

**2021-yil**

2020 - 2021 – O'QUV YILIDA O'RTA TA'LIM  
MAKTABLARINING

**9 - SINF O'QUVCHILARI UCHUN MATEMATIKA  
FANIDAN MUSTAQIL SHUG'ULLANISH UCHUN**

**IMTIHON JAVOBLARI**

**MATEMATIKA**

**9 - SINF**

**Murojaat uchun: uzimtihon\_admin**

**Telegram kanal: @uzimtihon**

## Matematika

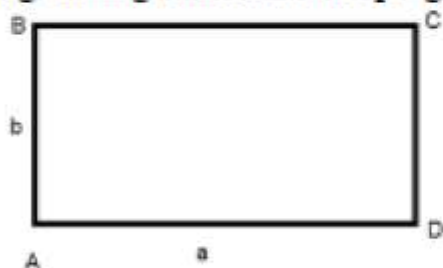
### 9-sinf

#### 1-BILET

1. Hisoblang:  $(1\frac{2}{3} \cdot 2,2 + 1) : 2\frac{1}{5} - \frac{5}{11}$

$$\left(1\frac{2}{3} \cdot 2,2 + 1\right) : 2\frac{1}{5} - \frac{5}{11} = \left(\frac{5}{3} \cdot \frac{11}{5} + 1\right) : 2\frac{1}{5} - \frac{5}{11} = \left(\frac{11}{3} + 1\right) : 2\frac{1}{5} - \frac{5}{11} = \frac{14}{3} : 2\frac{1}{5} - \frac{5}{11} = \frac{14}{3} : \frac{11}{5} - \frac{5}{11} = \frac{14}{3} \cdot \frac{5}{11} - \frac{5}{11} = \frac{70}{33} - \frac{5}{33} = \frac{65}{33} = \frac{5}{3} = 1\frac{2}{3}$$

2. To'g'ri to'rtburchakning perimetri 32 ga, qo'shni tomonlarining ayirmasi 2 ga teng. Uning tomonlarini toping.



$$AD=a, AB=b. P=2(a+b)=32, a+b=16$$

$$a-b=2$$

$$\begin{cases} a+b=16 \\ a-b=2 \end{cases} \Rightarrow \text{sistemani hosil qilamiz}$$

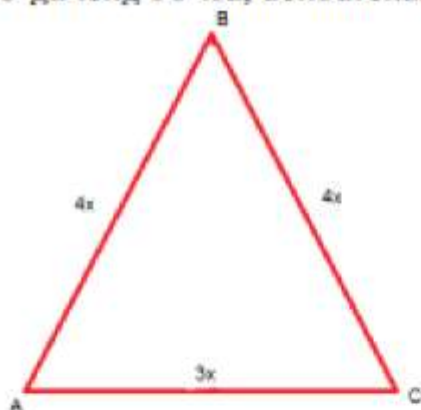
$$\text{Uni qo'shib yuboramiz: } 2a=18, a=9$$

$$9-b=2, b=7.$$

3. Soddashtiring:  $\text{tg}(-\alpha)\text{ctg}(-\alpha)+\cos^2(-\alpha)+\sin^2 \alpha$

$$\begin{aligned} \text{tg}(-\alpha)\text{ctg}(-\alpha) + \cos^2(-\alpha) + \sin^2 \alpha &= -\text{tg}\alpha \cdot (-\text{ctg}\alpha) + \cos^2 \alpha + \sin^2 \alpha \\ &= 1 + \cos^2 \alpha + \sin^2 \alpha = 1 + 1 = 2 \end{aligned}$$

5. Teng yonli uchburchakning perimetri 66 sm. Uning yon tomonini asosiga nisbati 4:3 ga teng bo'lsa, uchburchakning tomonlarini toping.



$$AB=BC=4x, AC=3x.$$

$$P=4x+3x+4x=66 \text{ sm}$$

$$11x=66 \text{ sm}$$

$$x=6 \text{ sm}$$

$$AB=BC=4x=4 \cdot 6=24 \text{ sm,}$$

$$AC=3x=3 \cdot 6=18 \text{ sm.}$$

#### 2-BILET

1. Hisoblang:  $\frac{4,5^2-1,5^2}{0,3 \cdot 0,7-0,3}$

$$\begin{aligned} \frac{4,5^2-1,5^2}{0,3 \cdot 0,7-0,3} &= \frac{(4,5-1,5) \cdot (4,5+1,5)}{0,3(0,7-1)} = \frac{3 \cdot 6}{0,3 \cdot (-0,3)} = \frac{18}{-0,09} = -\frac{1800}{9} \\ &= -200 \end{aligned}$$

2. Usta muayyan ishni 12 kunda, uning shogirdi esa 30 kunda bajaradi. Agar 3 ta usta va 5 ta shogird birgalikda ishlasalar, o'sha ishni necha kunda bajaradilar?

$$\frac{3}{12} + \frac{5}{30} = \frac{1}{t} \Rightarrow \frac{1}{4} + \frac{1}{6} = \frac{1}{t} \Rightarrow \frac{5}{12} = \frac{1}{t} \Rightarrow t = \frac{12}{5} = 2,4 \text{ kun}$$

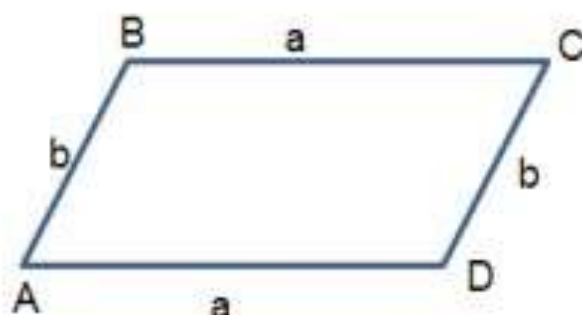
3. Agar  $\sin \alpha + \cos \alpha = \frac{1}{3}$  bo'lsa,  $\sin^3 \alpha + \cos^3 \alpha$  ni hisoblang.

$$\sin \alpha + \cos \alpha = \frac{1}{3} \text{ ning ikkala qismini kvadratga ko'taramiz:}$$

$$\sin^2 \alpha + 2\sin \alpha \cos \alpha + \cos^2 \alpha = \frac{1}{9}, \quad 1 + 2\sin \alpha \cos \alpha = \frac{1}{9}, \quad \sin \alpha \cos \alpha = -\frac{4}{9}$$

$$\begin{aligned} \sin^3 \alpha + \cos^3 \alpha &= (\sin \alpha + \cos \alpha)(\sin^2 \alpha - \sin \alpha \cos \alpha + \cos^2 \alpha) \\ &= \frac{1}{3}(1 - \sin \alpha \cos \alpha) = \frac{1}{3} \left(1 + \frac{4}{9}\right) = \frac{1}{3} \cdot \frac{13}{9} = \frac{13}{27} \end{aligned}$$

5. Parallelogrammning qo'shni tomonlari ayirmasi 11sm, perimetri esa 58 sm bo'lsa, uning kichik tomonini toping.



$$AD=BC=a, AB=DC=b$$

$$P=2(a+b)=58 \text{ sm}, a+b=29\text{sm}$$

$$a-b=11 \text{ sm}$$

$$\begin{cases} a+b=29 \\ a-b=11 \end{cases} \Rightarrow$$

*sistemani hosil qilamiz* Uni qo'shib

$$\text{yuboramiz: } 2a=40, a=20$$

$$20-b=11, b=9$$

### 3-BILET

1. Soddashtiring:  $4+5\sqrt{2}+\frac{\sqrt{75}}{\sqrt{3}-\sqrt{6}}$

$$\begin{aligned} 4+5\sqrt{2}+\frac{\sqrt{75}}{\sqrt{3}-\sqrt{6}} &= 4+5\sqrt{2}+\frac{5\sqrt{3}}{\sqrt{3}(1-\sqrt{2})} = 4+5\sqrt{2}-\frac{5}{\sqrt{2}-1} \\ &= 4+5\sqrt{2}-\frac{5(\sqrt{2}+1)}{(\sqrt{2}-1)(\sqrt{2}+1)} = 4+5\sqrt{2}-5(\sqrt{2}+1) \\ &= 4+5\sqrt{2}-5\sqrt{2}-5 = -1 \end{aligned}$$

2. Ikki shahardan bir-biriga qarab ikki sayyoh yo'lga chiqdi. Birinchisi avtomashinada, tezligi 62 km/soat. Ikkinchisi avtobusda, tezligi 48 km/soat. Agar ular 0,6 soatdan keyin uchrashgan bo'lsa, shaharlar orasidagi masofani toping.

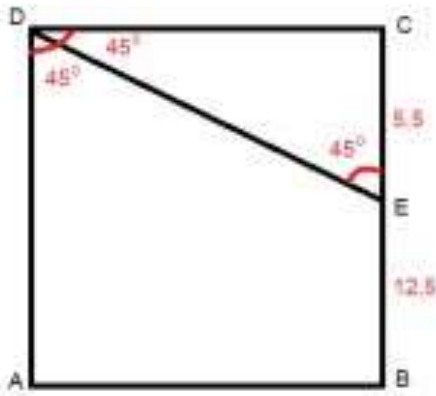
**Yechish.** Birinchi sayyoh 0,6 soatda  $0,6 \cdot 62 = 37,2$  km, ikkinchi sayyoh esa  $0,6 \cdot 48 = 28,8$  km yo'l yuradi. Ikki shahar orasidagi masofa  $37,2 + 28,8 = 66$  km.

3. Soddashtiring:  $\frac{\operatorname{tg}(\frac{\pi}{2}-\alpha)}{\cos(2\pi-\alpha)} \cdot \frac{\sin(\frac{3\pi}{2}+\alpha)}{\operatorname{tg}(\frac{3\pi}{2}-\alpha)}$

$$\frac{\operatorname{tg}(\frac{\pi}{2}-\alpha)}{\cos(2\pi-\alpha)} \cdot \frac{\sin(\frac{3\pi}{2}+\alpha)}{\operatorname{tg}(\frac{3\pi}{2}-\alpha)} = \frac{\operatorname{ctg} \alpha}{\cos \alpha} \cdot \frac{-\cos \alpha}{\operatorname{ctg} \alpha} = -1$$

5. ABCD to'g'ri to'rtburchakning D burchagining bissektrissasi BC tomonni E nuqtadan kesib o'tadi. BE=12,5 sm va EC=5,5 sm bo'lsa, to'g'ri to'rtburchakning perimetri va yuzasini toping.





DE bissektrisa  $\angle ADC$  burchakni teng ikkiga  $45^\circ$ dan bo'ladi.  $\angle DCB$  to'g'ri bo'ganligidan  $\angle DEC = 90^\circ - 45^\circ = 45^\circ$  bo'ladi. U holda  $DC = EC = 5,5$  sm  
 U holda to'g'ri to'rtburchak tomonlari  $DC = 5,5$  sm,  $BC = 12,5 + 5,5 = 18$  sm  
 $S = 5,5 \cdot 18 = 99$  sm<sup>2</sup>  
 $P = 2(a+b) = 2(5,5+18) = 47$  sm

Ushbu imtihon javoblarini olish uchun telegramdan [@uzimtihon\\_admin](https://t.me/uzimtihon_admin) ga yoki telegram orqali [+998 99 394 2820](tel:+998993942820) raqamiga bog'laning.

Imtihon bileti narhi

**8 ming so'm**

To'lov klik yoki payme orqali

**BOG'LANISH FAQAT TELEGRAM ORQALI**

Telefon qilinganda yoki SMS yozilganda javob bermasligim ehtimoli yuqori