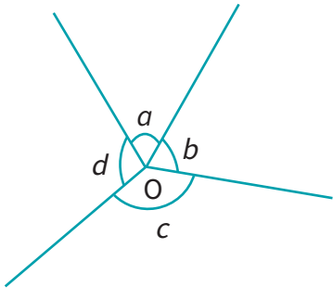


$$\angle w + \angle x + \angle y + \angle z = 4 \times 90°$$
$$= 360°$$

$\angle w$ va $\angle x$, $\angle y$ va $\angle z$ qo‘shni burchaklar juftligini tashkil qiladi.
$\angle w + \angle x = 180°$
$\angle y + \angle z = 180°$
Demak, $\angle w + \angle x + \angle y + \angle z = 360°$.



3 $\angle a$, $\angle b$, $\angle c$ va $\angle d$ – O nuqta atrofidagi burchaklar. Ularning yig‘indisini toping.



$\angle a = 60°$
$\angle b = 70°$
$\angle c = 130°$
$\angle d = 100°$

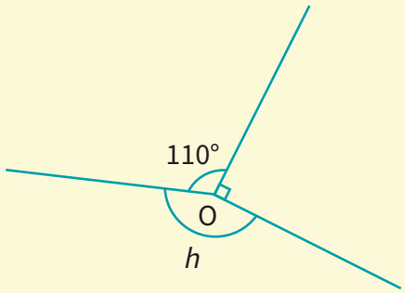
$$\angle a + \angle b + \angle c + \angle d = 60° + 70° + 130° + 100°$$
$$= 360°$$

Nuqta atrofidagi burchaklar yig‘indisi 360° ga teng.

51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 100 13/11/24 14:51

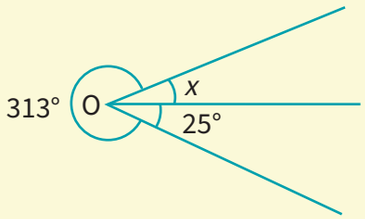
4 Quyidagi chizmalarda nuqta atrofidagi burchaklar tasvirlangan. Noma'lum burchaklarni toping.

a)



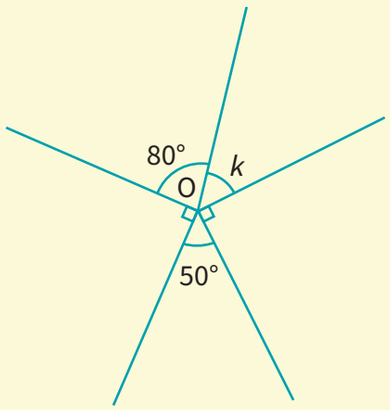
$\angle h = 360° - 110° - 90°$
$= 160°$

b)



$\angle x = 360° - 313° - 25°$
$= 22°$

c)



$\angle k = 360° - 90° - 90° - 80° - 50°$
$= 50°$

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Qo‘lda bajariladigan mashq

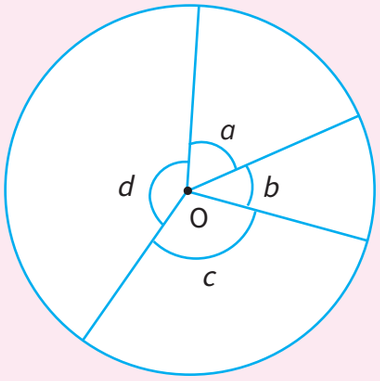




Sherigingiz bilan ishlang.

Quyidagi aylanada rasmda ko‘rsatilganidek 4 ta radius chizing. Hosil bo‘lgan 4 ta burchakni transportir yordamida o‘lchang va ularning yig‘indisini toping.

Namuna



$\angle a =$

$\angle b =$

$\angle c =$

$\angle d =$

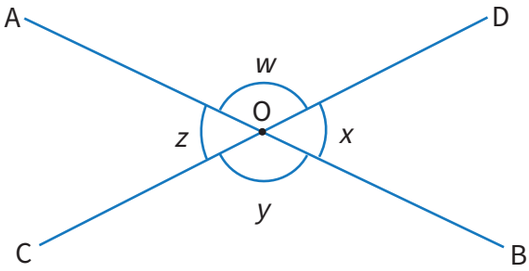
$\angle a + \angle b + \angle c + \angle d =$

Juftlikda ishlang



Sherigingiz bilan Muhokama qiling.
Noma’lum burchaklarni topish uchun burchakning qaysi xossalaridan foydalanasiz?

AOB va COD – to‘g‘ri chiziqlar va $\angle w = 128°$. O nuqta atrofidagi burchaklar yig‘indisini toping.





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Qiziqarli matematika

O‘rganing va bo‘lishing



Guruh bo‘lib ishlang.

Burchakning quyidagi xossalarini ko‘rsatish uchun chizma chizing va sinfdoshlaringiz bilan Muhokama qiling.

a) to‘g‘ri chiziqdagi burchaklar;
b) vertikal burchaklar;
c) nuqta atrofidagi burchaklar.

Burchak xossalarini namoyish qilish uchun “Power Point” taqdimotlaridan ham foydalanishingiz mumkin.

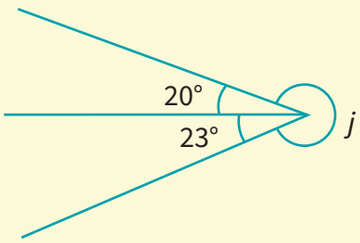


Bajaring va o‘rganing

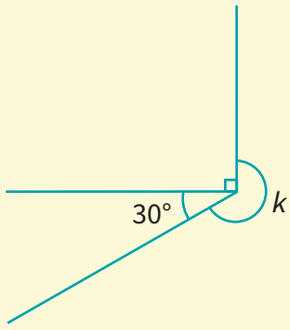


Noma’lum burchaklarni toping.

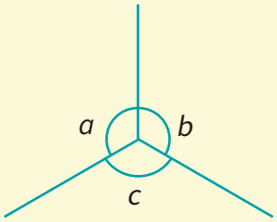
a)



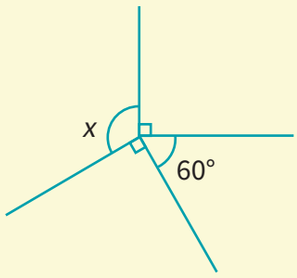
b)



c) $\angle a = \angle b = \angle c$



d)

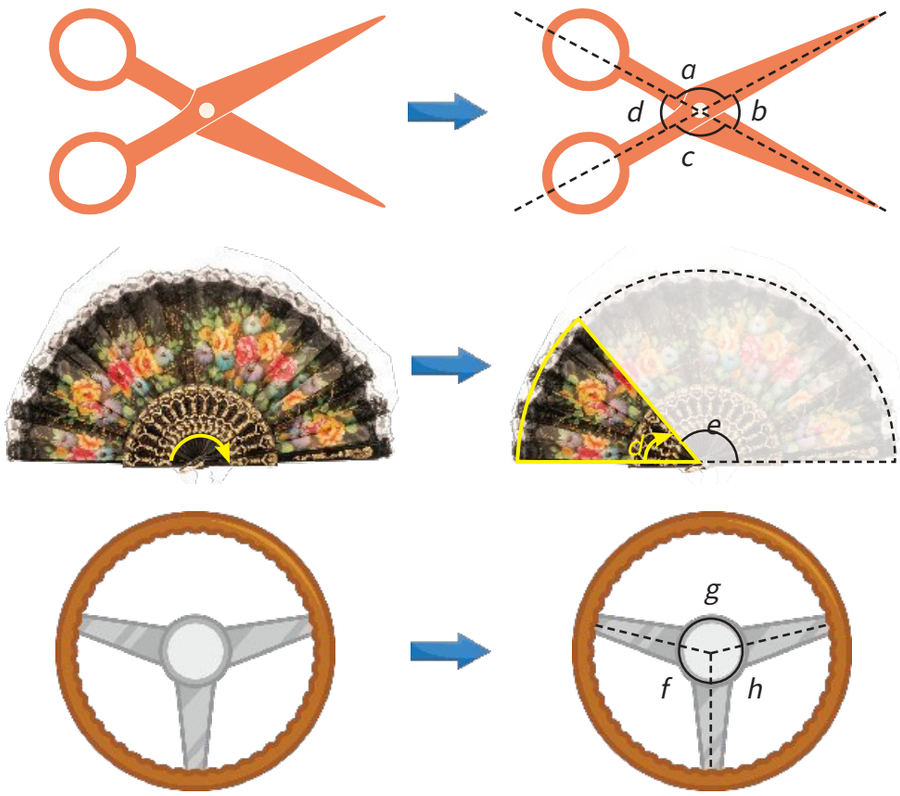


Mashq daftariga o‘ting **141–142**

51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 103 13/11/24 14:51

Turmushda matematika

Quyida burchaklarga oid kundalik hayotda uchraydigan misollar keltirilgan.
Ularda burchakning qaysi xossalari ifodalangan?
Burchakka oid yana qanday misollarni bilasiz?



Juftlikda ishlang



Tabiatda uchraydigan burchakka oid turli misollarni sherigingiz bilan Muhokama qiling.

AKT mashqi



“Burchak xossalari” dasturi yordamida quyidagilarni tekshiring.

a) Vertikal burchaklar teng.

b) Nuqta atrofidagi burchaklar yig‘indisi 360^o ga teng.

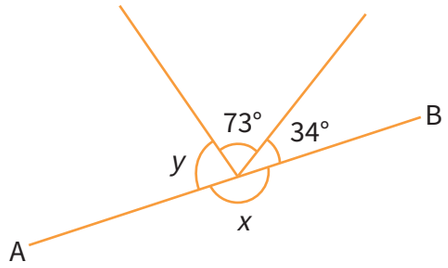
51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 104 13/11/24 14:51

Noma’lum burchaklarni topish

Qarang va o‘rganing



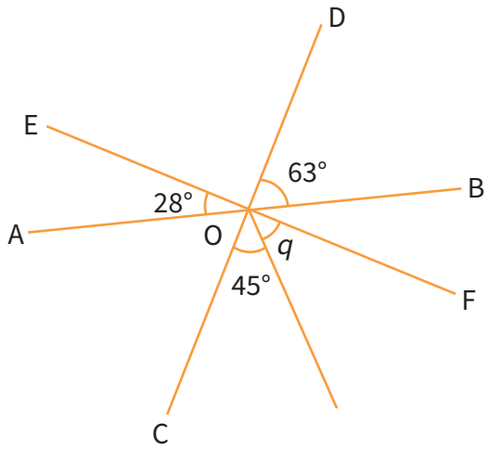
1 AB to‘g‘ri chiziq berilgan. Noma’lum burchaklarni toping.



$\angle x = 180°$

$\angle y = 180° - 73° - 34°$
$= 73°$

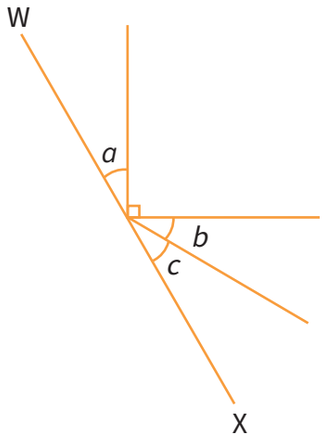
2 AOB, COD va EOF to‘g‘ri chiziqlar berilgan. $\angle q$ ni toping.



$\angle BOF = 28°$

$\angle q = 180° - 63° - 28° - 45°$
$= 44°$

3 WX to‘g‘ri chiziq va $\angle a = \angle b = \angle c$ berilgan. $\angle a$ ni toping.



$\angle a + \angle b + \angle c = 180° - 90°$
$= 90°$

$\angle a = 90° \div 3$
$= 30°$

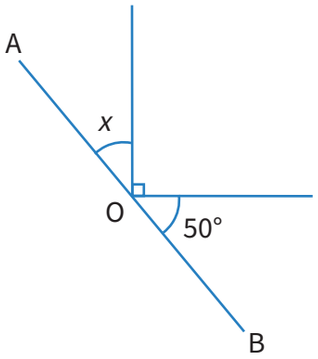
51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 105 13/11/24 14:51

Juftlikda ishlang

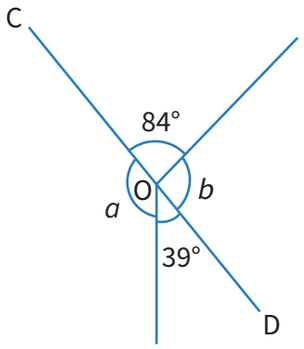


Noma’lum burchaklarni toping. Javobingizni tushuntiring.

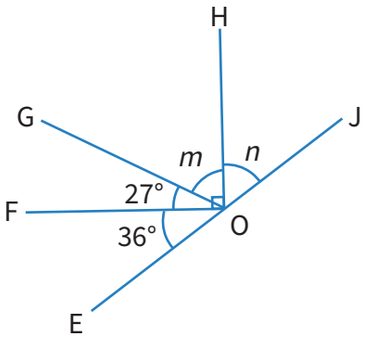
a) AOB to‘g‘ri chiziq berilgan. $\angle x$ ni toping.



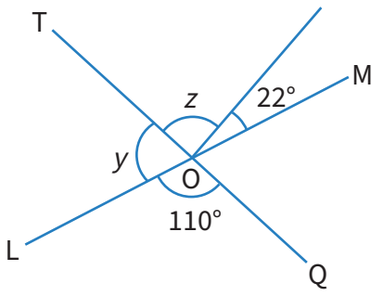
b) COD to‘g‘ri chiziq berilgan. $\angle a$ va $\angle b$ ni toping.



c) EOJ to‘g‘ri chiziq berilgan va $\angle$FOH – to‘g‘ri burchak. $\angle m$ va $\angle n$ ni toping.



d) TOQ va LOM to‘g‘ri chiziqlar berilgan. $\angle y$ va $\angle z$ ni toping.

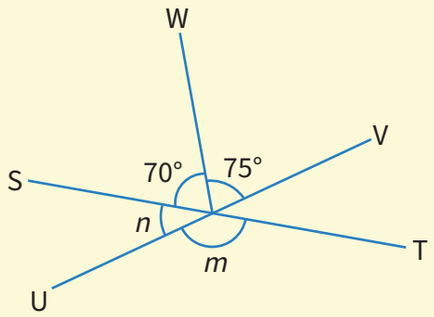


51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 106 13/11/24 14:51

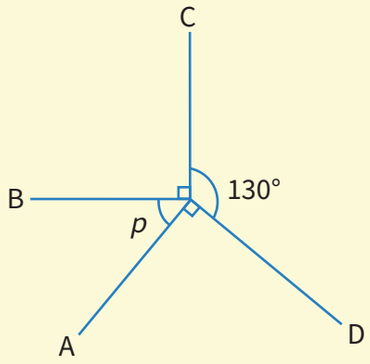
Bajaring va o‘rganing

Noma’lum burchaklarni toping.

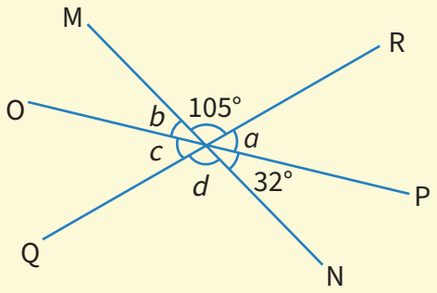
a) Bir nuqtada kesishuvchi ST va UV to‘g‘ri chiziqlar berilgan.



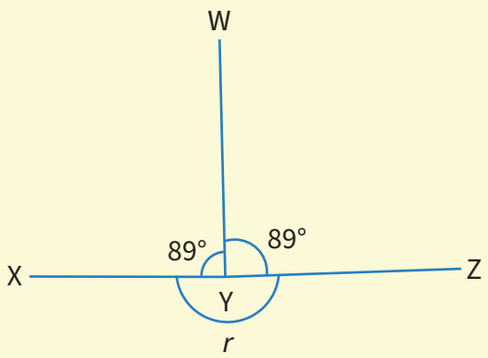
b)



c) Bir nuqtada kesishuvchi MN, OP va QR to‘g‘ri chiziqlar berilgan.



d)



Mashq daftariga o‘ting 143–148

O‘zingizni tekshiring

a) Men to‘g‘ri chiziqdagi, vertikal va nuqta atrofidagi burchaklarni farqlashni bilaman.

b) Men to‘g‘ri chiziqdagi, vertikal va nuqta atrofidagi burchaklarning xossalarini bilaman.

c) Men burchak xossalaridan foydalanib noma’lum burchaklarni topishni bilaman.

51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 107 13/11/24 14:51

Qo‘lda bajariladigan mashq

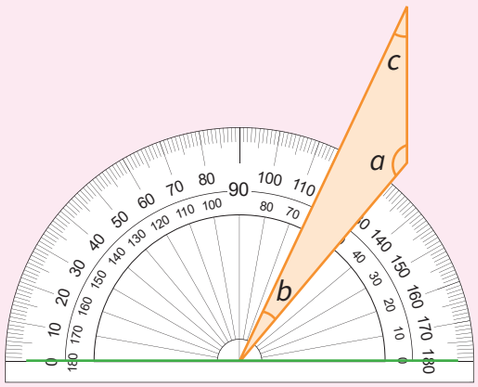


Do‘stingiz bilan ishlang.

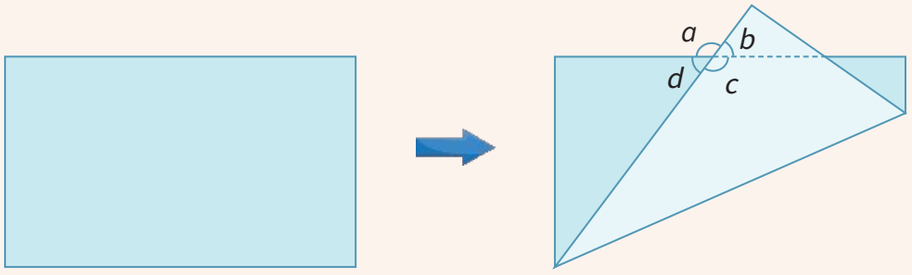
1 Ustozingiz bergan ikkita shaklni qirqib oling.
Shakllardan birining bitta uchini transportir markaziga chizmadagidek joylashtiring.
To‘g‘ri chiziqdagi burchaklar xossalaridan foydalanib noma’lum burchakni toping.

Namuna

$\angle b = 180° - 50° - 115°$
$= 15°$



2 A4 o‘lchamli qog‘ozini quyidagi rasmdagidek buklang.
Buklangan qog‘oz tomonlaridan hosil bo‘lgan $\angle a$ ni transportir yordamida o‘lchang.
So‘ng $\angle b$, $\angle c$ va $\angle d$ larni transportirsiz toping.
Bu usulni sherigingiz bilan Muhokama qiling.

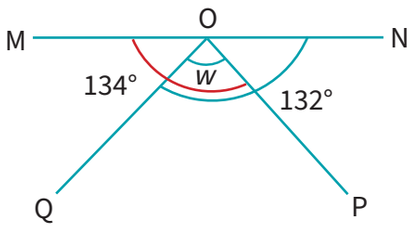


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O‘ylab ko‘ring



Chizmada MON to‘g‘ri chiziq berilgan. $\angle MOP = 134°$ va $\angle NOQ = 132°$.
$\angle w$ ni toping.



Mashq daftariga o‘ting **149–150**

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12 Uchburchakning xossalari

Muhokama qiling



Bolalar xiyobonda o‘ynashmoqda.

Xiyobonda turli xil uchburchaklarni ko‘rish mumkin.

Uchburchaklar qanday farqlanadi?

Bu bayroq shakli qanday uchburchak turiga mos?

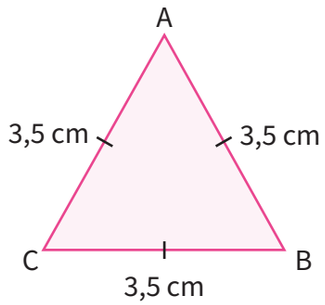
Uchburchakning turlari

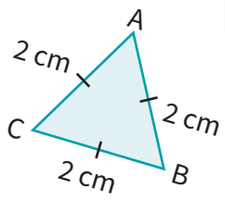
Qarang va o‘rganing

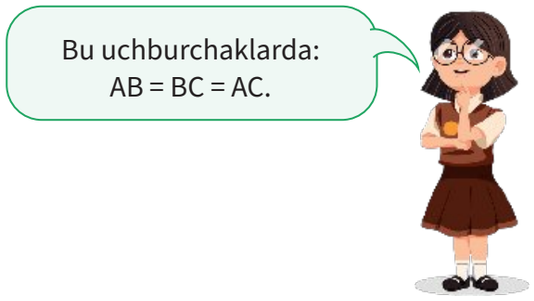


Uchburchaklarning bir nechta turi mavjud.

1 Rasmda **teng tomonli uchburchaklar** tasvirlangan.





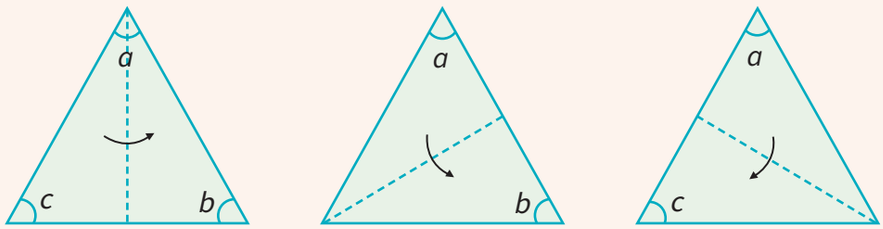


Qo‘lda bajariladigan mashq





Sherigingiz bilan ishlang.
Ustozingiz bergan qog‘ozdagi teng tomonli uchburchakni qirqib oling.
Uchburchakni teng ikkiga bo‘lish uchun uni turli usullarda buklang.



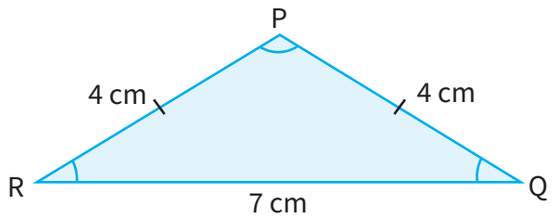
a) Teng tomonli uchburchaklarning burchaklari haqida nima deyish mumkin?
b) Har bir burchakni transportir yordamida o‘lchang. Burchaklarning gradus o‘lchamini ayting.

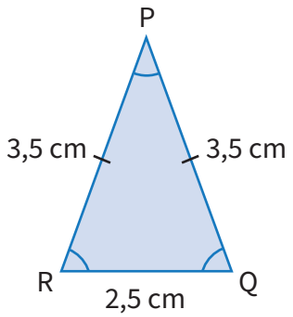
$\angle a = \angle b = \angle c =$

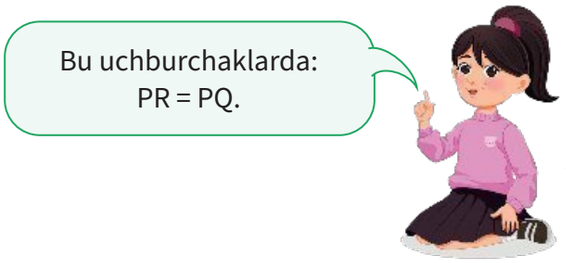
Teng tomonli uchburchakning uchta teng tomoni va uchta teng burchagi bor. Uning har bir burchagi 60° ga teng.

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2 Rasmda **teng yonli uchburchaklar** tasvirlangan.

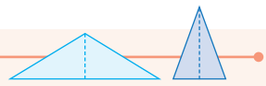




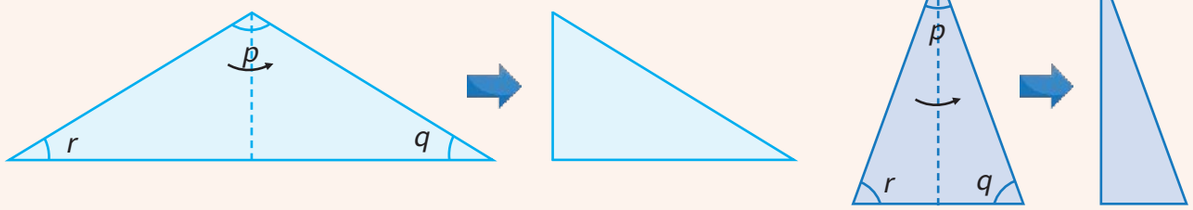


Qo‘lda bajariladigan mashq





Sherigingiz bilan ishlang.
Ustozingiz bergan qog‘ozdagi teng yonli uchburchakni qirqib oling.
Uchburchakni teng ikkiga bo‘lish uchun uni rasmdagidek buklang.

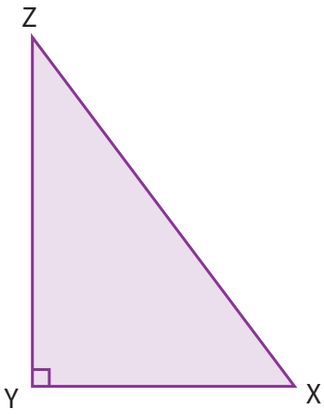


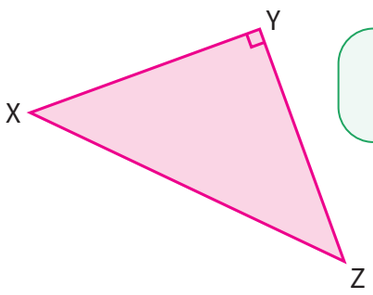
a) Teng yonli uchburchakning burchaklari haqida nima deyish mumkin?
b) Burchaklarni transportir yordamida o‘lchang. Har bir burchakning o‘lchamini ayting.
c) Teng tomonlar qarshisidagi burchaklar haqida nima deyish mumkin? Ular tengmi?

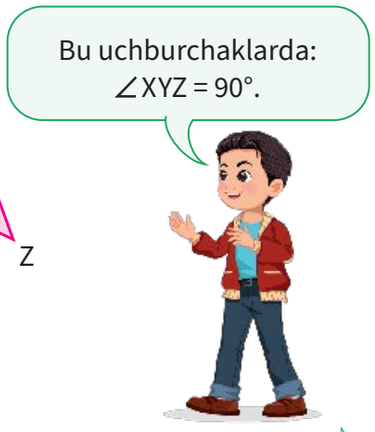
**Teng yonli uchburchakning ikkita tomoni va ikkita burchagi teng.
Uning teng tomonlari qarshisidagi burchaklari teng bo‘ladi.**

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3 Rasmda **to‘g‘ri burchakli uchburchaklar** tasvirlangan.



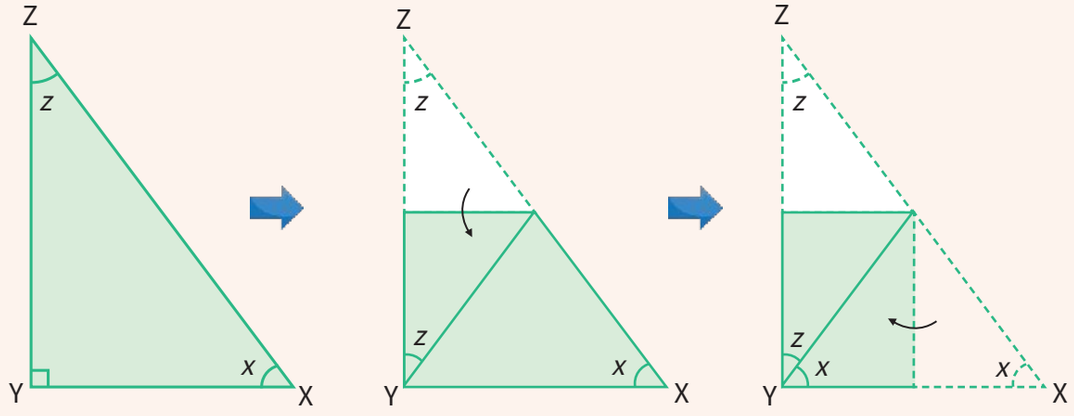




Qo‘lda bajariladigan mashq



Sherigingiz bilan ishlang.
Ustozingiz bergan qog‘ozdagi to‘g‘ri burchakli uchburchakni qirqib oling.
Uchburchakni rasmdagidek buklab, X va Z uchlarini Y uch bilan ustma-ust tushiring.

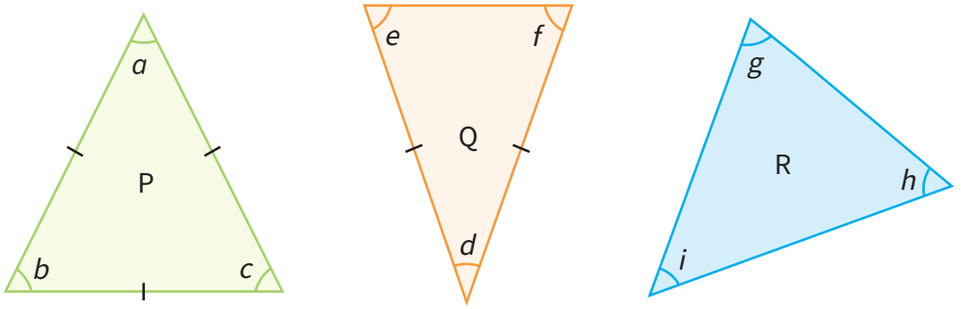


$\angle x$ va $\angle z$ lar yig‘indisi haqida nima deyish mumkin?

To‘g‘ri burchakli uchburchakning bitta to‘g‘ri burchagi bor, qolgan ikkita burchagining yig‘indisi esa 90° ga teng.

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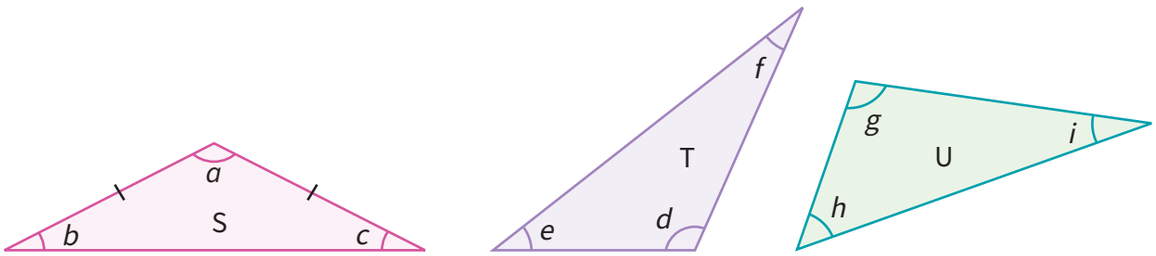
4 Rasmda **o‘tkir burchakli uchburchaklar** tasvirlangan.
Bu uchburchaklarning barcha burchaklari – **o‘tkir burchaklar**.



90° dan kichik burchakka **o‘tkir burchak** deyiladi.

O‘tkir burchakli uchburchakning barcha burchaklari o‘tkir burchak bo‘ladi.

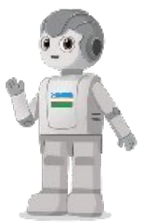
5 Rasmda **o‘tmas burchakli uchburchaklar** tasvirlangan.
$\angle a, \angle d$ va $\angle g$ – **o‘tmas burchaklar**.



90° dan katta va 180° dan kichik burchak o‘tmas burchak deyiladi.

O‘tmas burchakli uchburchakning bitta burchagi o‘tmas burchak bo‘ladi.

O‘tmas burchakli uchburchak teng yonli bo‘lishi mumkin.



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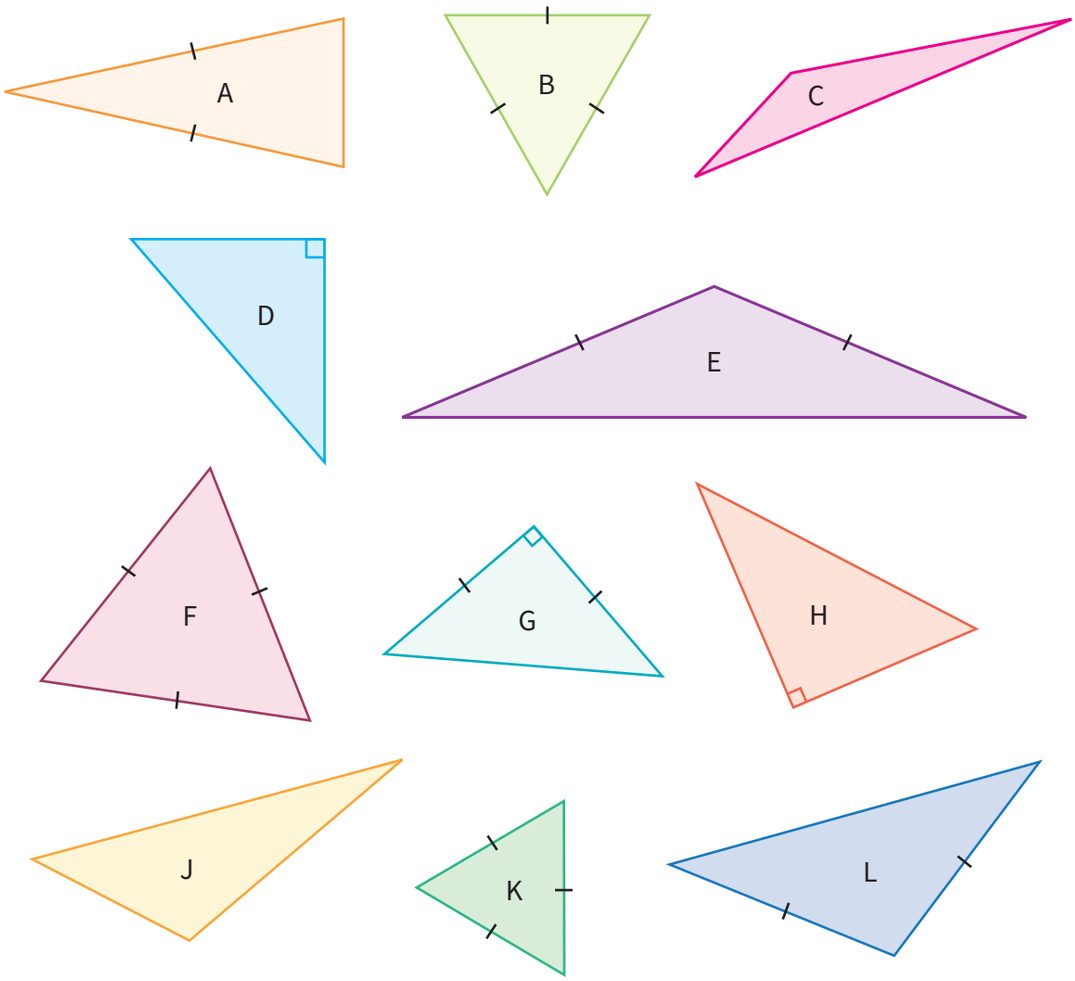
O‘rganing va bo‘lishing



Guruh bo‘lib ishlang.
Quyidagi uchburchaklar tomonlari va burchaklariga ko‘ra turlarga qanday ajratilishini ko‘rsating. Ajratish usullaringizni sinfdoshlaringizga ayting.

Uchburchakning turlari:

teng tomonli, teng yonli, to‘g‘ri burchakli, o‘tkir burchakli, o‘tmas burchakli.



Teng yonli uchburchak albatta o‘tkir burchakli uchburchak bo‘ladimi?

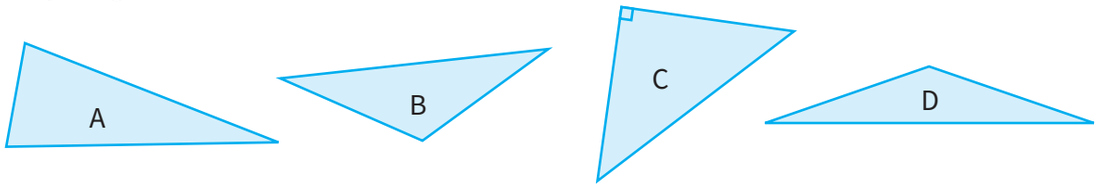
51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 115 13/11/24 14:51

Qiziqarli matematika

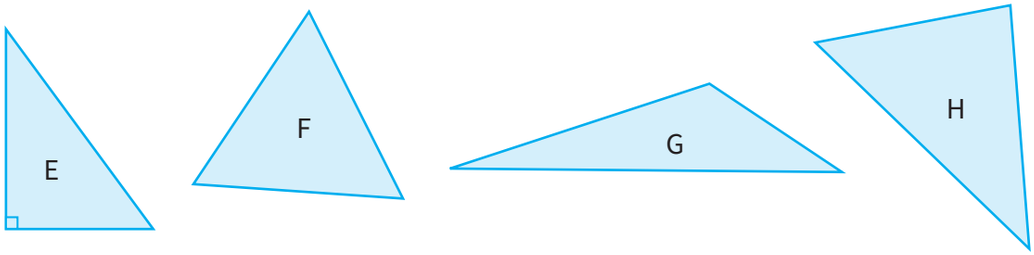
O‘ynang va o‘rganing



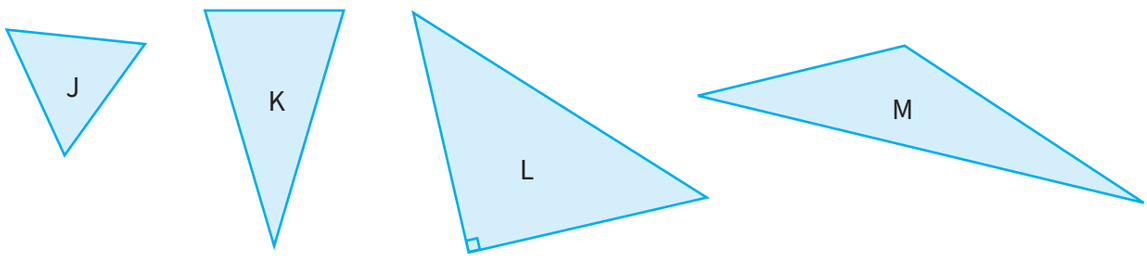
Quyidagi uchburchaklar “mos”.



Quyidagi uchburchaklar “mos” emas.



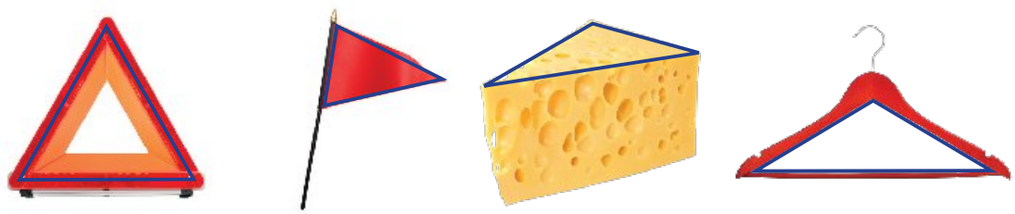
Qaysi uchburchaklar “mos”?



Uchburchakning qanday turlari “mos” bo‘ladi? Ularni tasvirlang.

Turmushda matematika

Guruh bo‘lib ishlang.
Kundalik hayotda uchraydigan turli uchburchaklarga misollar keltiring. Ularning rasmlarini ko‘rsating. Sinfdoshlaringizdan uchburchaklarni turlarga ajratishni so‘rang.
Namuna:

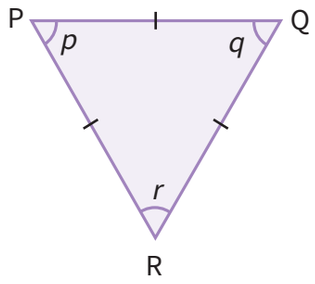


51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 116 13/11/24 14:51

Bajaring va o‘rganing



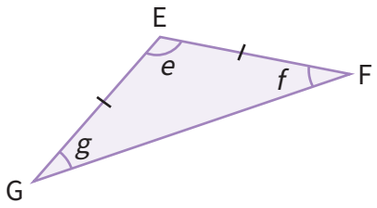
1 a)



PQ = ____ = ____

$\angle p = \angle q = \angle$ ____ = ____ °

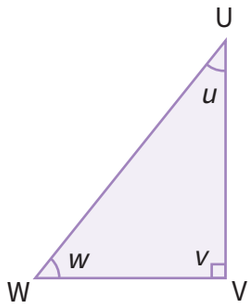
b)



$\angle g = \angle$ ____

EG = ____

c)

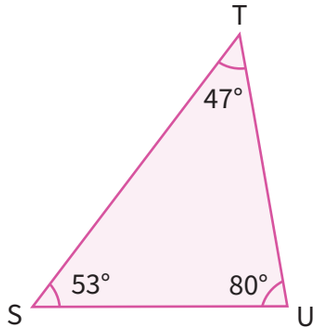


$\angle v =$ ____ °

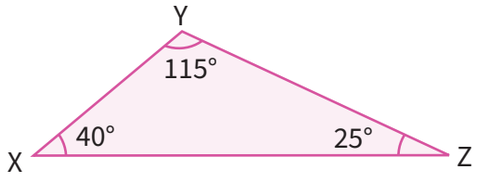
$\angle u + \angle w =$ ____ °

2 Uchburchaklarning turini aniqlang.

a)



b)



Mashq daftariga o‘ting **151–154**

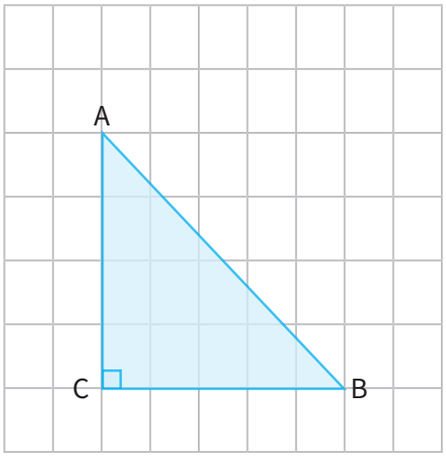
51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 117 13/11/24 14:51

Uchburchaklarni chizish

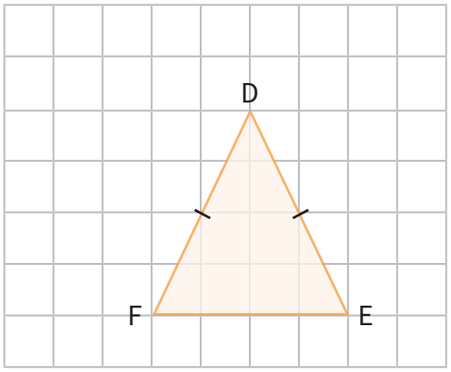
Qarang va o‘rganing

Katakli daftarga uchburchak chizish

1 Shunday ABC to‘g‘ri burchakli uchburchak chizing: unda AC ⊥ BC bo‘lsin.



2 Shunday teng yonli DEF uchburchak chizing: unda DE = DF bo‘lsin.



Juftlikda ishlang

Sherigingiz bilan Muhokama qiling.

1 Katak daftarga yuqorida berilgan uchburchaklardan o‘lchami va joylashuvi bilan farqlanuvchi to‘g‘ri burchakli uchburchak va teng yonli uchburchak chizing. Ularni bo‘yang.

2 Katak daftarga quyidagi uchburchaklarni chizing:

a) o‘tkir burchakli uchburchak;

b) o‘tmas burchakli uchburchak;

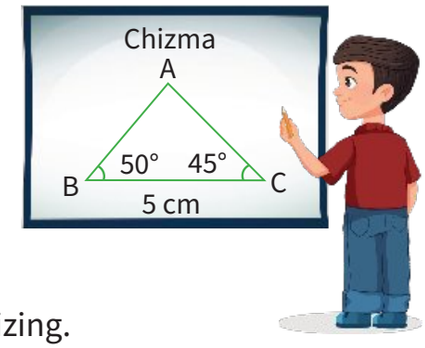
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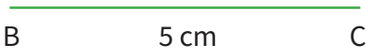
Qarang va o‘rganing

Berilgan o‘lchamlar bo‘yicha uchburchak chizish

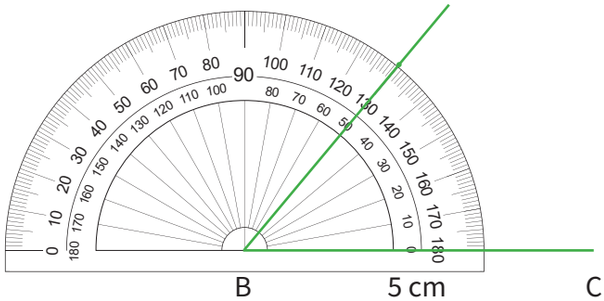
1 Shunday ABC uchburchak chizing: unda BC = 5 cm, ∠ABC = 50° va ∠ACB = 45° bo‘lsin.

1-qadam Uzunligi 5 cm bo‘lgan BC kesma chizing.

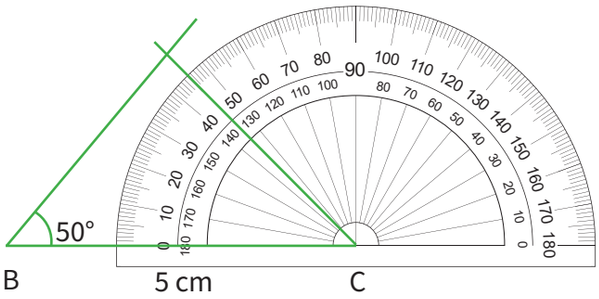




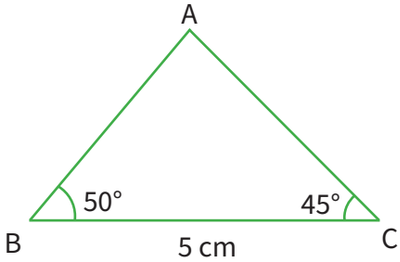
2-qadam Transportirni B nuqtaga qo‘ying.
B nuqtadan 50° burchakni o‘lchang va chizing.



3-qadam Transportirni C nuqtaga qo‘ying.
C nuqtadan 45° burchakni o‘lchang va chizing.



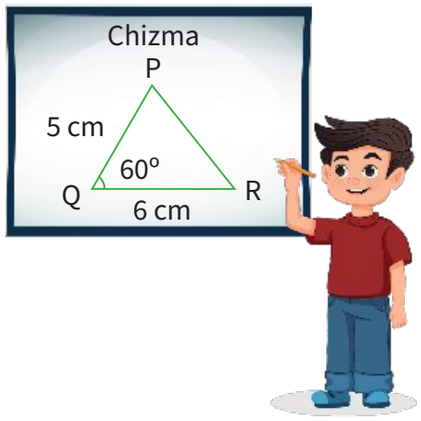
4-qadam A nuqtani belgilang.

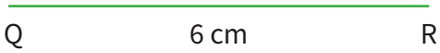


51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 119 13/11/24 14:51

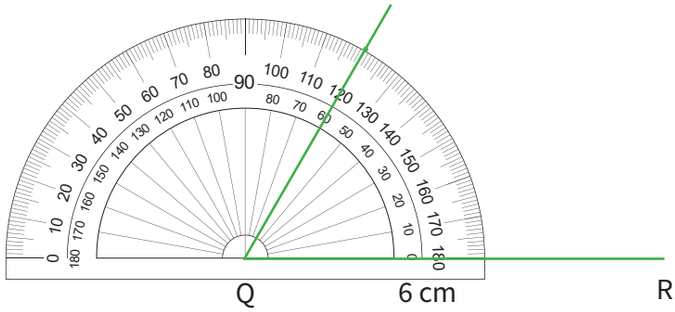
2 Shunday PQR uchburchak chizing: unda PQ = 5 cm, QR = 6 cm va ∠PQR = 60° bo‘lsin.

1-qadam Uzunligi 6 cm bo‘lgan QR kesma chizing.

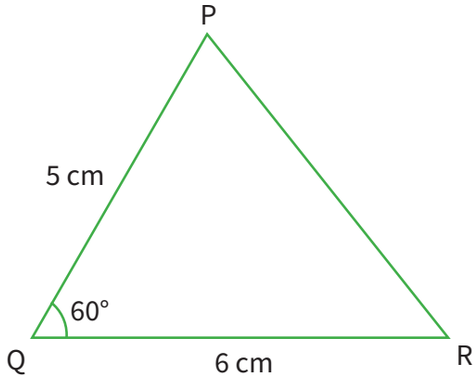




2-qadam Transportirni Q nuqtaga qo‘ying.
Q nuqtadan 60° burchakni o‘lchang va chizing.



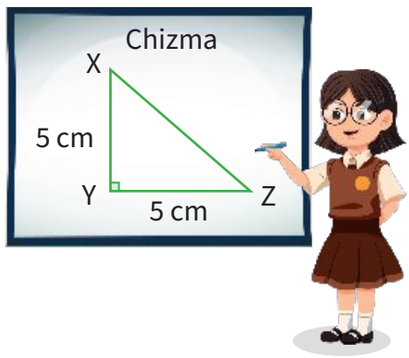
3-qadam Q nuqtadan 5 cm masofadagi P nuqtani belgilang. P va R nuqtalarni to‘g‘ri chiziq bilan tutashtiring.

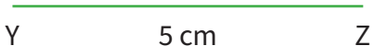


51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 120 13/11/24 14:51

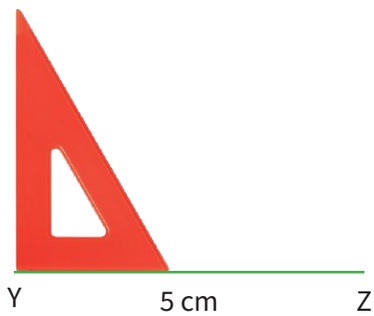
3 Shunday XYZ uchburchak chizing: unda XY = YZ = 5 cm va ∠XYZ = 90° bo‘lsin.

1-qadam Uzunligi 5 cm bo‘lgan YZ kesma chizing.

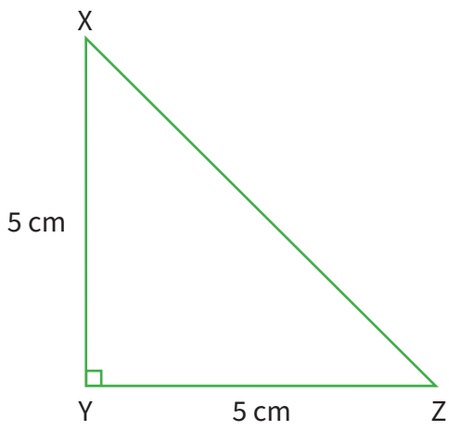




2-qadam Uchburchakli chizg‘ichni YZ kesmaga chizmadagidek joylashtiring va YZ kesmaning Y nuqtasiga perpendikulyar tushiring.



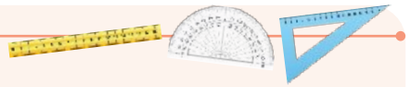
3-qadam Y nuqtadan 5 cm uzoqlikda X nuqtani belgilang. X va Z nuqtalarni tutashtiring.



51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 121 13/11/24 14:51

Qo‘lda bajariladigan mashq





Guruh bo‘lib ishlang.
Dastlab har bir uchburchakni chamalab chizing. Keyin chizg‘ich, transportir va uchburchakli chizg‘ich yordamida ularni qayta aniq chizing.

a) ABC uchburchak
$\angle ABC = 50°$, $\angle ACB = 70°$, $BC = 7$ cm

b) PQR uchburchak
$PQ = 8$ cm, $QR = 5$ cm, $\angle PQR = 90°$

Mashq daftariga o‘ting 155–156

O‘zingizni tekshiring



Men berilgan o‘lchamlarga ko‘ra uchburchakni chizishni bilaman.

51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 122 13/11/24 14:51

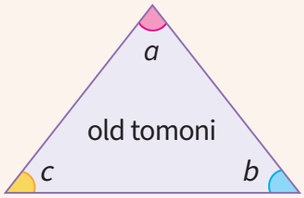
Uchburchakning burchaklari

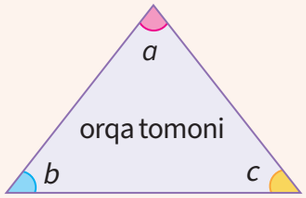
Qo‘lda bajariladigan mashq



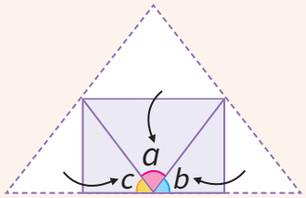
Sherigingiz bilan ishlang.

1 Ustozingiz bergan qog‘ozdan uchburchakni qirqib oling. Uchburchak burchaklarini chizmadagi kabi *a*, *b*, *c* harflari bilan belgilang.





Uchburchakni rasmda ko‘rsatilganidek 3 ta uchi bir tomonidagi bitta nuqtada ustma-ust tushadigan qilib buklang.
Uning burchaklari yig‘indisi haqida nima deyish mumkin?



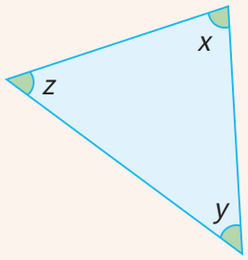
$\angle a$, $\angle b$ va $\angle c$ – to‘g‘ri chiziqda yotuvchi burchaklar. Demak,
$\angle a + \angle b + \angle c = 180°$.



Tekshirish

Uchburchak burchaklarini o‘lchash uchun transportirdan foydalaning. Burchaklar yig‘indisi 180° ga tengmi?

2 Quyida berilgan uchburchakdagi $\angle x$, $\angle y$ va $\angle z$ ni o‘lchash uchun transportirdan foydalaning. Uchburchakning burchaklari yig‘indisi haqida nima deyish mumkin?



$\angle x =$

$\angle y =$

$\angle z =$

$\angle x + \angle y + \angle z =$

Uchburchakning burchaklari yig‘indisi 180° ga teng.

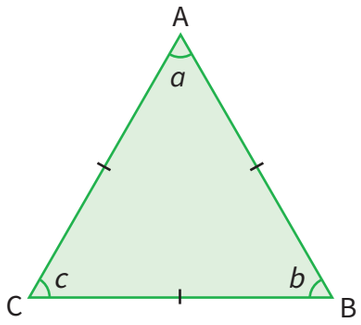
51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 123 13/11/24 14:51

Juftlikda ishlang

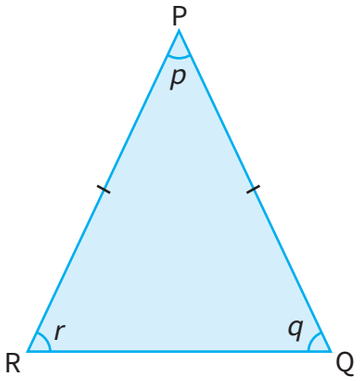


Sherigingiz bilan ishlang.
Transportir yordamida noma'lum burchakni o'lchang.

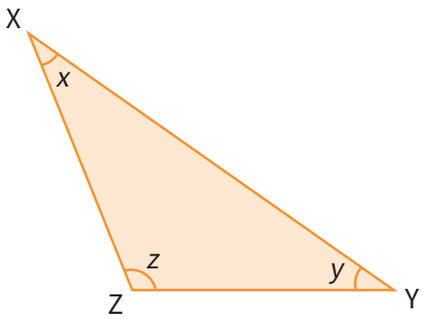
a) ABC – teng tomonli uchburchak.
$\angle a$, $\angle b$ va $\angle c$ lar yig'indisi nechaga teng?



b) PQR – teng yonli uchburchak.
$\angle p$, $\angle q$ va $\angle r$ lar yig'indisi nechaga teng?



c) XYZ – o'tmas burchakli uchburchak.
$\angle x$, $\angle y$ va $\angle z$ lar yig'indisi nechaga teng?



AKT mashqi



"Burchaklar yig'indisi" dasturidan foydalanib uchburchakning burchaklari yig'indisi 180° ga teng ekanini ko'rsating.

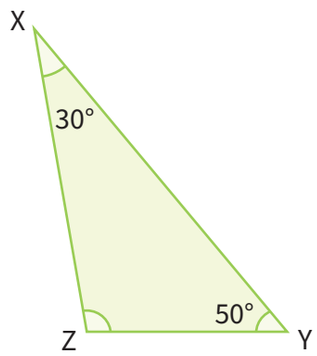
51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 124 13/11/24 14:51

Qarang va o‘rganing



1 Uchburchaklarning noma’lum burchaklarini toping.

a)



Uchburchakning burchaklari yig‘indisi 180°.

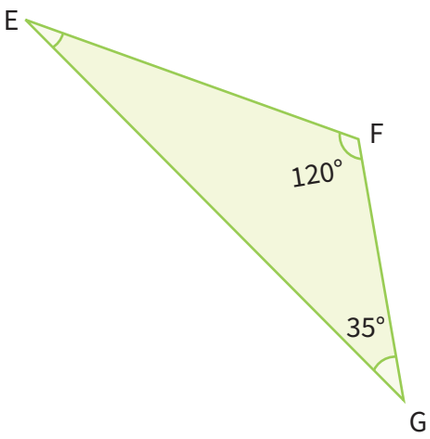
$30° + 50° + \angle XZY = 180°$



$\angle XZY = 180° - 30° - 50°$

$= 100°$

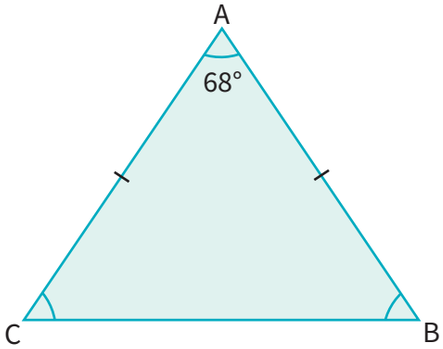
b)



$\angle FEG = 180° - 120° - 35°$

$= 25°$

2 ABC – teng yonli uchburchak. $\angle ACB$ ni toping.



Teng yonli uchburchakning teng tomonlari qarshisidagi burchaklari teng bo‘ladi.



$\angle ACB = \angle ABC$

$\angle ACB + \angle ABC = 180° - 68°$

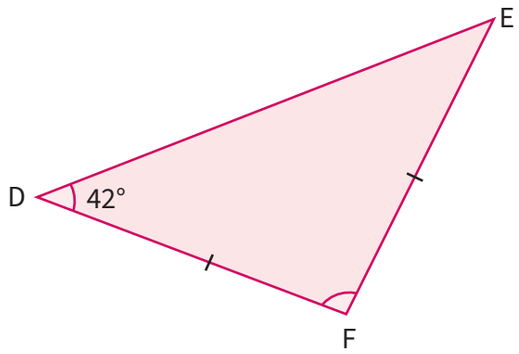
$= 112°$

$\angle ACB = 112° \div 2$

$= 56°$

51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 125 13/11/24 14:51

3 DEF uchburchakda DF = EF va ∠EDF = 42°. ∠EFD ni toping.

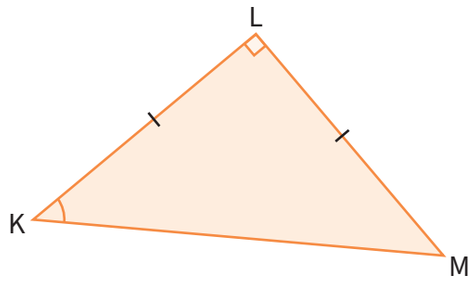




∠EDF = ∠DEF
= 42°

∠EFD = 180° – 42° – 42°
= 96°

4 KLM – teng yonli uchburchak. ∠LKM ni toping.



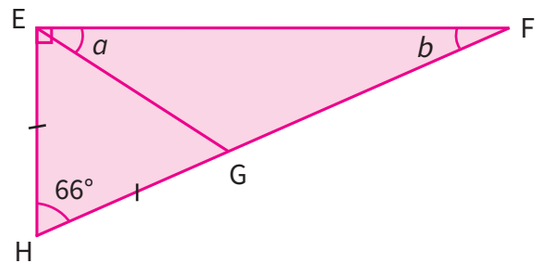
∠LKM + ∠LMK = 180° – 90°
= 90°

∠LKM = ∠LMK

∠LKM = 90° ÷ 2
= 45°

51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 126 13/11/24 14:51

5 EFH – to‘g‘ri burchakli uchburchak, EGH esa teng yonli uchburchak. EH = GH va ∠EHG = 66°. ∠*a* va ∠*b* ni toping.

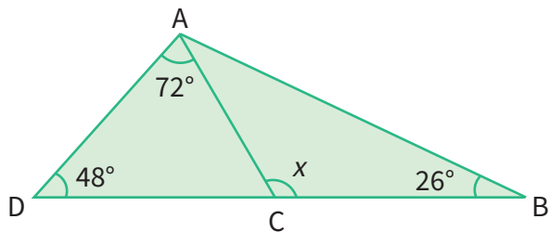


$\angle b = 180° - 90° - 66°$
$= 24°$

$\angle GEH = (180° - 66°) \div 2$
$= 57°$

$\angle a = 90° - 57°$
$= 33°$

6 Chizmada BCD – to‘g‘ri chiziq. Agar ∠DAC = 72°, ∠ADC = 48° va ∠ABC = 26° bo‘lsa, ∠*x* ni toping.



1-usul

$\angle ACD = 180° - 48° - 72°$
$= 60°$

$\angle x = 180° - 60°$
$= 120°$

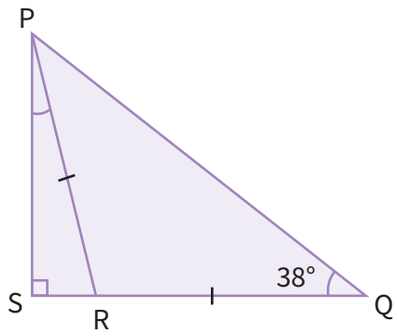
2-usul

$\angle CAB = 180° - 48° - 26° - 72°$
$= 34°$

$\angle x = 180° - 26° - 34°$
$= 120°$

51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 127 13/11/24 14:51

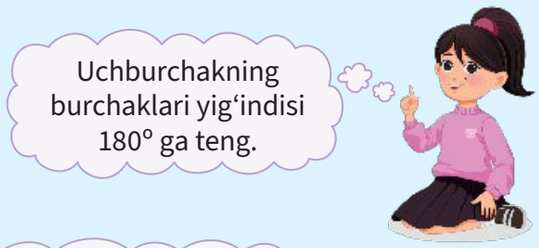
7 PSQ – to‘g‘ri burchakli uchburchak. PQR esa teng yonli uchburchak. PR = QR va ∠PQR = 38°. SRQ – to‘g‘ri chiziq. ∠SPR ni toping.



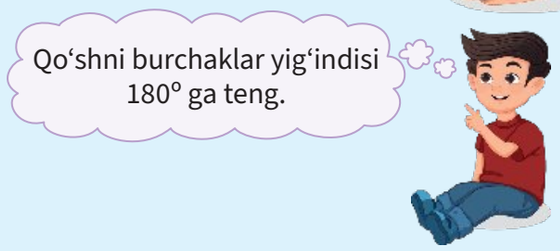
1-usul

∠RPQ = ∠RQP
= 38°

∠PRQ = 180° – 38° – 38°
= 104°



∠PRS = 180° – 104°
= 76°



∠SPR = 180° – 90° – 76°
= 14°

2-usul

∠SPR = 180° – 90° – 38° – 38°
= 14°

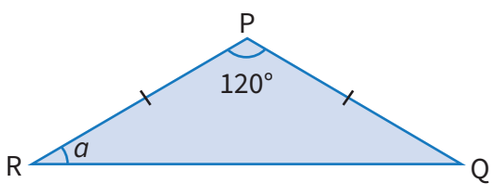
51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 128 13/11/24 14:51

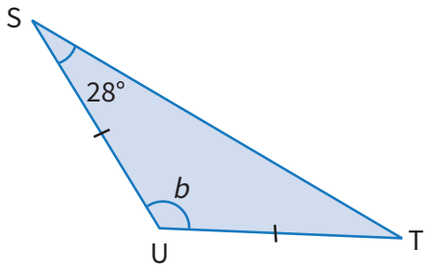
Juftlikda ishlang



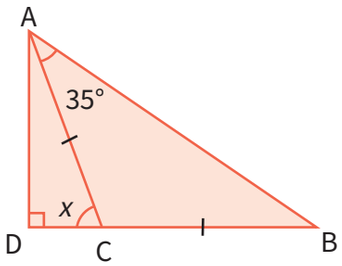
Juftlikda ishlang.
Belgilangan noma'lum burchaklarni toping. Sherigingizga masalani yechish bosqichlarini tushuntiring.

1 PQR va STU – teng yonli uchburchaklar.

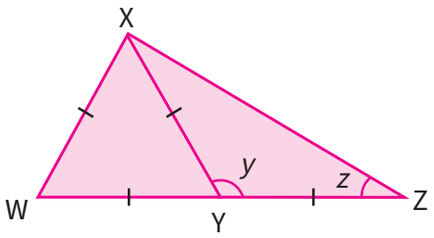




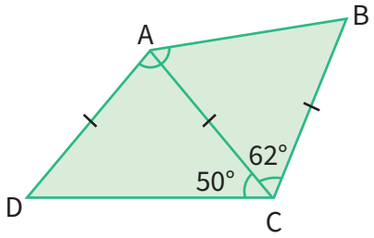
2 BCD – to'g'ri chiziq va ABC – teng yonli uchburchak.



3 WYZ – to'g'ri chiziq. WXY – teng tomonli uchburchak va XYZ – teng yonli uchburchak.



4 ABC va ACD – teng yonli uchburchaklar. ∠BAD ni toping.

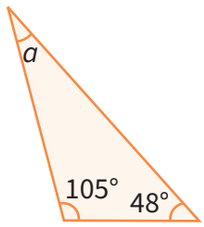


51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 129 13/11/24 14:51

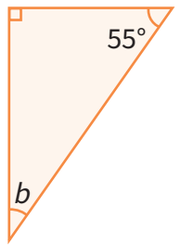
Bajaring va o‘rganing

1 Quyidagi uchburchaklarning belgilangan noma’lum burchaklarini toping.

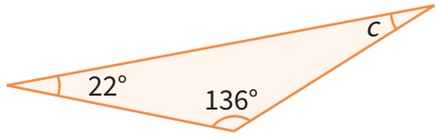
a)



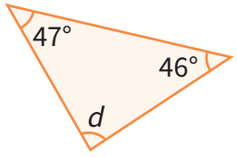
b)



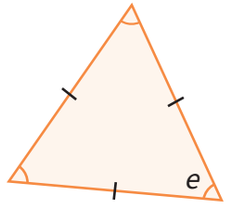
c)



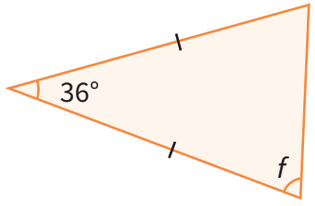
d)



e)

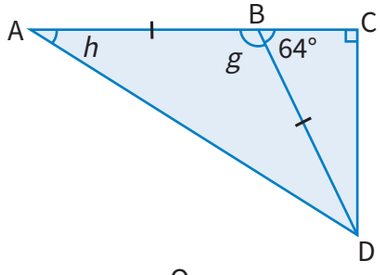


f)

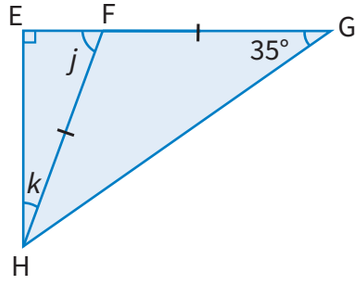


2 Har bir shakldagi belgilangan noma’lum burchaklarni toping. ABC, EFG va PQR – to‘g‘ri chiziqlar.

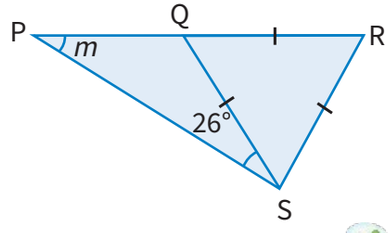
a)



b)



c)



Mashq daftariga o‘ting **157–162**

O‘zingizni tekshiring

a) Men uchburchaklarning turlarini farqlashni bilaman.

b) Men turli uchburchaklarning xossalarini bilaman.

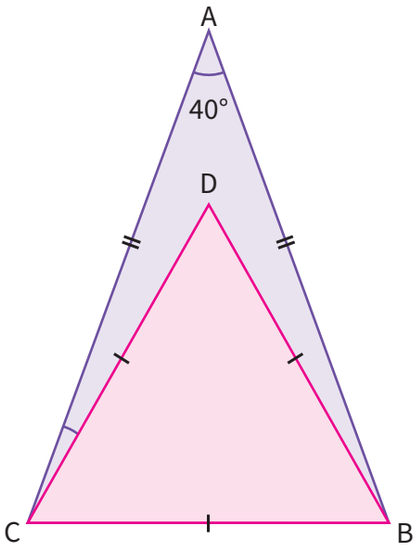
c) Men bir nechta uchburchaklarni o‘z ichiga olgan shakllardagi noma’lum burchaklarni topishni bilaman.

51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 130 13/11/24 14:51

O‘ylab ko‘ring



Quyidagi shaklda ikkita uchburchak tasvirlangan. ABC – teng yonli uchburchak va DBC – teng tomonli uchburchak. ∠ACD ni toping.



Mashq daftariga o‘ting **163–164**

51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 131 13/11/24 14:51

13 Parallelogramm, romb va trapetsiya

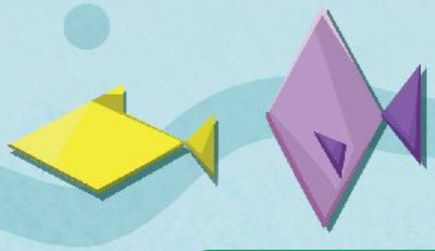
Muhokama qiling



Bolalar rasmlar ko‘rgazmasida.





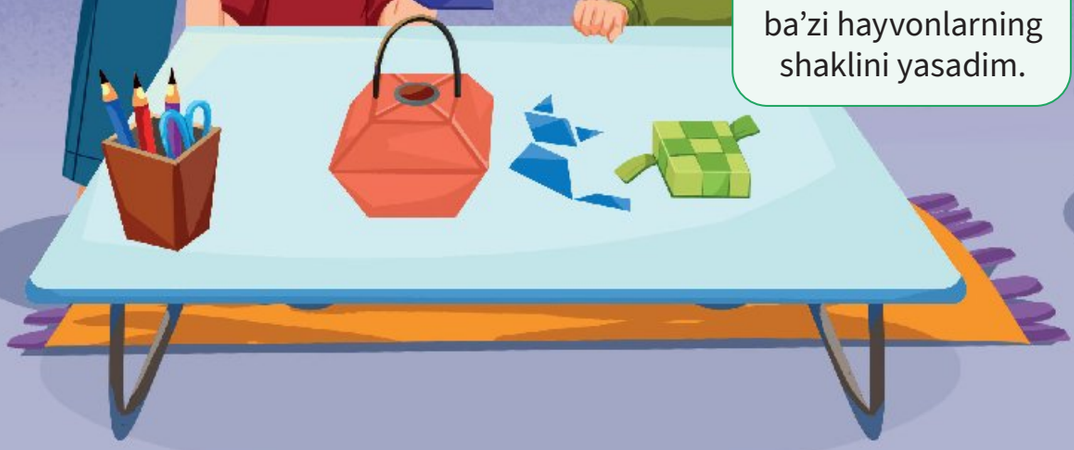












Bu to‘rtburchaklar qanday xossalarga ega?

Mening savatcham ham to‘rtburchaklardan yasalgan.

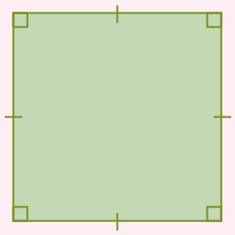
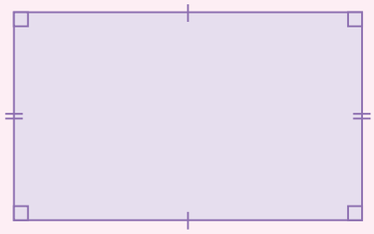
Jasur, men to‘rtburchaklardan ba’zi hayvonlarning shaklini yasadim.

Eslang



Kvadrat va to‘g‘ri to‘rtburchakning xossalari

Kvadrat va to‘g‘ri to‘rtburchak eng sodda to‘rtburchaklar hisoblanadi.

Shakl	Xossalari
	**Kvadrat**ning xossalari: a) 4 ta to‘g‘ri burchagi bor; b) 4 ta teng tomoni bor; c) qarama-qarshi tomonlari parallel.
	**To‘g‘ri to‘rtburchak**ning xossalari: a) 4 ta to‘g‘ri burchagi bor; b) qarama-qarshi tomonlari teng; c) qarama-qarshi tomonlari parallel.

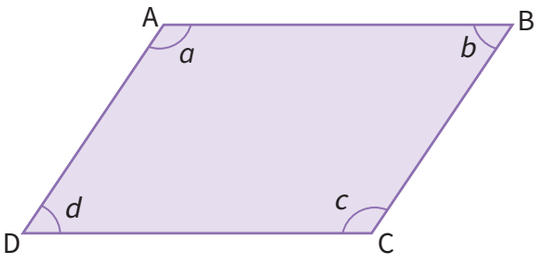
Mashq daftariga o‘ting 165–166

51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 133 13/11/24 14:51

Parallelogramm, romb va trapetsiyaning xossalari

Parallelogramm

Quyidagi to‘rtburchakka parallelogramm deyiladi.



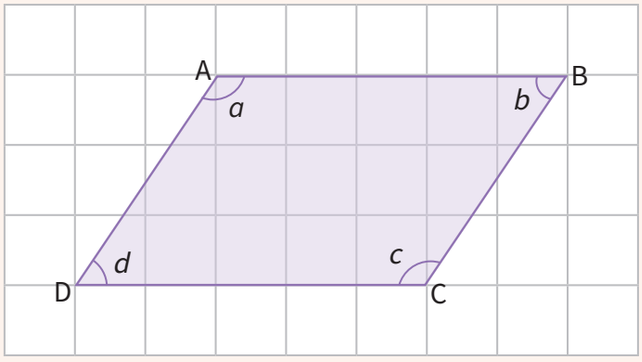


Qo‘lda bajariladigan mashq



Juftlikda ishlang.
Ustozingiz bergan qog‘ozdan parallelogrammni qirqib oling.
Parallelogrammning xossalarini ayting.

1 Katakli daftarga ABCD parallelogrammni joylashtiring.

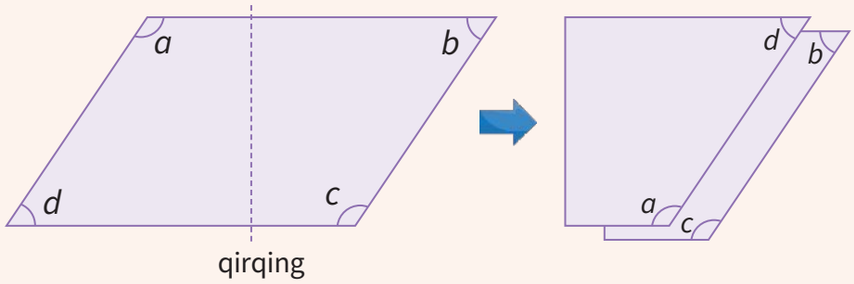




AB tomoni DC tomoniga parallelmi?
AD tomoni BC tomoniga parallelmi?

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2 Parallelogrammni ikki bo‘lakka bo‘ling. Chizmadagi kabi c burchak ustiga a burchakni va b burchak ustiga d burchakni qo‘ying.



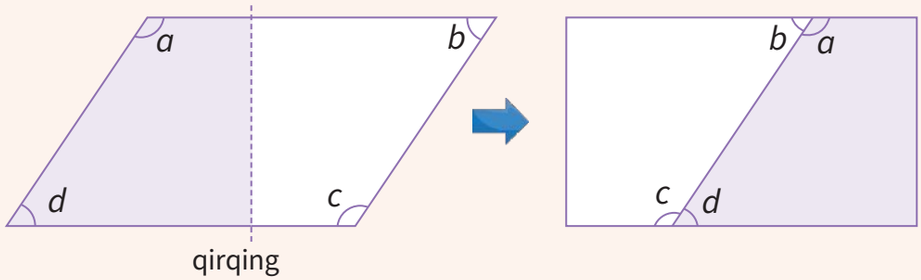
Burchaklarni o‘lchashda transportirdan foydalanishingiz mumkin.



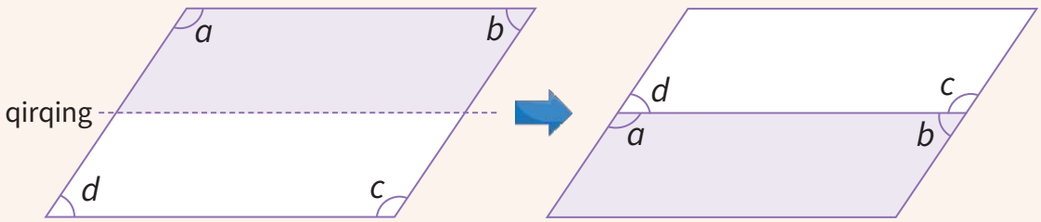
$\angle a = \angle c$ tenglik to‘g‘rimi? $\angle b = \angle d$ tenglik-chi?

3 Ikkita parallelogrammni shtrix chiziq bo‘yicha qirqing. Keyin qirqilgan qismlarni rasmdagidek joylashtiring.

a)



b)



$\angle a + \angle b = 180°$ tenglik to‘g‘rimi? $\angle c + \angle d = 180°$ tenglik to‘g‘rimi?

$\angle a + \angle d = 180°$ tenglik to‘g‘rimi? $\angle b + \angle c = 180°$ tenglik to‘g‘rimi?

Parallelogrammning bir tomoniga yopishgan burchaklari yig‘indisi haqida nima deyish mumkin?

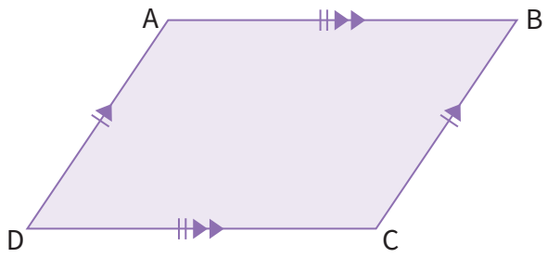
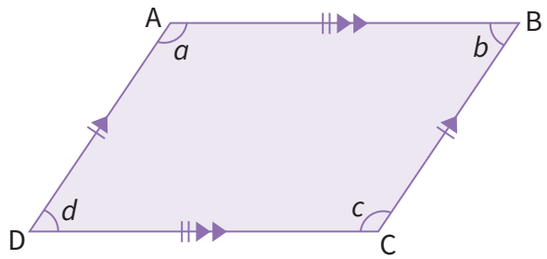


51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 135 13/11/24 14:51

Qarang va o‘rganing



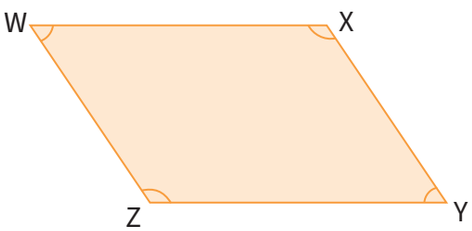
Parallelogramm quyidagi xossalarga ega to‘rtburchakdir.

Parallelogramm	Xossalari
	**Qarama-qarshi** tomonlari teng. **AB = DC** **AD = BC** **Qarama-qarshi** tomonlari parallel. **AB ‖ DC** **DA ‖ CB**
	**Qarama-qarshi** burchaklari teng. $\angle a = \angle c$ $\angle b = \angle d$ **Har bir tomoniga yopishgan burchaklari** yig‘indisi 180° ga teng. $\angle a + \angle b = 180°$ $\angle c + \angle d = 180°$ $\angle a + \angle d = 180°$ $\angle b + \angle c = 180°$

Bajaring va o‘rganing



WXYZ – parallelogramm.



a) WX = ____ va WZ = ____

b) WX ‖ ____ va WZ ‖ ____

c) $\angle$XWZ = $\angle$____ va $\angle$WXY = $\angle$____

d) $\angle$XWZ + $\angle$____ = 180°

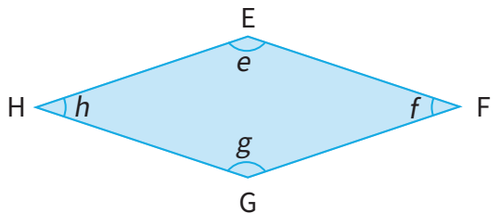
e) $\angle$XWZ + $\angle$____ = 180°

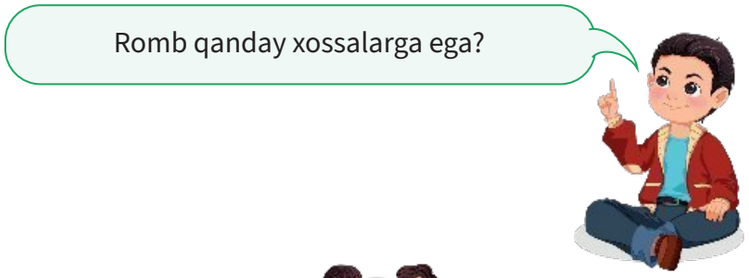
Mashq daftariga o‘ting **167–168**

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Romb

Quyidagi to‘rtburchakka **romb** deyiladi.



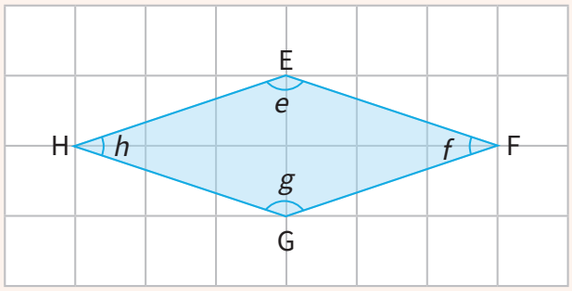


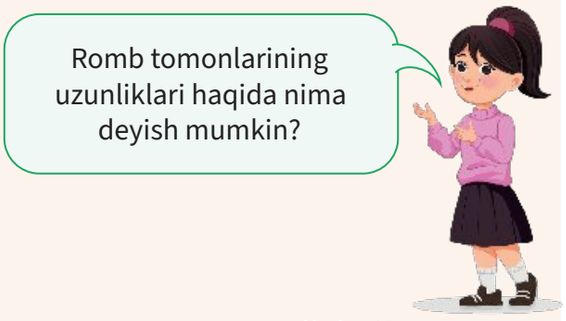
Qo‘lda bajariladigan mashq



Juftlikda ishlang.
Ustozingiz bergan qog‘ozdan rombni qirqib oling.
Rombning xossalarini ayting.

1 EFGH rombni katak daftarga joylashtiring.

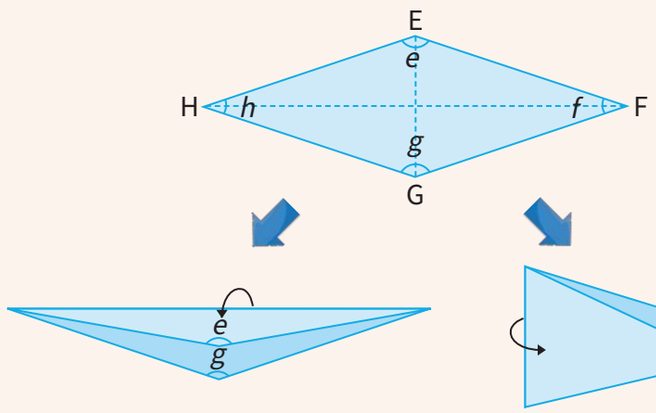




HE tomon GF tomonga parallelmi? EF tomon HG tomonga parallelmi?

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2 EFGH rombni quyidagi rasmda ko‘rsatilganidek buklang.

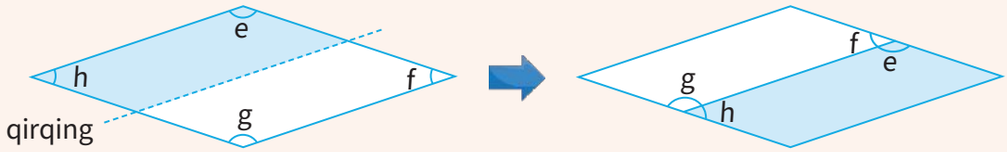




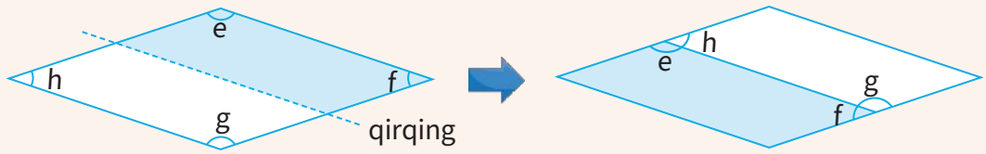
$\angle e = \angle g$ va $\angle f = \angle h$ tengliklar to‘g‘rimi?

3 Ikkita rombni shtrix chiziq bo‘yicha qirqing. Keyin bo‘laklarni rasmda ko‘rsatilganidek burchaklarini moslab joylashtiring.

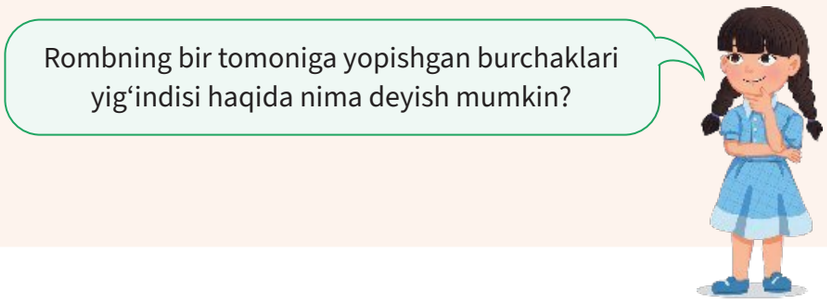
a)



b)



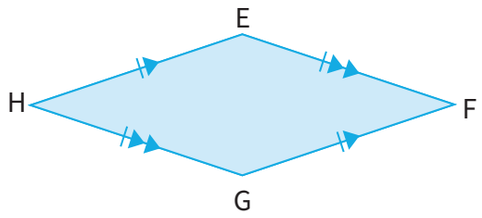
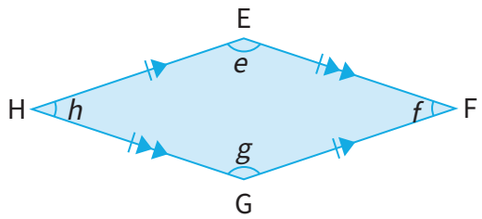
$\angle e + \angle f = 180°$ va $\angle g + \angle h = 180°$ tengliklar to‘g‘rimi?
$\angle e + \angle h = 180°$ va $\angle f + \angle g = 180°$ tengliklar to‘g‘rimi?



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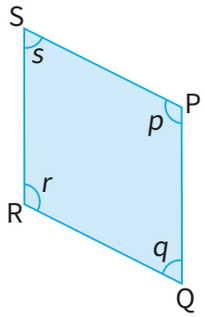
Qarang va o‘rganing

Romb quyidagi xossalarga ega to‘rtburchakdir.

Romb	Xossalari
	4 ta tomoni teng. **EF = FG = GH = EH** Qarama-qarshi tomonlari parallel. **HE ‖ GF** **EF ‖ HG**
	Qarama-qarshi burchaklari teng. $\angle e = \angle g$ $\angle f = \angle h$ Bir tomoniga yopishgan burchaklari yig‘indisi 180° ga teng. $\angle e + \angle f = 180°$ $\angle h + \angle g = 180°$ $\angle e + \angle h = 180°$ $\angle f + \angle g = 180°$

Bajaring va o‘rganing

PQRS – romb.



a) PQ = QR = ____ = ____

b) PQ ‖ ____ va PS ‖ ____

c) $\angle p = \angle$ ____ va $\angle q = \angle$ ____

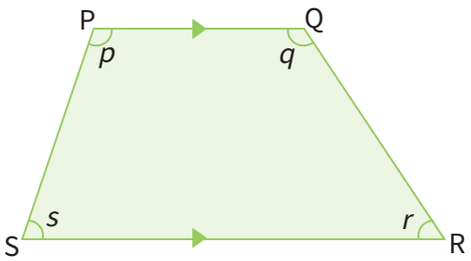
d) $\angle p + \angle q =$ ____ va $\angle p + \angle s =$ ____

Mashq daftariga o‘ting **169–170**

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Trapetsiya

Quyidagi to‘rtburchakka **trapetsiya** deyiladi.





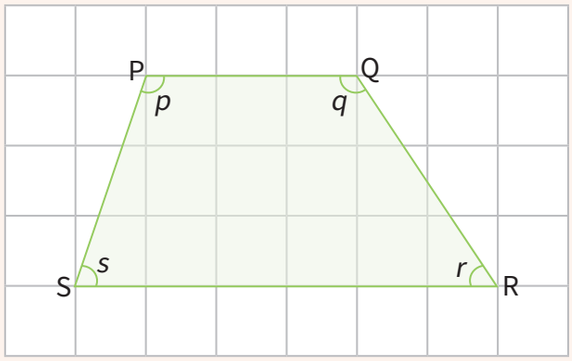
Trapetsiyaning qanday xossalari bor?

Qo‘lda bajariladigan mashq



Juftlikda ishlang.
Ustozingiz bergan qog‘ozdan trapetsiyani qirqib oling.
Trapetsiyaning xossalarini kashf qiling.

1 PQRS trapetsiyani katak daftarga joylashtiring.

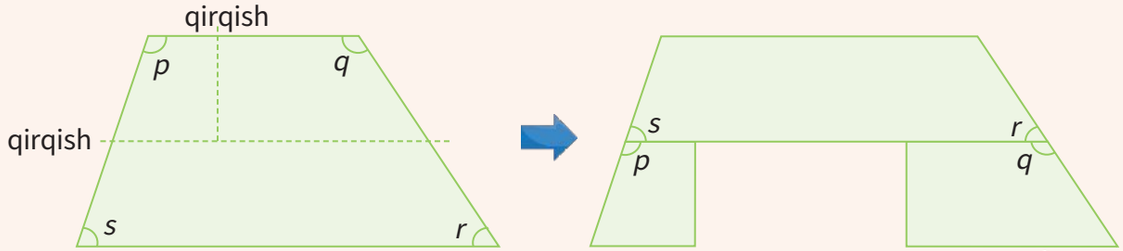




Trapetsiya tomonlarining uzunliklari haqida nima deyish mumkin?

PQ tomoni SR tomoniga parallelmi? PS tomoni QR tomoniga parallelmi?
Trapetsiyaning parallel tomonlari – uning asosloari, parallel bo‘lmagan tomonlari esa uning yon tomonlari deb ataladi.

2 Trapetsiyani shtrix chiziq bo‘ylab qirqing va hosil bo‘lgan qismlarni rasmda ko‘rsatilganidek joylashtiring.



$\angle p + \angle s = 180°$ tenglik to‘g‘rimi? $\angle q + \angle r = 180°$ tenglik-chi?

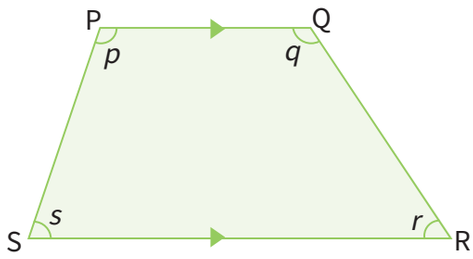


Trapetsiyaning har bir yon tomoniga yopishgan burchaklar yig‘indisi haqida nima deyish mumkin?

51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 140 13/11/24 14:51

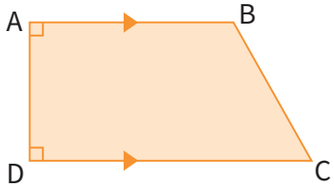
Qarang va o‘rganing

Trapetsiya quyidagi xossalarga ega to‘rtburchakdir.

Trapetsiya	Xossalari
	Trapetsiya bir juft parallel tomonlarga ega. **PQ ‖ SR** Trapetsiyaning yon tomonlarning har biriga yopishgan burchaklar yig‘indisi 180° ga teng. **$\angle p + \angle s = 180°$** **$\angle q + \angle r = 180°$**

Bajaring va o‘rganing

1 ABCD – ikkita to‘g‘ri burchagi bor trapetsiya.

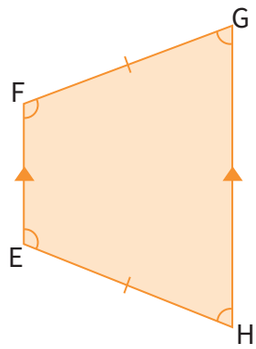


a) AB ‖ ____

b) $\angle BAD + \angle ADC =$ ____ °

c) $\angle ABC + \angle BCD =$ ____ °

2 EFGH trapetsiyada EH = FG.



a) EF ‖ ____

b) $\angle FEH + \angle EHG =$ ____ °

c) $\angle EFG + \angle FGH =$ ____ °

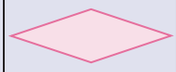
Mashq daftariga o‘ting **171–172**

51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 141 13/11/24 14:51

Juftlikda ishlang



To‘rtburchaklarning xossalarini solishtiring va Muhokama qiling.
Ularning o‘xshash va farqli jihatlari nimada?
Har bir shaklga mos xossaga ✓ belgisini qo‘ying.

Xossa	To‘g‘ri to‘rtburchak 	Kvadrat 	Parallelogramm 	Romb 	Trapetsiya 
Barcha tomonlari teng					
Qarama-qarshi tomonlari teng					
Faqat bitta qarama-qarshi tomonlari juftligi o‘zaro parallel					
Qarama-qarshi tomonlari parallel					
4 ta burchagi ham to‘g‘ri burchak					
Qarama-qarshi burchaklari teng					

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Qiziqarli matematika

O‘rganing va bo‘lishing



Guruh bo‘lib ishlang.
To‘g‘ri to‘rtburchak, kvadrat, parallelogramm, romb va trapetsiyadan yasalgan turli obyektlarning rasmlarini to‘plang. Rasmlarni sinfxonangiz devoriga osib qo‘ying. Sinfdoshlaringizdan qanday to‘rtburchaklar tasvirlanganini so‘rang.

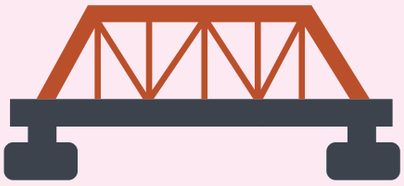
Namuna



belgi



surat ramkasi



ko‘prik

Qo‘lda bajariladigan mashq





Guruh bo‘lib ishlang.
Quyidagi shakllarni yasash uchun tangram shakllarning kamida ikkitasidan foydalaning.

a) parallelogramm
b) romb
c) trapetsiya



51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 143 13/11/24 14:51

To‘rtburchaklarni chizish

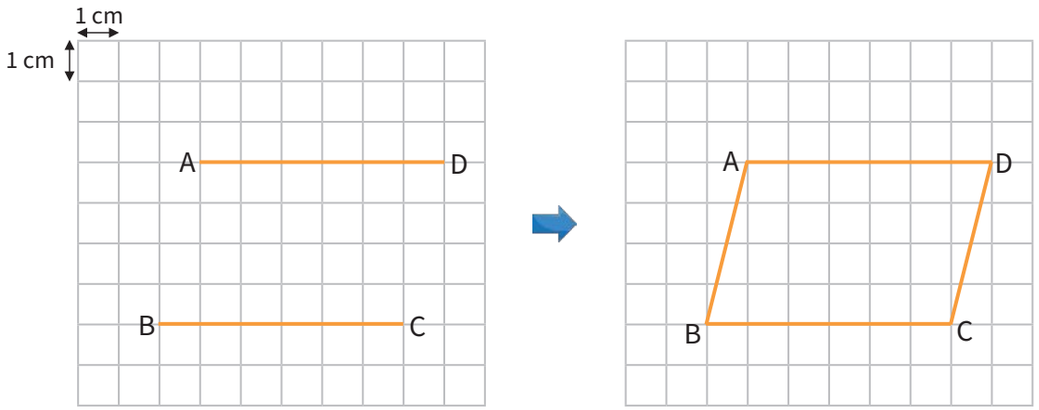
Qarang va o‘rganing

Katak daftarda parallelogramm, romb va trapetsiya chizish

1 Shunday ABCD parallelogramm chizing: unda AD = 6 cm, BC = 6 cm, AD || BC va AB || DC bo‘lsin.

1-qadam Uzunligi 6 cm bo‘lgan AD kesma chizing. Keyin AD kesmaga parallel BC kesma chizing.

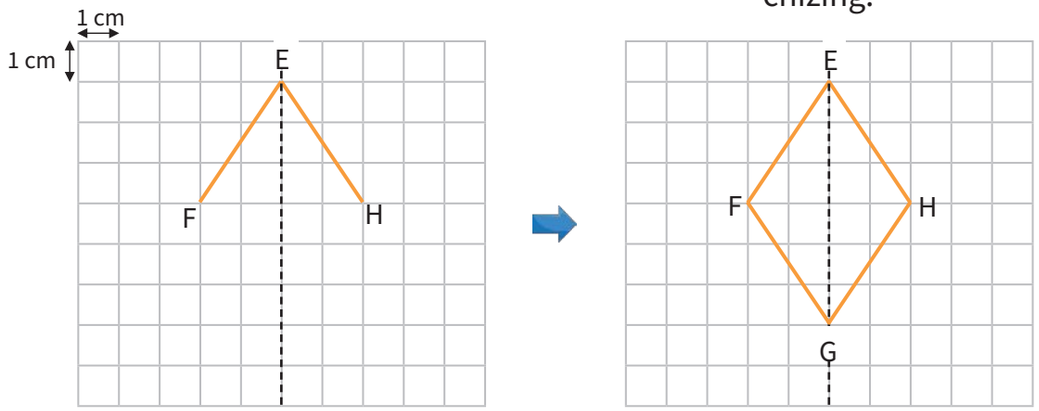
2-qadam ABCD parallelogramm hosil qilish uchun AB va DC kesmalarni chizing.



2 Shunday EFGH romb chizing: unda EF || HG va EH || FG bo‘lsin.

1-qadam Rasmdagidek uzunlikdagi EF va EH kesmalarni chizing.

2-qadam EF kesmaga teng va unga parallel bo‘lgan HG kesmani chizing. EFGH romb hosil qilish uchun FG kesmani chizing.

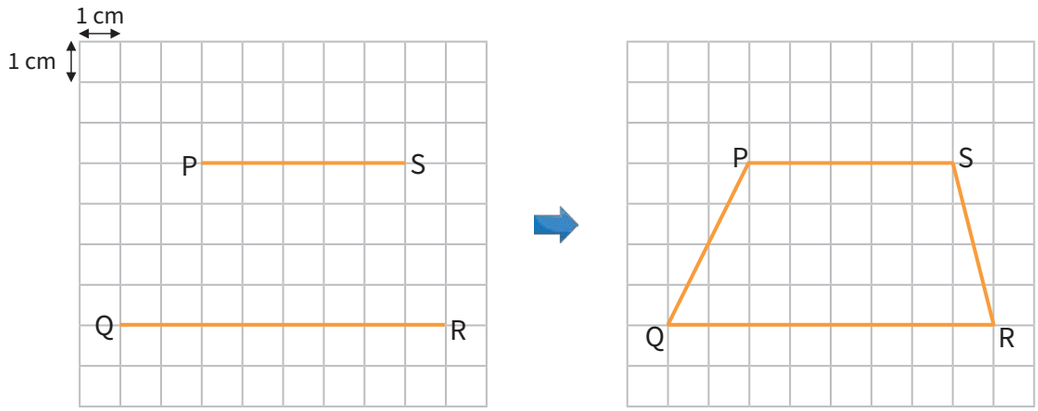


51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 144 13/11/24 14:51

3 Shunday PQRS trapetsiya chizing: unda PS = 5 cm, QR = 8 cm va PS || QR bo‘lsin.

1-qadam 5 cm uzunlikdagi PS kesma chizing. Keyin PS kesmaga parallel va 8 cm uzunlikdagi QR kesma chizing.

2-qadam PQRS trapetsiya hosil qilish uchun PQ va SR kesmalarni chizing.

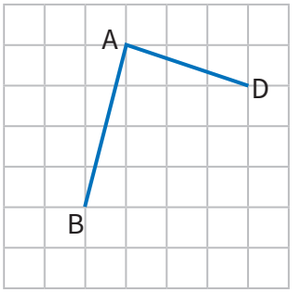


Juftlikda ishlang



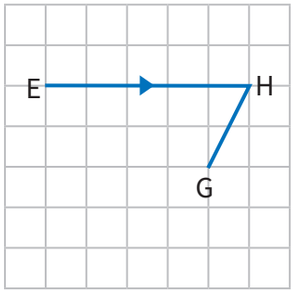
1 Katak daftarga berilgan kesmalarni ko‘chiring va shaklni to‘liq chizing.

a)



ABCD parallelogramm

b)

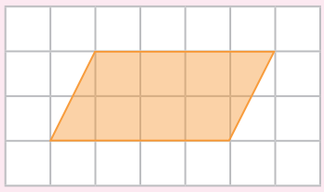


EFGH trapetsiya, bunda EH || FG.

2 Do‘stingiz bilan quyidagi shakllarni katak daftarda turli o‘lcham va ko‘rinishda chizing. Do‘stingizning chizmasini tekshiring.

a) parallelogramm b) romb c) trapetsiya

Misol



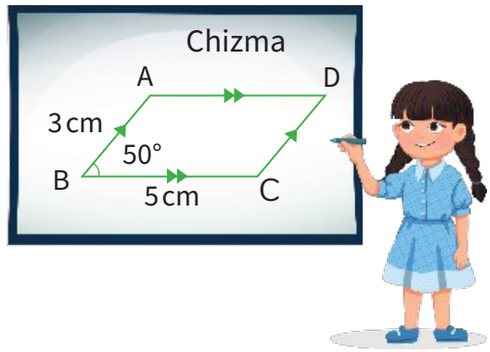
51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 145 13/11/24 14:51

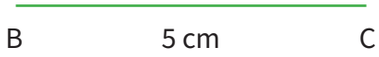
Qarang va o‘rganing

Berilgan o‘lchamlari bo‘yicha parallelogramm, romb va trapetsiya chizish

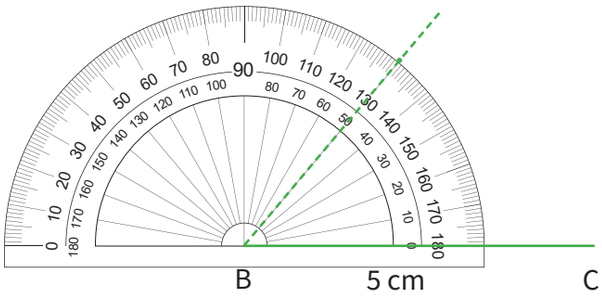
1 Shunday ABCD parallelogramm chizing: unda AB = 3 cm, BC = 5 cm va ∠ABC = 50° bo‘lsin.

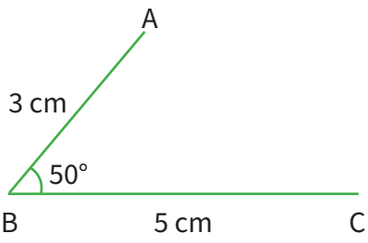
1-qadam 5 cm uzunlikdagi BC kesma chizing.



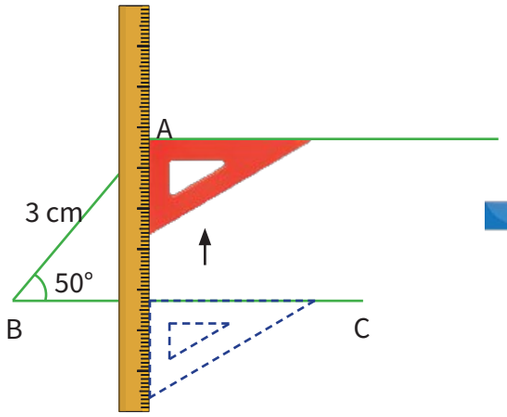


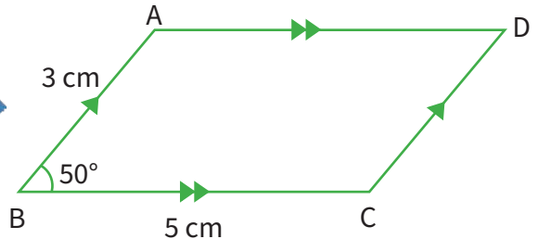
2-qadam Transportirni B nuqtaga qo‘ying. B nuqtadan 50° li burchak hosil qiling. So‘ng 3 cm uzunlikdagi AB kesma chizing.





3-qadam Chizg‘ich va uchburchakli chizg‘ich yordamida BC kesmaga parallel va 5 cm uzunlikdagi AD kesma chizing. Parallelogramm hosil qilish uchun C va D nuqtalarni tutashtiring.

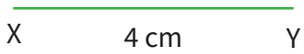


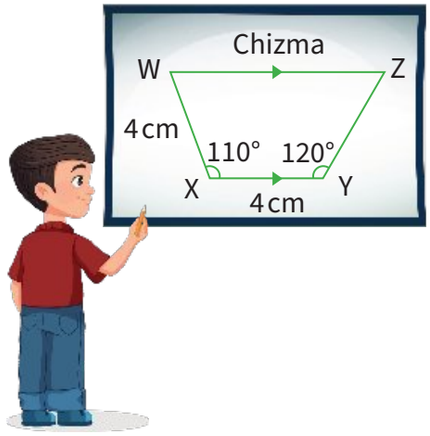


51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 146 13/11/24 14:51

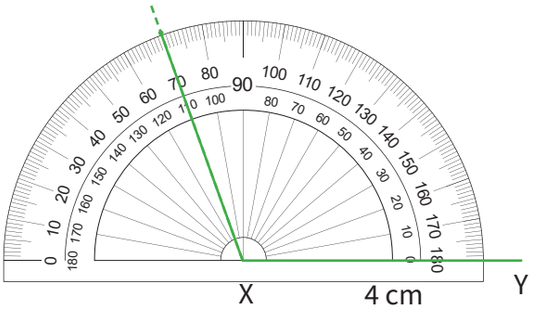
2 WXYZ trapetsiya chizing: unda WX = XY = 4 cm, ∠WXY = 110° va ∠XYZ = 120°, WZ || XY bo‘lsin.

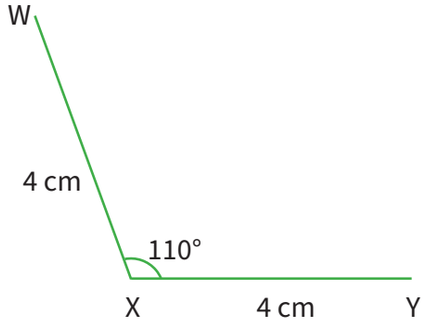
1-qadam 4 cm uzunlikdagi XY kesma chizing.





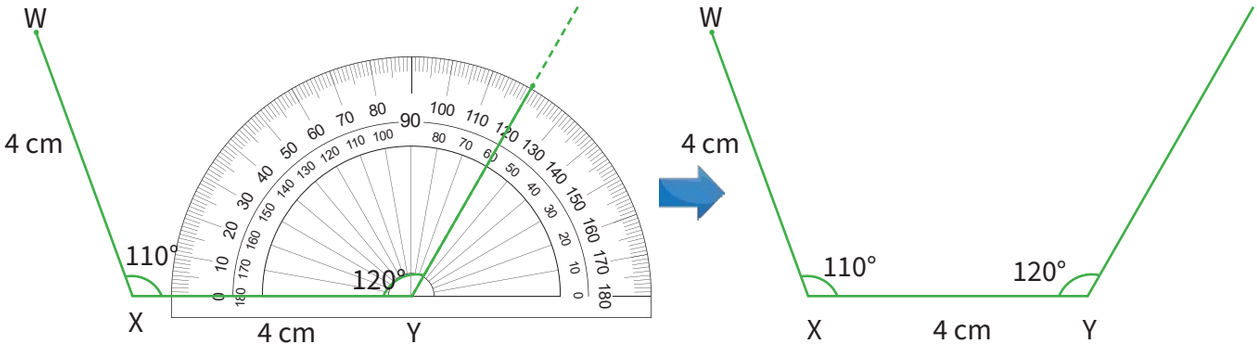
2-qadam Transportirni X nuqtaga qo‘ying.
X nuqtadan 110° li burchak hosil qiling. So‘ng 4 cm uzunlikdagi WX kesma chizing.



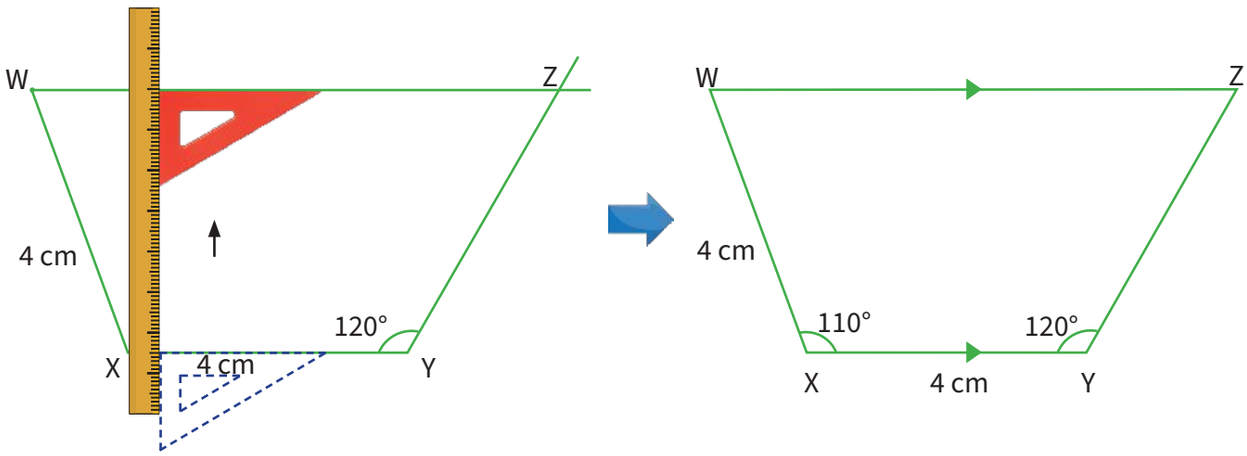


51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 147 13/11/24 14:51

3-qadam Transportirni Y nuqtaga qo‘ying. Y nuqtada 120° li burchak hosil qiling.



4-qadam Chizg‘ich va uchburchakli chizg‘ich yordamida XY kesmaga parallel WZ kesma chizing.







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Qo‘lda bajariladigan mashq



Guruh bo‘lib ishlang.
Dastlab har bir shaklni chamalab chizing.
Keyin chizg‘ich, transportir va uchburchakli chizg‘ich yordamida shakllarni qaytadan aniq chizing.

a) ABCD parallelogramm AB = 5 cm, AD = 4 cm, ∠BAD = 45°	b) EFGH romb HG = 4 cm, ∠GHE = 60°
c) ABCD trapetsiya AB = 6 cm, AD = 4 cm, ∠DAB = 80°, ∠ABC = 110°	

Mashq daftariga o‘ting 173–176

O‘zingizni tekshiring



a) Men parallelogramm, romb va trapetsiyaning xossalarini bilaman.

b) Men katak daftarda parallelogramm, romb va trapetsiyani chizishni bilaman.

c) Men berilgan o‘lchamlari bo‘yicha parallelogramm, romb va trapetsiyani chizishni bilaman.

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To‘rtburchakning noma’lum burchaklarini topish

Qarang va o‘rganing



1 Quyidagi parallelogrammlarning belgilangan noma’lum burchaklarini toping.

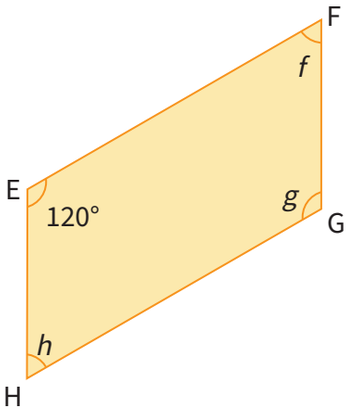
a)

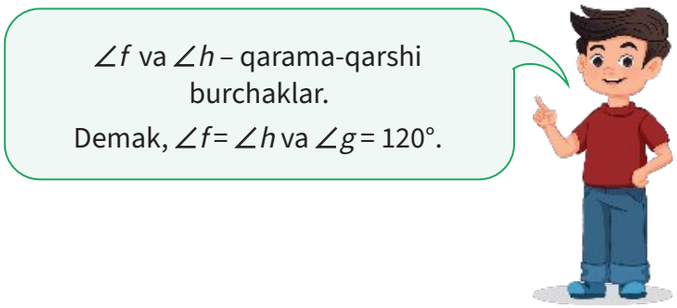


$\angle c = 65°$



b)

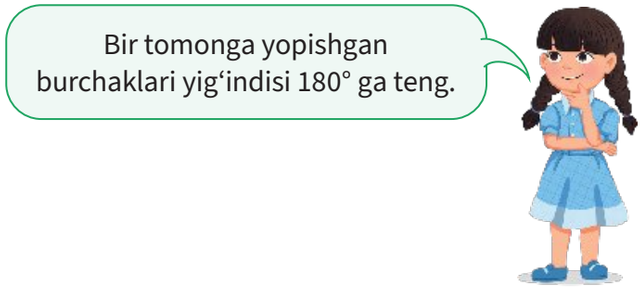




$\angle g = 120°$

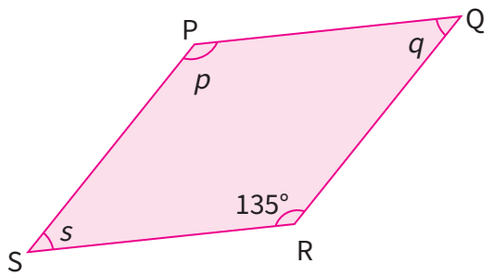
$\angle h = 180° - 120°$
$= 60°$

$\angle h = \angle f$
$= 60°$



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2 PQRS – romb va $\angle QRS = 135°$. $\angle p$, $\angle q$ va $\angle s$ ni toping.



Rombning qarama-qarshi burchaklari teng. Qolgan ikkita burchagini topish mumkinmi?

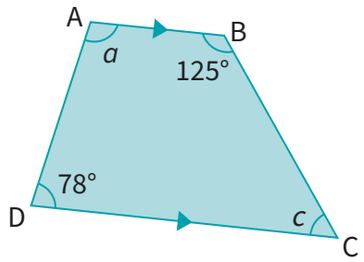


$\angle p = 135°$

$\angle q = 180° - 135°$
$= 45°$

$\angle s = \angle q$
$= 45°$

3 ABCD trapetsiyada AB || DC. $\angle a$ va $\angle c$ ni toping.



Yon tomoniga yopishgan burchaklar yig‘indisi 180° ga teng.

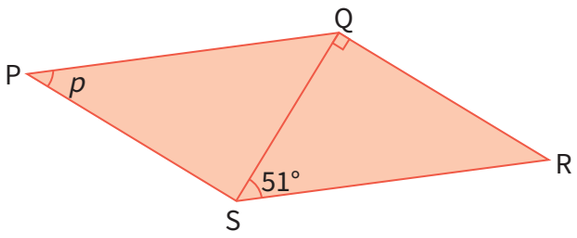


$\angle a = 180° - 78°$
$= 102°$

$\angle c = 180° - 125°$
$= 55°$

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4 PQRS – parallelogramm. $\angle p$ ni toping.



$\angle QRS = 180° - 90° - 51°$
$= 39°$

$\angle p = \angle QRS$
$= 39°$

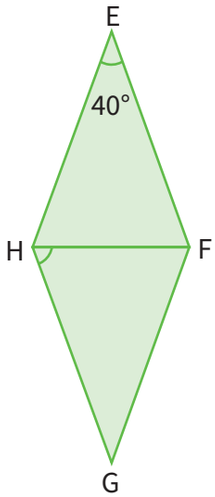
Uchburchakning burchaklari yig‘indisi 180° ga teng.



Parallelogrammning qarama-qarshi burchaklari teng.



5 EFGH rombda $\angle FEH = 40°$. $\angle FHG$ ni toping.



$\angle FGH = \angle FEH$
$= 40°$

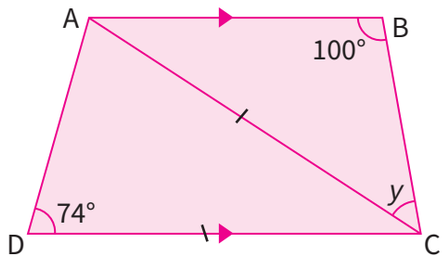
$180° - 40° = 140°$
$\angle FHG = 140° \div 2$
$= 70°$

GH = GF bo‘lgani uchun HFG teng yonli uchburchakdir.



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6 ABCD trapetsiyada AB || DC. Agar ACD teng yonli uchburchak bo‘lsa, $\angle y$ ni toping.

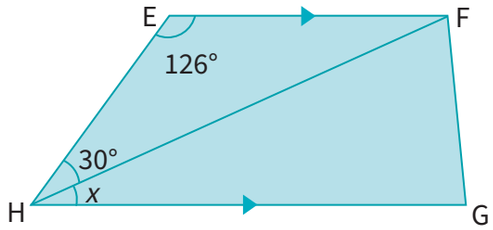


$\angle DAC = 74°$

$\angle ACD = 180° - 74° - 74°$
$= 32°$

$\angle y = 180° - 100° - 32°$
$= 48°$

7 EFGH trapetsiyada EF || HG. $\angle x$ ni toping.



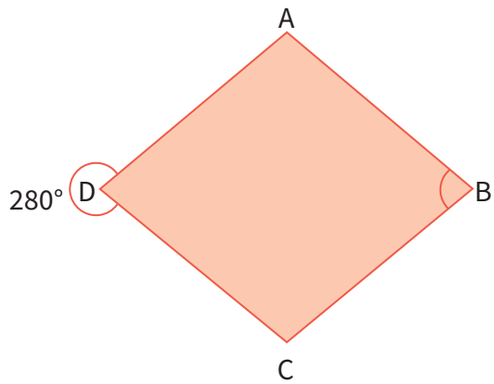
$\angle x = 180° - 126° - 30°$
$= 24°$

Trapetsiyaning yon tomoniga yopishgan burchaklari yig‘indisi 180° ga teng.

$126° + 30° + \angle x = 180°$



8 ABCD – romb. $\angle ABC$ ni toping.



$\angle ADC = 360° - 280°$
$= 80°$

$\angle ABC = 80°$

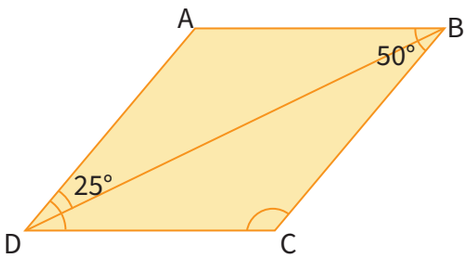
51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 153 13/11/24 14:52

Juftlikda ishlang

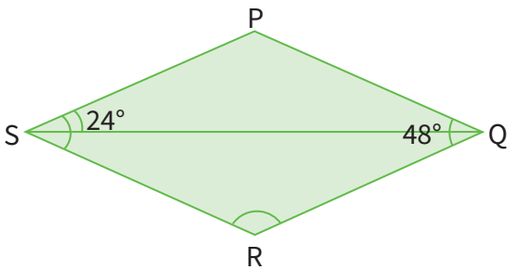


Navbati bilan noma'lum burchaklarni toping.
Javobni qanday topganingizni do'stingizga tushuntirib bering.

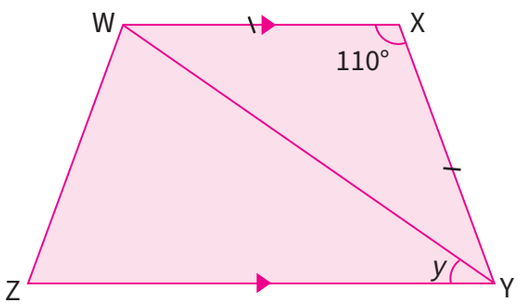
a) ABCD parallelogrammda $\angle ABC = 50°$ va $\angle ADB = 25°$. $\angle ADC$ va $\angle BCD$ ni toping.

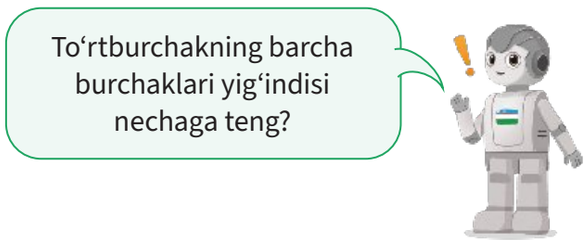


b) PQRS rombda $\angle PQR = 48°$ va $\angle PSQ = 24°$. $\angle PSR$ va $\angle QRS$ ni toping.



c) WXYZ trapetsiyada WX || ZY. Agar WXY – teng yonli uchburchak, WX = XY va $\angle WXY = 110°$ bo'lsa, $\angle y$ ni toping.





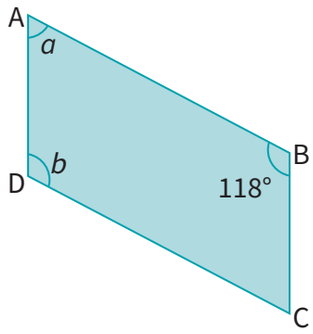
51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 154 13/11/24 14:52

Bajaring va o‘rganing

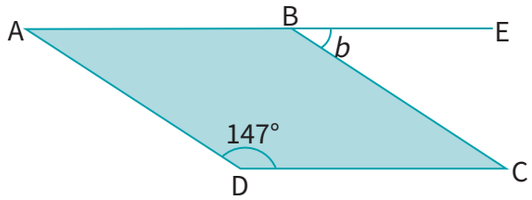


1 Belgilangan noma’lum burchaklarni toping.

a) ABCD – parallelogramm.

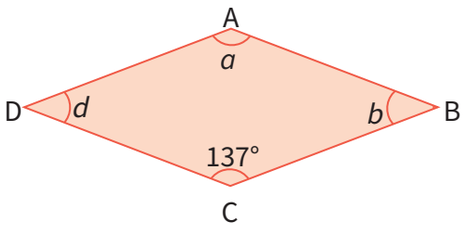


b) ABCD – parallelogramm.

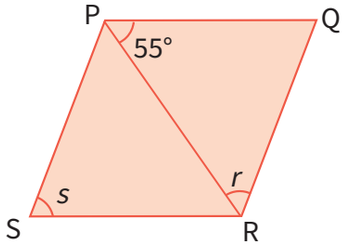


2 Quyidagi romblarning belgilangan noma’lum burchaklarini toping.

a)

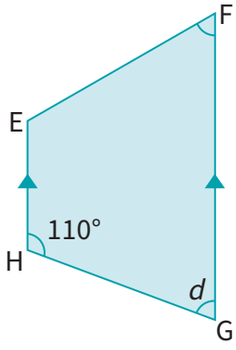


b)

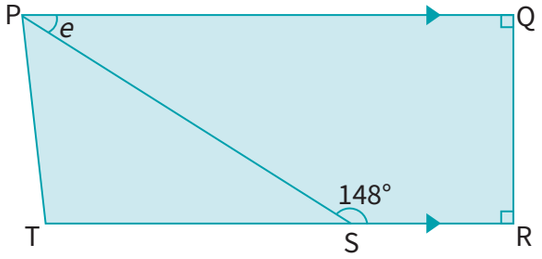


3 Quyidagi trapetsiyalarning kichik harf bilan belgilangan noma’lum burchaklarini toping.

a)

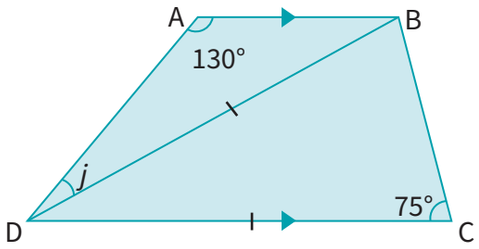


b) PQ va RST – to‘g‘ri chiziqlar.

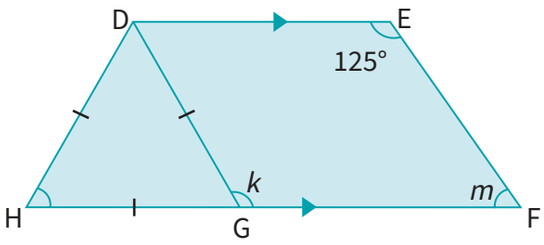


51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 155 13/11/24 14:52

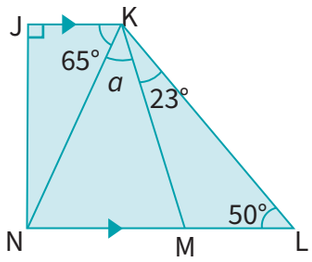
c)



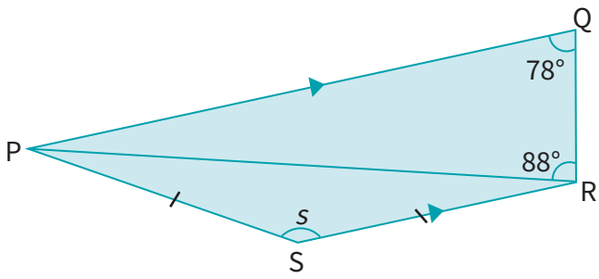
d)



e)



f)



Mashq daftariga o‘ting 177–180

O‘zingizni tekshiring

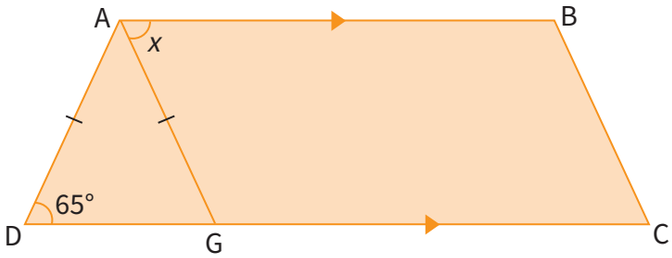


Men parallelogramm, romb va trapetsiyalarning noma’lum burchaklarini topishni bilaman.

O‘ylab ko‘ring



Rasmda AB || DC bo‘lgan ABCD trapetsiya berilgan. ADG – teng yonli uchburchak. AD = AG va ∠ADG = 65°. ∠x ni toping.



Mashq daftariga o‘ting 181–182

51 MATEMATICS SCHOOLBOOK G5 P2 UZB 220x290 164PG 1.indd 156 13/11/24 14:52