RUSTAMBEK
oqiw orayi

MATEMATIKA
MILLIY SERTIFIKAT

(javoblari bilan)

- 2022-yil 4-dekabr
- 2023-yil 19-fevral
- 2023-yil 24-dekabr
- 2024-yil 28-aprel
- 2024-yil 12-oktabr
- 2024-yil 1-dekabr

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MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

MILLIY SERTIFIKAT (04.12.2022)

1. a, b, c – turli raqamlar bo'lsa, $100a + 10b + c$ ning eng katta qiymatini toping.
A) 897
B) 987
C) 999
D) 988

2. $\left(2022 - \frac{1}{2022}\right) : \frac{2021}{2022} \cdot \frac{1}{2023}$ ni hisoblang.
A) 1
B) 2022
C) $\frac{1}{2023}$
D) 2023

3. 2 va 3 ga bo'linmaydigan barcha ikki xonali natural sonlar yig'indisini toping.
A) 1620
B) 1800
C) 1960
D) 3080

4. A shahardan B shaharga ikkita mashina yo'lga chiqdi. Birinchi mashina tezligi v_1, ikkinchi mashina tezligi v_2. $(v_1 > v_2)$. Birinchi mashina B shaharga borib shu zahoti qaytib ikkinchi mashina bilan uchrashdi. Ikkinchi mashina bosib o'tgan masofa A va B shaharlar orasidagi masofaning necha foizini tashkil etadi?
A) $\frac{2v_2}{v_1+v_2} \cdot 100\ \%$
B) $\frac{v_2}{v_1+v_2} \cdot 100\ \%$
C) $\frac{2v_1}{v_1-v_2} \cdot 100\ \%$
D) $\frac{v_1}{v_1-v_2} \cdot 100\ \%$

5. 3 ta quvur berilgan. 1-quvur yolg'iz o'zi basseynni 5 soatda to'ldiradi, 2-quvur yolg'iz o'zi basseynni 3 soatda to'ldiradi, 3-quvur yolg'iz o'zi basseynni 2 soatda bo'shatadi. 3 ta quvur bir vaqtda necha soatda basseynni to'ldiradi?
A) 20
B) 30
C) 40
D) 15

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6. Hisoblang. $\sqrt[3]{\frac{12}{25}\cdot\sqrt{\frac{244}{15\cdot(38^2-23^2)}}}$

A) 0,8
B) 0,6
C) 0,2
D) 0,4

7. Ishorasi almashinuvchi geometrik progressiyada $b_1 = a-5$; $b_2 = a+4$; $b_3 = 5a+8$ bo'lsa, b_4 ni toping.

A) $\frac{1}{4}$
B) $-\frac{1}{4}$
C) 4
D) -4

8. $\frac{1}{(x+y)^2}\cdot\left(\frac{1}{x^2}+\frac{1}{y^2}\right)+\frac{2}{(x+y)^3}\cdot\left(\frac{1}{x}+\frac{1}{y}\right)$ ni soddalashtiring.

A) $\frac{1}{xy}$
B) $\frac{1}{x^2y^2}$
C) 1
D) $x+y$

9. $2x^2-5x+4=0$ tenglama nechta haqiqiy ildizga ega?

A) Haqiyqiy ildizga ega emas
B) 1 ta
C) 2 ta
D) Cheksiz ko'p yechimga ega

10. $2sin\ \frac{7\pi}{6}+cos^2\frac{7\pi}{4}$ ni hisoblang.

A) $-\frac{1}{4}$
B) $-\frac{1}{2}$
C) 0
D) $\frac{1}{2}$

11. $a>5$ bo'lsa, $\sqrt{(3-a)^2}-\sqrt{(a-5)^2}$ ni hisoblang.

A) 1
B) $-2a+8$
C) 2
D) Aniqlab bo'lmaydi

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12. $\frac{a}{b}=4, \frac{b}{c}=10$ bo'lsa, $\frac{a^2+b^2+c^2}{ac}+\frac{a}{c}$ ni hisoblang.

A) $81\frac{21}{40}$

B) $82\frac{21}{40}$

C) $80\frac{21}{40}$

D) $81\frac{21}{34}$

13. $\frac{2cos\alpha+cos3\alpha+cos5\alpha}{cos3\alpha+sin\alpha\cdot sin2\alpha}$ ni soddalashtiring.

A) $cos2\alpha$

B) $4cos2\alpha$

C) $4sin2\alpha$

D) $cos\alpha$

14. $3\cdot 4^x+2\cdot 25^x=5\cdot 10^x$ tenglama nechta haqiqiy ildizga ega?

A) Haqiyqiy ildizga ega emas

B) 1 ta

C) 2 ta

D) Cheksiz ko'p yechimga ega

15. Toq funksiyani toping.

A) $f(x)=\frac{sinx+x^3}{cosx-1}$

B) $f(x)=\frac{cosx+x^3}{sinx-1}$

C) $f(x)=\frac{tgx+x^3}{sinx-1}$

D) $f(x)=\frac{ctgx+x^2}{cosx-1}$

16. $x^2+4x+1=2\sqrt{x^2+4x+4}$ tenglamaning haqiqiy ildizlar yig'indisini toping.

A) -4

B) 4

C) -2

D) -6

17. $\big||2x-1|-7\big|\le 5$ tengsizlikni qanoatlantiradigan butun yechimlari nechta?

A) 20 ta

B) 12 ta

C) 10 ta

D) 8 ta

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18. $\frac{\sqrt{4-x^2}}{x+1} \geq 0$ tengsizlikni yeching.
A) $[-2;2]$
B) $(-1;2]$
C) $(-1;\infty)$
D) $\{-2\} \cup (-1;2]$

19. $32^3 \cdot 8^{12} \cdot 125^{17}$ necha xonali son?
A) 52
B) 51
C) 50
D) 17

20. $log_{cos2x}(sin2x) \leq 1$ tengsizlikni yeching.
A) $\left[\frac{\pi}{8}+\pi k;\frac{\pi}{4}+\pi k\right], k \in Z$
B) $\left[\frac{\pi}{8}+\pi k;\frac{5\pi}{8}+\pi k\right], k \in Z$
C) $\left[\frac{\pi}{8}+\pi k;\frac{\pi}{4}+\pi k\right), k \in Z$
D) $\left[\frac{\pi}{4}+2\pi k;\frac{5\pi}{4}+2\pi k\right), k \in Z$

21. $f\left(g^{-1}\left(g(x)\right)+1\right) = x^2+5x+6$ berilgan. $g^{-1}(x)-g(x)$ funksiyaning teskari funksiyasi. $f(-1)$ ni toping.
A) -1
B) 2
C) 1
D) 0

22. $f(x) = sin^2 5x - |cos2x + x|$ funksiya berilgan. $f'\left(-\frac{\pi}{6}\right)$ ni toping.
A) $\frac{7\sqrt{3}+2}{2}$
B) $-\sqrt{3}+1$
C) $\frac{3\sqrt{3}+4}{2}$
D) $\frac{3\sqrt{3}-2}{2}$

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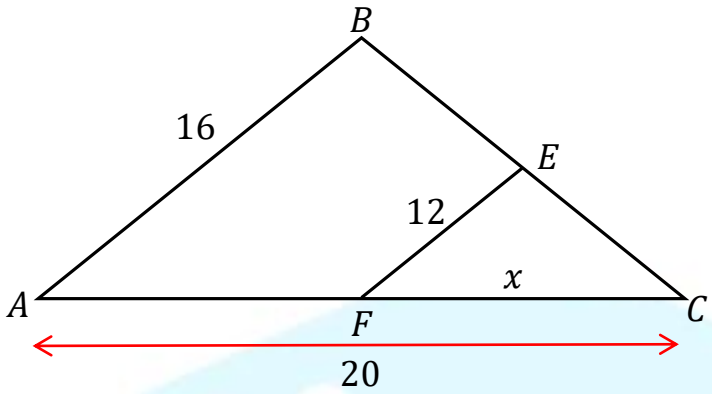
23. Chizmadagi ma'lumotlardan foydalanib x ni toping. $(AB||EF)$



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

24. Tekislikka ikkita AB va BC og'ma va BH perpendikulyar tushirilgan. Bunda $BH = HC$, $AB = 2HC$, $\angle AHC = 90^0$ bo'lsa, $\angle cosBAC$ ni toping.

A) $\frac{3}{4}$
B) $\frac{3}{5}$
C) $\frac{2}{3}$
D) $\frac{1}{2}$

25. Tomoni 4 ga teng bo'lgan kvadratga doira ichki chizilgan. Doiraning yuzini toping.

A) 16π
B) π
C) 2π
D) 4π

26. ABC uchburchakda $\angle BAC = 90^0$ va $\angle BCA = 30^0$ bo'lib, BD bissektrisa $2\sqrt{2}$ ga teng bo'lsa, ABC uchburchak yuzini toping.

A) $2\sqrt{3}$
B) $2\sqrt{2}$
C) $3\sqrt{2}$
D) $3\sqrt{3}$

27. Diagonallar soni tomonlar sonidan 6 marta ko'p bo'lgan ko'pburchakning ichki burchaklar yig'indisini toping.

A) 2700°
B) 1800°
C) 2340°
D) 2400°

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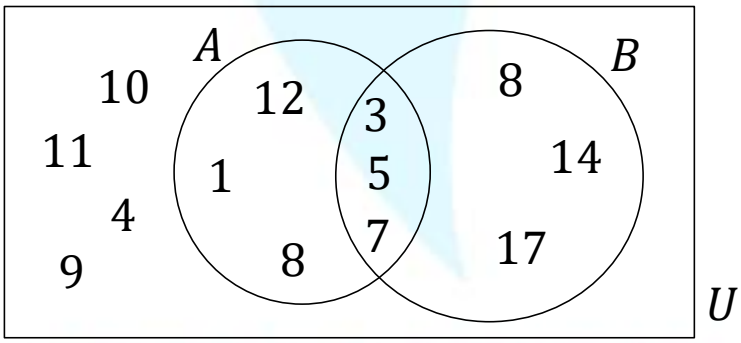
28. Rombning katta diagonali $10\sqrt{4+2\sqrt{2}}$ ga teng o'tkir burchagi 45^0 bo'lsa, diagonallari kesishish nuqtasidan tomonlarigacha bo'lgan eng qisqa masofalar yig'indisini toping.
A) 10
B) 20
C) 15
D) 25

29. $\int_{-3}^{4} 2x^2|2x|\,dx$ ni hisoblang.
A) 187
B) 175
C) 337
D) 222

30. ABC uchburchakning yuzi 60 ga teng. $\overrightarrow{BE} = \overrightarrow{AB}$ bo'lsa, AEC uchburchakning yuzini toping.
A) 120
B) 90
C) 60
D) 30

31. $(A \cap B) \cup (A \cup B)'$ ning elementlar sonini toping.



A) 5
B) 7
C) 6
D) 9

32. Merganning nishonga tekkizish ehtimolligi 0,8 ga teng. 5 marta o'q uzilgan. Dastlab otilgan 3 ta o'q tegib, keyingi 2 ta otilgan o'q tegmasligi ehtimolligini toping.
A) $2^{10} \cdot 10^{-6}$
B) $2^{11} \cdot 10^{-5}$
C) $2^{11} \cdot 10^{-6}$
D) $2^{10} \cdot 10^{-5}$

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Topshiriqlar(33-35) va javob variantlari (A-F) ni o'zaro moslashtiring. Muntazam oltiburchakli piramidaga shar ichki chizilgan. Shar ichiga eng katta hajmli konus ichki chizilgan. Piramida asosining tomoni 6 ga, yon yog'i asos tekisligi bilan 60^0 tashkil etadi. $(\pi \approx 3)$ deb oling. **33.** Piramida hajmini toping. **34.** Shar hajmini toping. **35.** Konus hamjmini toping.	A) $162\sqrt{3}$ B) 108 C) 32 D) 81 E) $81\sqrt{3}$ F) 27

36. $\frac{6x-k}{x-1} = 3 - \frac{2x+k}{x+1}$ tenglama berilgan.

a) Tenglama bitta ildizga ega bo'ladigan k ning eng katta qiymatini toping.

Javob a)_____

b) Tenglama bitta ildizga ega bo'ladigan k ning barcha qiymatlari yig'indisini toping.

Javob b)_____

37. $3(log_2 sinx)^2 + log_2(1 - cos2x) = 2$ tenglamani yeching.

a) Tenglamaning eng kichik musbat ildizini toping.

Javob a)_____

b) Tenglamaning $\left(-\frac{\pi}{2}; \frac{5\pi}{2}\right)$ kesmada nechta ildizga ega?

Javob b)_____

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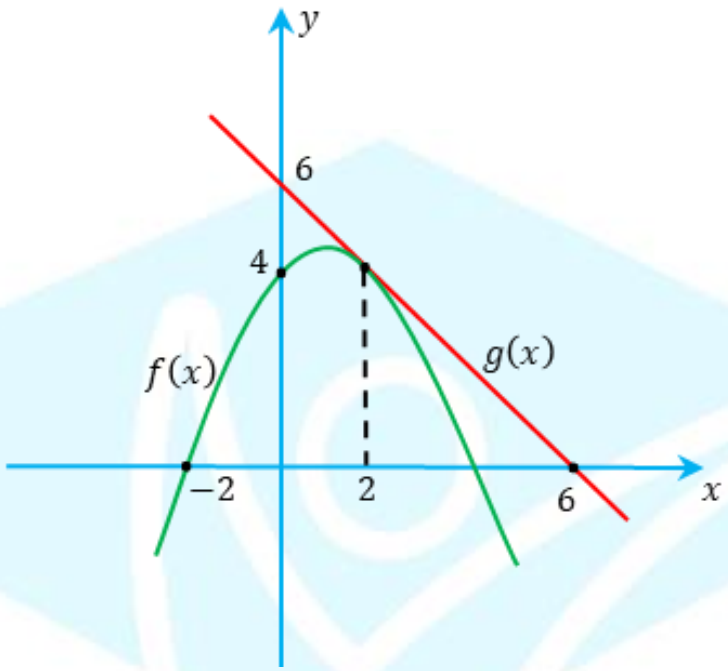
38. $g(x) = kx + b$ va $f(x) = ax^2 + bx + c$ funksiya grafiklari berilgan. Grafikdan foydalanib, quyidagilarni hisoblang.



a) $\boldsymbol{f'(2)}$ **ni hisoblang.**

Javob a)_____

b) $\boldsymbol{f'\left(\frac{1}{a}\right) - 5f'\left(\frac{1}{b}\right) + 2f'\left(\frac{1}{c}\right)}$ **ni hisoblang.**

Javob b)_____

39. $f(x) = x^4 - 2x^3 + 2x^2 - 2x + 1$ bo'lsa,

a) $\boldsymbol{f\left(1+\sqrt{2}\right) + f\left(1-\sqrt{2}\right)}$ **ni hisoblang.**

Javob a)_____

b) $\boldsymbol{f(x) = 0}$ **nechta turli haqiqiy ildizga ega?**

Javob b)_____

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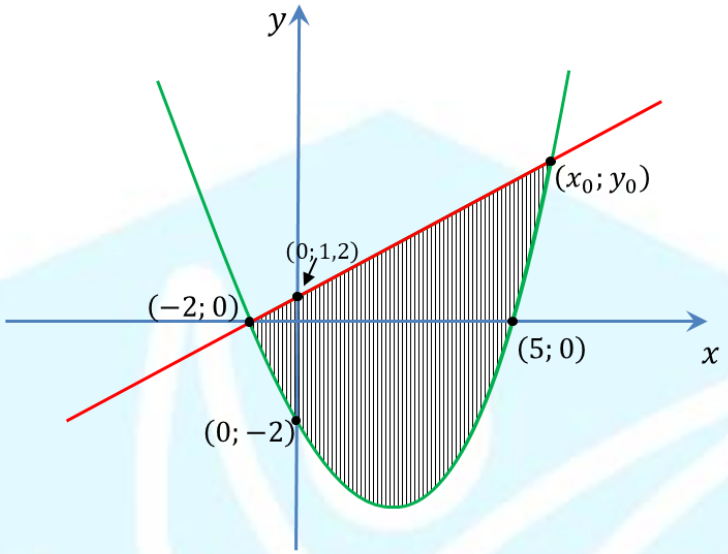
40. Rasmda $f(x) = ax^2 + bx + c$ parabola va $g(x) = kx + l$ to'g'ri chiziq grafiklari tasvirlangan. $(-2; 0)$ va $(x_0; y_0)$ nuqtalar parabola va to'g'ri chiziq kesishgan nuqtalar bo'lsa,



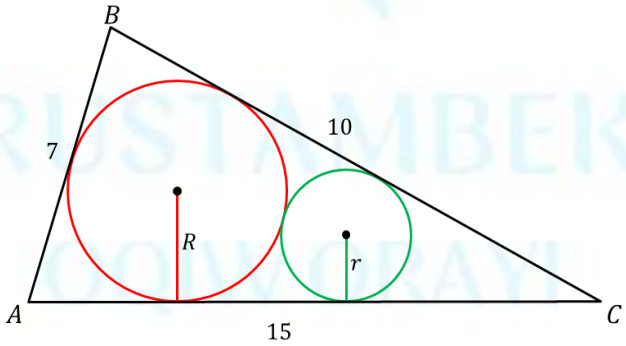
a) $x_0 + y_0$ ni hisoblang.

Javob a)_____

b) Bo'yalgan sohaning yuzini toping.

Javob b)_____

41. ABC uchburchakda $AB = 7$, $BC = 10$, $AC = 15$ ga teng. Uchburchakka ikkita aylana shunday ichki chizilganki, R radiusli aylana uchburchak tomonlariga, r – radiusli aylana esa AC, BC va R radiusli aylanaga urinadi. (Rasmga qarang)



a) R =?

Javob a)_____

b) r =?

Javob b)_____

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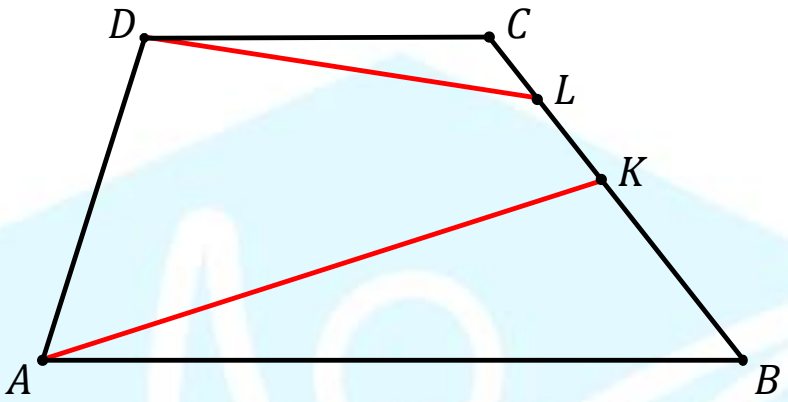
42. Quyidagi chizmada yuzi 42 ga teng bo'lgan $ABCD$ trapetsiya tasvirlangan. Trapetsiyaning BC yon tomonidan K va L nuqtalar olingan. $\frac{CL}{LK}=\frac{3}{2}$; $\frac{KB}{LK}=2$ va $\frac{DC}{AB}=\frac{5}{9}$ bo'lsa,



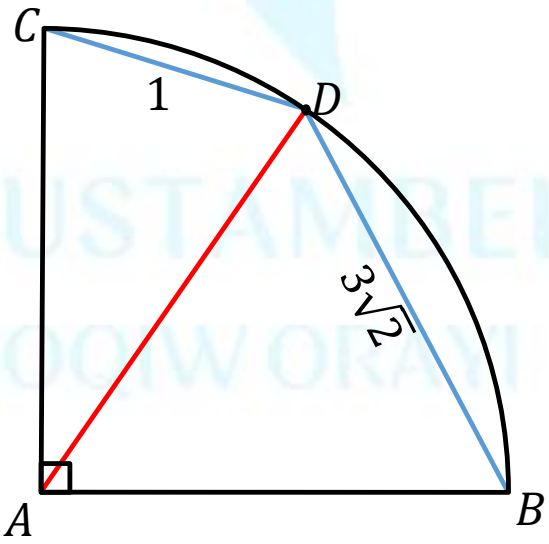
a) AKB uchburchakning yuzini toping.

Javob a)_____

b) $AKLD$ yuzini toping.

Javob b)_____

43. Rasmda aylananing $\frac{1}{4}$ qismi tasvirlangan. $AC=AB=R$ –aylana radiusi, $CD=1$, $BD=3\sqrt{2}$ bo'lsa,



a) $sin\angle CAD$ ning ichki burchagini toping.

Javob a)_____

b) CAD uchburchakning yuzini toping.

Javob b)_____

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44. Silindrga oktaedr ichki chizilgan. Oktaedrning hajmi 36 ga teng.

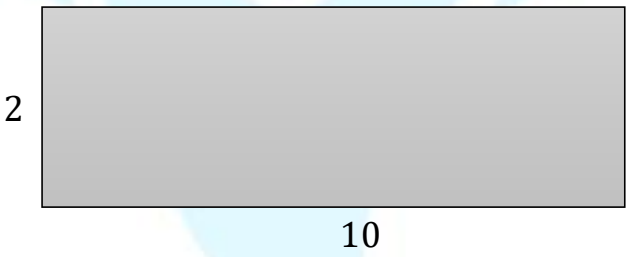
a) Oktaedrning qirrasini toping.

Javob a)_____

b) Silindr hajmini toping.

Javob b)_____

45. Tomonlari 2 va 10 ga teng bo'lgan to'g'ri to'rtburchakli metaldan asoslari ikkita doira va yon sirti qirqib olinib silindr hosil qilindi . $(\pi \approx 3)$ deb oling.



a) Eng kam chiqindi chiqarib silindr yasalsa, uning hajmini toping.

Javob a)_____

b) Silindr yasashdan hosil bo'lgan chiqindi metalning necha foizini tashkil etadi?

Javob b)_____

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MILLIY SERTIFIKAT (19.02.2023)

1. Natural a va b sonlar uchun $a+b=111$ tenglik bajarilsa, $ab-1$ ayirmaning eng katta qiymatini toping.
A) 2555
B) 3079
C) 110
D) 1

2. Hisoblang. $\frac{1-3+5-7+9-11+\ldots+2021-2023}{1-2+3-4+5-6+\ldots+2021-2022}$
A) 1
B) -1
C) $-\frac{1012}{1011}$
D) $\frac{1012}{1011}$

3. Hisoblang. $\frac{10^{55}+10^{54}+10^{50}}{10^{49}+10^{53}+10^{54}}$
A) 100
B) 1
C) 10
D) 1000

4. Ikki ishchi bir ishning $\frac{2}{3}$ qismini 4 kunda bajara oladi. Agar ular alohida ishlasa, birinchi ishchi ishni ikkinchisidan 5 kun oldinroq bajarib tugatadi. Yolg'iz ishlaganda birinchi ishchi ishni necha kunda tugata oladi?
A) 10
B) 12
C) 15
D) 20

5. 500 kg ruda, tarkibida 12,5 % temir bo'lgan 200 kg ruda ajratib olindi. Qolgan rudada temir ulushi dastlabkidan 20% ortiq bo'ldi. Dastlab ruda tarkibida qancha(kg) temir bo'lgan?
A) 212,5
B) 202,5
C) 45
D) 205

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6. Hisoblang. $\sqrt{\frac{2022\cdot2024+1}{2024\cdot2030+9}\cdot\frac{2026\cdot2028+1}{2020\cdot2026+9}-1}+\sqrt{25}$

A) 2021
B) 2022
C) 6
D) 5

7. Arifmetik progressiyada $a_5+a_{n-4}=24$ va $S_n=96$ bo'lsa, n ni toping.
A) 7
B) 9
C) 4
D) 8

8. Birinchi hadi 5 dan katta bo'lgan geometrik progressiyada $b_1+b_2+b_3=21$ va $b_3+b_4+b_5=84$ bo'lsa, uning dastlabki oltita hadining yig'indisini toping.
A) 25
B) -174
C) 20
D) -147

9. Ifodani soddalashtiring.

$$\frac{a^2+b^2}{a+b}:\left(\frac{a^2+b^2}{ab}+\frac{b^2}{a^2-ab}-\frac{a^2}{ab+b^2}\right)$$

A) 1
B) a^2+b^2
C) $a+b$
D) $a-b$

10. Tenglamani yeching.

$$x+\frac{x}{1+2}+\frac{x}{1+2+3}+\ldots+\frac{x}{1+2+3+\ldots+7}=7$$

A) 5
B) 4
C) 3
D) 2

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11. Agar $a < a^3 < a^2$, $b^3 < b < b^2$, $c^3 < c^2 < c$ bo'lsa, $\frac{ab|b-c-1|}{|ab|} + \frac{bc|a+c+1|}{|bc|} + \frac{ac|a+1+b|}{|ac|}$ ifodani soddalashtiring.

A) 1
B) -1
C) $-2a-2b-2c-3$
D) $a+b$

12. Soddalashtiring. $2tg53^0\left(\frac{1}{sin106^0}+\frac{1}{tg106^0}\right)$

A) $tg^2 53°$
B) 1
C) 2
D) $tg53°$

13. Agar $a-b=4$ bo'lsa, $\frac{a^2-b^2+3a-3b}{a^2-b^2+6a+9}$ ni hisoblang.

A) $\frac{1}{4}$
B) $\frac{7}{4}$
C) 1
D) $\frac{4}{7}$

14. Tengsizlikning $[2;2023]$ oraliqda nechta natural yechimi bor?

$$2^x + 3^x + 4^x + 5^x > 54$$

A) 2021
B) 2023
C) 0
D) 2022

15. Quyidagi funksiyalardan nechtasi toq?

1) $y = 2^x + 2^{-x}$ 2) $y = x\sqrt{1+x^2}$
3) $y = 1 + \sin 2x$ 4) $y = \log_2\left(x + \sqrt{1+x^2}\right)$

A) 1 tasi
B) 2 tasi
C) 3 tasi
D) 4 tasi

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16. Tenglamaning haqiqiy ildizlari sonini toping. $x^2 + \frac{4x^2}{(5x+2)^2} = \frac{9}{5}$

A) 4
B) 3
C) 2
D) 1

17. Tenglama ildizlari x va y bo'lsa, $x \cdot y$ ni hisoblang.

$$|x + y - 12| + (x - y - 2)^2 = 0$$

A) 25
B) 28
C) 30
D) 35

18. Tengsizlikning $[1; 2023]$ kesmada nechta natural yechimga ega?

$$\frac{\pi x - \sqrt{10}}{\pi - \sqrt{10}} < 0$$

A) 2023
B) 2021
C) 1
D) 2022

19. Agar aholining elektr energiyasiga talabi har yili 2,5 % ortsa, necha yilda 9 marta ortadi?

A) $\log_9 1{,}025$
B) $\log_9 0{,}025$
C) $\log_{1{,}025} 9$
D) $\log_{0{,}025} 9$

20. Tengsizlikning butun yechimlari nechta? $3^{log_3\sqrt{x-6}} > 3^{log_3(x-4)}$

A) 3
B) 2
C) 4
D) 0

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21. Tengsizlikning $[-4;5]$ oraliqdagi butun yechimlari yig'indisini toping.

$$(2x+3)(x^2+3x)-\frac{16(2x+3)}{x^2+3x}\geq 0$$

A) 15
B) 9
C) 8
D) 10

22. $y=cos^n x\cdot cosnx$ bo'lsa, $y'(x)$ ni toping.

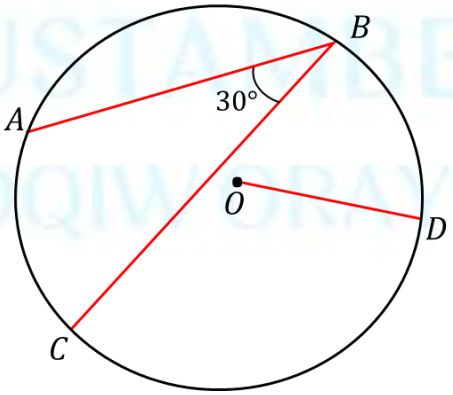
A) $n\cdot\cos^{n-1}x\cdot\sin(nx-x)$
B) $-n\cdot\cos^{n-1}x\cdot\cos(nx+x)$
C) $-n\cdot\cos^{n-1}x\cdot\sin(nx+x)$
D) $n\cdot\cos^{n-1}x\cdot\sin(nx+x)$

23. Soddalashtiring.

$$\frac{1}{cosxcos2x}+\frac{1}{cos2xcos3x}+\frac{1}{cos3xcos4x}+\ldots+\frac{1}{cos2022xcos2023x}$$

A) $\frac{sin2022x}{sin2x\cdot cos2023x}$
B) $\frac{sin2023x}{cosx\cdot cos2022x}$
C) $\frac{2sin2022x}{sin2x\cdot cos2023x}$
D) $\frac{2sin2022x}{cosx\cdot cos2023x}$

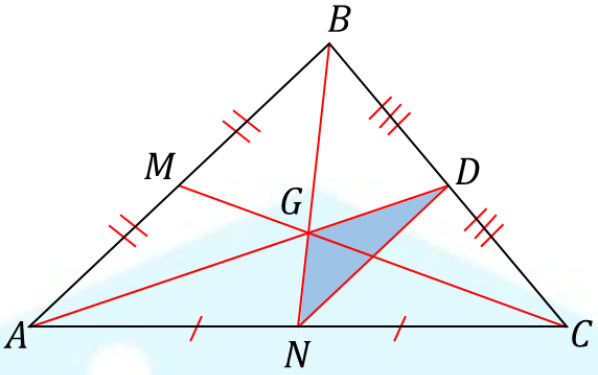
24. Aylanada A,B,C,D nuqtalar olingan. O –aylana markazi, A va D nuqtalar bilan bir to'g'ri chiziqda yotadi. Agar $\angle ABC=30^0$ va $OD=3$ bo'lsa, CD ni toping.



A) 3
B) 4
C) $\sqrt{3}$
D) $3\sqrt{3}$

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

25. ABC uchburchakda AD, BN, CM medianalar keshishgan nuqta G nuqta bo'lsin. Agar ABC uchburchak yuzasi 48 ga teng bo'lsa, GDN uchburchak yuzasini toping.

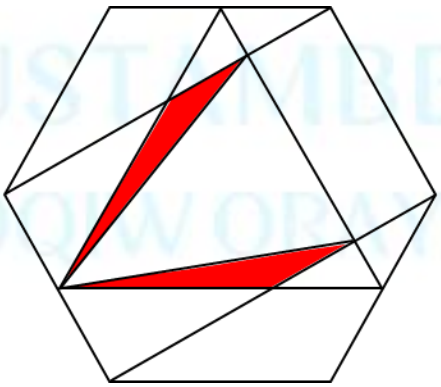


A) 5
B) 4
C) 3
D) 12

26. $A(-10;\ -3), B(-4;5),\ C(5;5)$ va $D(11;\ -3)$ nuqtalardan o'tuvchi aylana radiusini toping.

A) $10\frac{5}{8}$
B) $11\frac{5}{8}$
C) $8\frac{6}{7}$
D) $7\frac{6}{7}$

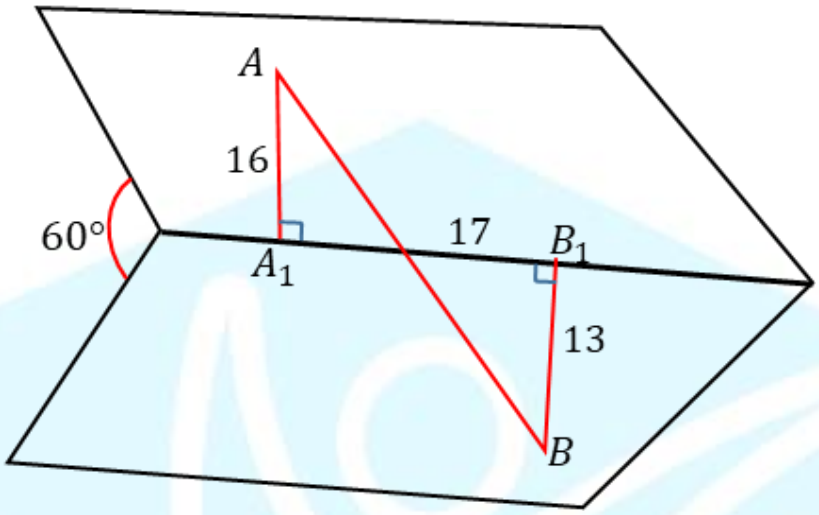
27. Tomoni 4 bo'lgan muntazam oltiburchak uchta tomonlarining o'rtalarini tutashtirib muntazam uchburchak yasalgan. Bo'yalgan soha yuzini toping.



A) 1
B) $6\sqrt{3}$
C) $2\sqrt{3}$
D) $\sqrt{3}$

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

28. Tekis burchagi 60^0 bo'lgan ikki yoqli burchakning qirrasida A va B nuqtalar olingan. Ulardan ikki yoqli burchakning turli yoqlarida A_1, B_1 nuqtalardan burchakning qirrasiga perpendikulyar qilib $AA_1 = 16$ va $BB_1 = 13$. Agar $A_1B_1 = 17$ bo'lsa, AB ni toping.



A) $\sqrt{202}$
B) $\sqrt{53}$
C) $6\sqrt{2}$
D) $\sqrt{506}$

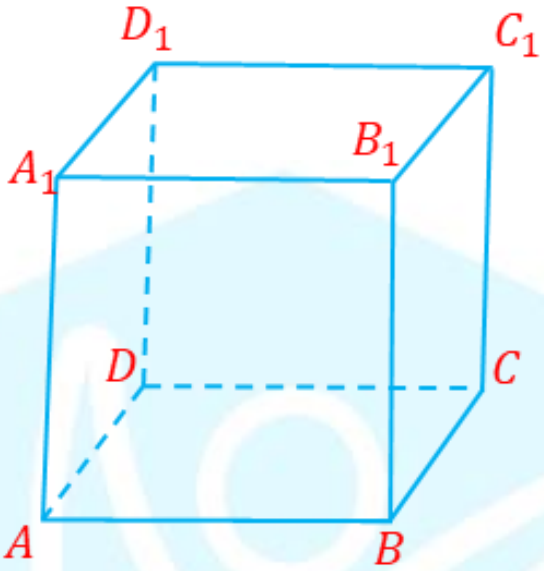
29. $y = ax^2 + bx + c$ funksiya uchun $f'(1) = 0,\ f(2) - f'(2) = 1$ va $\int_0^1 f(x)\,dx = \frac{2}{3}$ bo'lsa, $b - a - c$ toping.

A) $\frac{1}{4}$
B) $\frac{3}{4}$
C) 1
D) 0

RUSTAMBEK OQIW ORAYI

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

30. $ABCDA_1B_1C_1D_1$ kubda $\overrightarrow{BC}+\overrightarrow{CD}$ va $\overrightarrow{D_1A_1}+\overrightarrow{A_1B}$ vektorlar orasidagi burchak kosinusini toping.



A) $\frac{\sqrt{6}}{3}$ B) $\frac{\sqrt{3}}{2}$ C) $\frac{\sqrt{3}}{4}$ D) $-\frac{\sqrt{6}}{3}$

31. A to'plamning elementlar soni 9 ta, B to'plamning elementlar soni 7 ta, U universal elementlar soni 16. $n(A\cup B)'$ eng ko'pi bilan nechaga teng? ($A'-A$ to'plamning universal to'plamgacha to'ldiruvchisi)

A) 7
B) 13
C) 17
D) 11

32. 10 kishidan 1 ta boshliq, 2 ta yordamchi 2 ta mutaxasisni necha xil usulda tanlanadi.

A) 7850
B) 7560
C) 3780
D) 3840

RUSTAMBEK OQIW ORAYI

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

Gipotenuzasi $4\sqrt{2}$ bo'lgan to'g'ri burchakli uchburchakning to'g'ri burchagi uchidagi bissektrisasi uni ikkita teng yonli uchburchakka ajratadi. Berilgan uchburchak gipotenuza atrofida 360^0 ga aylantirildi. $(\pi \approx 3)$

33. Hosil bo'lgan jismning to'la sirtini toping.

34. Hosil bo'lgan jismning hajmini toping.

35. Hosil bo'lgan jismga ichki chizilgan shar hajmini toping.

A) $16\sqrt{2}$

B) 32

C) $32\sqrt{2}$

D) $48\sqrt{2}$

E) $30\sqrt{2}$

F) $15\sqrt{2}$

36. Tenglamani yeching. $(x^2-x-1)^3+(x^2-3x+2)^3=(2x^2-4x+1)^3$

a) Tenglamaning nechta haqiqiy ildizi bor?

Javob a)_____

b) Tenglamaning nechta musbat ildizi bor?

Javob b)_____

37. Tenglamani yeching. $\frac{sin\ 2^x}{sin\ 2^{x-2}\cdot cos\ 2^{x-2}}=2\sqrt{3}$

a) Tenglamaning $(0;5)$ oraliqda nechta ildizi bor?

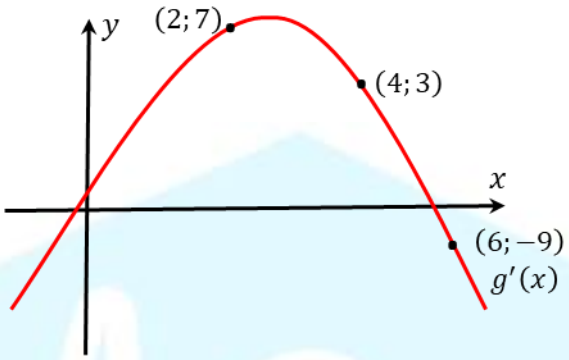
Javob a)_____

b) Tenglamaning $(0;5)$ oraliqdagi ildizlaridan eng kattasi va eng kichigining ildizlarining musbat ayirmasini toping.

Javob b)_____

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

38. $y = g'(x)$ funksiya grafigi parabola bo'lib, $(2;7), (4;3)$ va $(6; -9)$ nuqtalardan o'tishi ma'lum. $y = g(x)$ funksiyaning grafigining



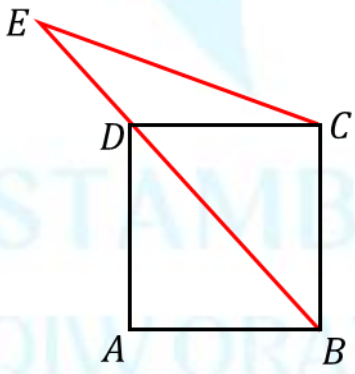
a) $x_0 = -2$ nuqtasiga o'tkazilgan urinmaning burchak koeffitsientini toping.

Javob a)_____

b) Funksiyaning statsionar nuqtalar yig'indisini toping.

Javob b)_____

39. $ABCD$ kvadrat BD diagonalining D uchi davomida E nuqta olingan va $DE = 3$.



a) Kvadratning diagonali 18 bo'lsa, CE ni toping.

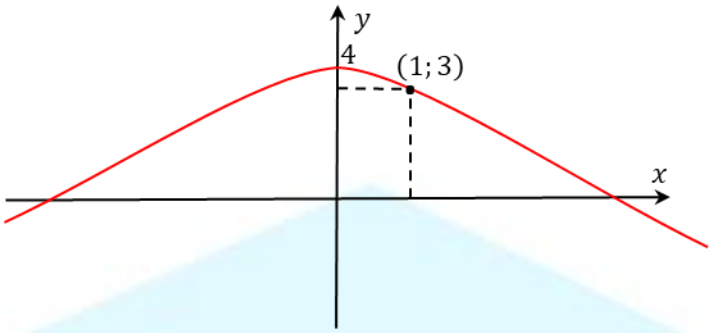
Javob a)_____

b) Agar $CE = \sqrt{29}$ bo'lsa, kvadratning yuzini toping.

Javob b)_____

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

40. Grafigi OY o'qiga nisbatan simmetrik bo'lgan $y = n\sqrt[3]{x^2 + m} + d$ funksiya grafigi $(0; 4)$ va $(1; 3)$ nuqtalardan o'tadi.



a) $n + m + d$ ni toping.

Javob a)_____

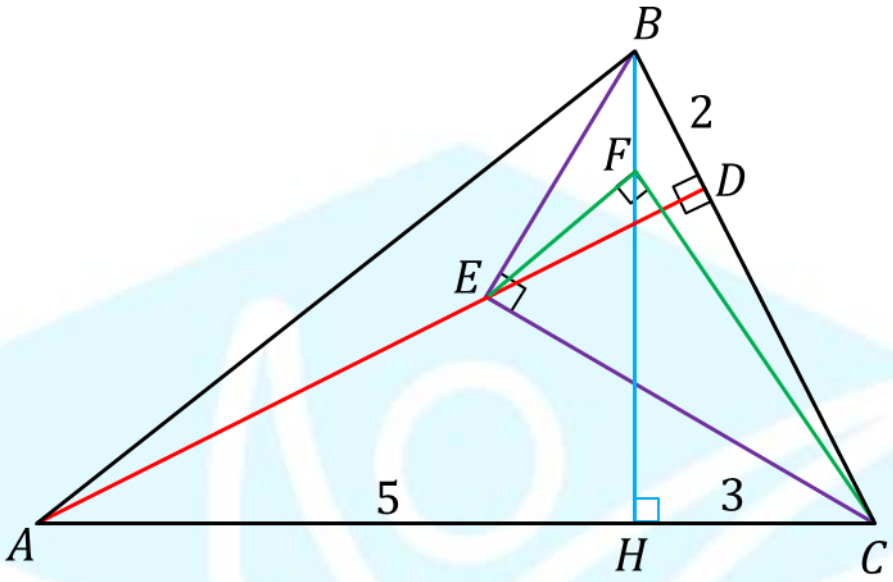
b) Funksiya grafigi va abssisalar o'qi chegaralangan soha yuzini toping.

Javob b)_____

RUSTAMBEK
OQIW ORAYI

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

41. O'tkir burchakli ABC uchburchakning BH va AD balandliklari mos ravishda F va E nuqtalarni $\angle EFC = \angle BEC = 90^0$ bo'ladigan qilib olingan.
Bunda $AH = 5$ $HC = 3$ va $BD = 2$



a) CE kesma uzunligini toping.
Javob a)_____

b) Agar $EF = \sqrt{12 - 6\sqrt{3}}$ bo'lsa, CEF uchburchakning yuzini toping.
Javob b)_____

RUSTAMBEK OQIW ORAYI

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

42. Qirrasi $6\sqrt{2}$ bo'lgan muntazam tetraedrga shar ichki chizilgan.

a) Muntazam tetraedrning hajmini toping.

Javob a)_____

b) Sharning to'la sirtini toping.

Javob b)_____

43. Burchaklari teng bo'lgan $ABCDEF$ oltiburchakda $AB = 1,\ BC = 4, AF = 2, EF = 3$ bo'lsa,

a) CD tomoni toping.

Javob a)_____

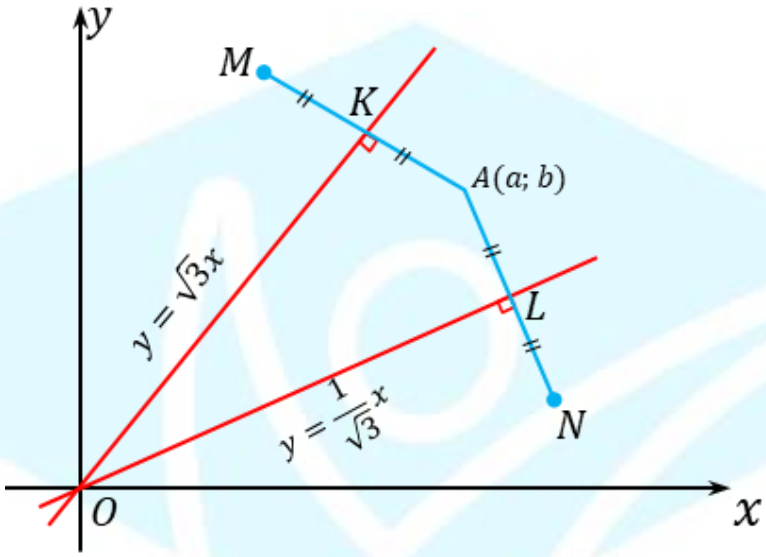
b) $ABCDEF$ oltiburchakning yuzasini toping.

Javob b)_____

RUSTAMBEK OQIW ORAYI

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

44. Koordinatalar tekisligida $y_1 = \sqrt{3}x$ va $y = \frac{x}{\sqrt{3}}$ funksiyalarning grafiklari yasalgan. Birinchi chorakda bu to'g'ri chiziqlar orasida $A(a; b)$ nuqta olingan va $a^2 + b^2 = 144$. AL va AK kesmalar mos ravishda A nuqtadan y_1 va y_2 to'g'ri chiziqlargacha bo'lgan eng yaqin masofalar. M va N nuqtalar A nuqtaga mos ravishda K va L nuqtalarga simmetrik bo'lgan nuqtalar.



a) KL ni toping.

Javob a)_____

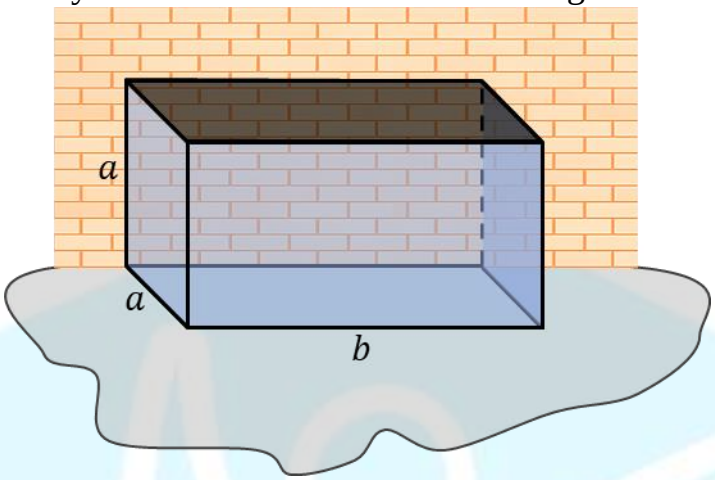
b) NM ni toping.

Javob b)_____

RUSTAMBEK OQIW ORAYI

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

45. Binoning hajmi 96 m^3. Balandligi va eni bir xil a, uzunligi b bo'lgan binoning bir devori uy devoriga yopishgan. Binoning uy devori bilan umumiy bo'lmagan qirralari armaturadan, uchta yon devorini shisha oynadan va tomini tunukadan tiklagan.



a) Agar bino uchun armaturani eng kam miqdorda sarflagan bo'lsa, jami qancha armatura sarflagan (m)?

Javob a)_____

b) Agar 1 m armatura 1 \$, 1 m^2 shisha oyna 10 \$ va 1 m^2 tunuka 5 \$ tursa, binoni tiklash uchun jami qancha(\$) sarflagan?

Javob b)_____

RUSTAMBEK OQIW ORAYI

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

MILLIY SERTIFIKAT (24.12.2023)

1. $\frac{EKUK(12;6)+EKUB(6;12)}{\sqrt{EKUK(12;3)\cdot EKUB(3;12)}}$ ni hisoblang.

A) 3
B) 9
C) 6
D) 1

2. Hisoblang. $\frac{18}{65}\cdot\left(\frac{41}{18}-\frac{17}{36}\right)+\frac{7}{6}+\left(\frac{4}{7}+\frac{5}{49}\right):\frac{99}{49}$

A) $\frac{16}{3}$
B) 6
C) 2
D) $\frac{5}{6}$

3. Oltin va kumush qotishmasining massasi 1,06 kg. Qotishmani suvga solinganda 70 gr massasini yo'qotadi. Oltin suvda massasining $\frac{1}{19}$ qismini, kumush esa $\frac{1}{10}$ qismini yo'qotadi. Oltin va kumushning dastlabki massalarini toping.

A) Oltin 760 gramm, kumush 300 gramm
B) Oltin 490 gramm, kumush 570 gramm
C) Oltin 630 gramm, kumush 430 gramm
D) Oltin 570 gramm, kumush 490 gramm

4. O'qishga qabul qilish uchun 5000 nafar talabaga kvota ajratilgan. Talabalar sonini oshirish maqsadida ketma-ket uch yil bir xil foizga qabul kvotasi oshirildi va kvota soni 6655 taga yetdi. Qabul kvotasi har yili necha foizga oshirilgan.

A) 11
B) 10
C) 12
D) 15

5. Hisoblang: $\sqrt{\sqrt{47}-\sqrt{31}}\cdot\sqrt{\sqrt{47}+\sqrt{31}}$

A) 7
B) 5
C) 6
D) 4

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

6. $m, n \in N$ uchun $3^8 \cdot 2^{10} \cdot 3^{-4} \cdot 2^{-4} = 2^m \cdot 3^n$ bo'lsa, $m + n$ ni toping.
A) 11
B) 9
C) 10
D) 8

7. Arifmetik progressiyaning birinchi hadi 8, oxirgi hadi esa 74 ga teng. Agar arifmetik progressiyaning ayirmasi butun son bo'lib u 3 va 9 sonlari orasida bo'lsa, progressiyaning yig'indisini toping.
A) 462
B) 492
C) 512
D) 382

8. $b_n = \frac{2^n}{3^{n-1}}$ ketma-ketlikning barcha hadlari yig'indisini toping.
A) 6
B) 1
C) 2
D) 3

9. Agar $x > 3$ da $\frac{\sqrt{9+6x+x^2}-\sqrt{9-6x+x^2}}{\sqrt{9+6x+x^2}+\sqrt{9-6x+x^2}}$ ni hisoblang.
A) $-\frac{3}{x}$
B) $\frac{x}{3}$
C) $\frac{3}{x}$
D) 1

10. $arccos\left(-\frac{1}{2}\right) + arcsin\left(-\frac{1}{2}\right)$ ni hisoblang.
A) $\frac{\pi}{4}$
B) $\frac{\pi}{2}$
C) $\frac{\pi}{3}$
D) 1

RUSTAMBEK OQIW ORAYI

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

11. Ifodani soddalashtiring. $\frac{2cos^2 2\alpha+cos6\alpha-1}{0{,}5sin6\alpha+sin2\alpha\cdot cos2\alpha}$

A) $2ctg5\alpha$
B) $2tg5\alpha$
C) $ctg5\alpha$
D) $tg5\alpha$

12. Soddalashtiring. $\frac{r^2+5r}{r^3-27}-\frac{2r-9}{r^3-27}$

A) $\frac{1}{3-r}$
B) $\frac{1}{r+3}$
C) $\frac{r}{r-3}$
D) $\frac{1}{r-3}$

13. Agar $2^a=5, 2^b=3$ bo'lsa, $\left(\frac{25}{3}\right)^c=405$ tenglikdan foydalanib c ni a va b orqali ifodalang.

A) $\frac{b+4a}{2a-b}$
B) $\frac{4b+a}{2a+b}$
C) $\frac{4b+a}{2a-b}$
D) $\frac{4b-a}{2a-b}$

14. Tengsizlikni qanoatlantiradigan butun sonlar nechta?

$$x^2-6|x|+5\le 0$$

A) 8
B) 9
C) 10
D) 11

15. $5^{\frac{x}{x-3}}-5\cdot 5^{\frac{3}{x-3}}=0$ tenglamaning nechta haqiqiy ildizi bor?

A) 0
B) 1
C) 2
D) Cheksiz ko'p

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

16. $2x^2 - 4x - 6 = 0$ tenglama ildizlari yig'indisini toping.
A) -4
B) 2
C) 4
D) -2

17. Tenglama ildizlari ko'paytmasini toping.

$$\left(\frac{1}{\sqrt{3+2\sqrt{2}}}\right)^x + \left(\frac{1}{\sqrt{3-2\sqrt{2}}}\right)^x = 6$$

A) -4
B) 4
C) -2
D) 2

18. Tengsizlikning natural yechimlari nechta?

$$\frac{25-4x}{\sqrt[3]{10}-2} \geq 0$$

A) 10
B) 4
C) 8
D) 6

19. $\sqrt{log_3(36-12x+x^2)^8} + 6log_9\sqrt{18-3x} = 7$ tenglamaning ildizlar yig'indisini toping.
A) -3
B) 3
C) 17
D) -7

20. Quyidagi funksiyalardan nechtasi toq emas, juft ham emas?
a) $\frac{x^4+x^2+1}{(x+1)^2+1}$ b) $\frac{x\sin x}{x^2+1}$ c) $\frac{\cos x}{x+\mathrm{tg}\,x}$ d) $\frac{(x+1)^3+1}{\sin x+x}$
A) 1
B) 2
C) 3
D) 4

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

21. Funksiyaning eng kichik musbat davrini toping.

$$f(x) = 2cos^2x + \sin\frac{x}{2} + tg\frac{x}{3}$$

A) 12π
B) 6π
C) 4π
D) 9π

22. $f(x) = \frac{1}{x^2+3}$ funksiyaning $(1;0)$ nuqtadan o'tuvchi boshlang'ich funksiyasini toping.

A) $F(x) = \frac{3}{\sqrt{3}}\left(arctg\frac{x}{\sqrt{3}} - \frac{\pi}{6}\right)$
B) $F(x) = \frac{1}{3\sqrt{3}}\left(arctg\frac{x}{\sqrt{3}} + \frac{\pi}{6}\right)$
C) $F(x) = \frac{1}{\sqrt{3}}\left(arctg\frac{x}{\sqrt{3}} - \frac{\pi}{6}\right)$
D) $F(x) = \frac{\sqrt{3}}{3}\left(arctg\frac{x}{\sqrt{3}} + \frac{\pi}{6}\right)$

23. $f(x) = |x - sin^2x - cosx|$ funksiyaning $x_0 = \frac{\pi}{3}$ nuqtadagi hosilasini toping.

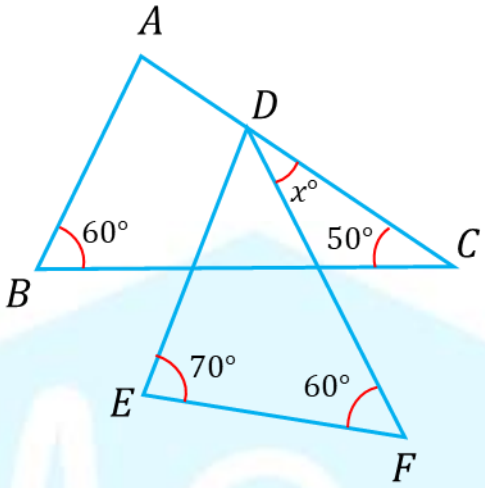
A) -1
B) 1
C) 0
D) Mavjud emas

24. Aylana uzunligi 12 cm, uzunligi 3 cm bo'lgan yoyning burchak o'lchovini toping.

A) $\frac{\pi}{3}$
B) $\frac{\pi}{2}$
C) $\frac{\pi}{4}$
D) $\frac{\pi}{6}$

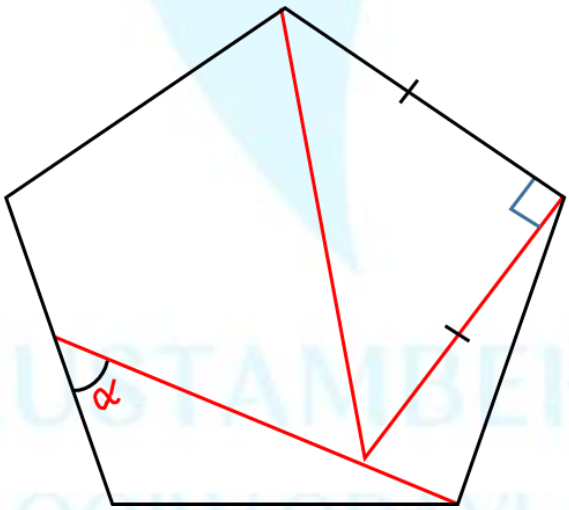
MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

25. Rasmda $AB//ED$ bo'lsa, x burchak qiymatini toping.



A) 50^0
B) 30^0
C) 35^0
D) 20^0

26. Quyidagi chizmada muntazam beshburchak berilgan. Bunga ko'ra α burchak qiymatini toping.



A) 45°
B) 55°
C) 35°
D) 40°

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

27. ABC uchburchakning yuzi 60 ga, $\overrightarrow{BE} = -\frac{1}{2}\overrightarrow{BA}$ bo‘lsa, BEC uchburchak yuzini toping.

A) 60
B) 120
C) 30
D) 90

28. ABC teng yonli $AB = AC$ uchburchakka aylana ichki chizilgan va yon tomonini urinish nuqtasidan 2 va 5 ga teng kesmalarga ajratgan bo’lib, $AB < BC$ bo’lsa, uchburchak yuzini toping.

A) $10\sqrt{3}$
B) $5\sqrt{6}$
C) $5\sqrt{3}$
D) $10\sqrt{6}$

29. $ABCD$ to’g’ri burchakli trapetsiyaning asoslari $BC = 8$ va $AD = 24$ ga teng bo’lsa, diagonallar kesishgan nuqtadan kichik yon tomonigacha bo’lgan eng qisqa masofani toping.

A) 3
B) 6
C) 4,5
D) 5,8

30. Tekislikda yotmagan O nuqtadan tekislikka ikkita OA va OB og’malar tushirilgan. OA og’maning uzunligi OB og’maning uzunligidan 14 ga ortiq. Ularning proyeksiyalari mos ravishda 36 va 20 bo’lsa, O nuqtadan tekislikkacha bo’lgan eng qisqa masofani toping.

A) 25
B) 20
C) 15
D) 12

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

31. $A = \{-3 \le x \le 2,\ x \in Z\}, B = \{-1 < x < 3,\ x \in N\}, C = \{-3 \le x < 1,\ x \in Z\}$ berilgan. $(A \cap B) \cup C$ ning elementlar sonini toping.

A) 13
B) 7
C) 6
D) 4

32. Barcha raqamlari 5 dan katta bo'lmagan raqamlari takrorlanmaydigan 3 xonali xonali sonlar nechta?

A) 125
B) 120
C) 80
D) 100

Hajmi $V_p = 6\left(\sqrt{7}+1\right)^3$ muntazam to'rtburchakli piramidaga shar ichki chizilgan. Yon qirrasi va asos tekisligi orasidagi burchak 60^0 ga teng. Sharga oktaedr (muntazam 8 yoq) ichki chizilgan. $(\pi \approx 3\ deb\ oling)$

33. Shar sirtining yuzini toping.

34. Oktaedr sirtining yuzini toping.

35. Oktaedr hajmini toping.

A) 36
B) 18
C) 108
D) 54
E) $36\sqrt{3}$
F) $18\sqrt{3}$

RUSTAMBEK OQIW ORAYI

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

36. $\begin{cases} 2|x-5|-y+6=0 \\ |2y-3|-6x-5=0 \end{cases}$ Tenglamalar sistemasi berilgan.

a) Tenglamalar sistemasini qanoatlantiruvchi nechta $(x;y)$ haqiqiy sonlar juftligi bor?

Javob a) _____

b) Barcha x va y lar yig'indisini toping.

Javob b) _____

37. $sin\left(\frac{2\pi}{3}cos3x\right)=\frac{\sqrt{3}}{2}$ tenglama berilgan.

a) Tenglamaning eng katta manfiy yechimini toping.

Javob a) _____

b) $\left[-\frac{5\pi}{3};\frac{2\pi}{3}\right]$ oraliqdagi yechimlari nechta?

Javob b) _____

38. $f\left(g(x)\right)=\frac{\sqrt{1-x^2}}{2}$ va $g(x)=2x+1$ funksiyalar berilgan.

a) $f(x)$ ning aniqlanish sohasini toping.

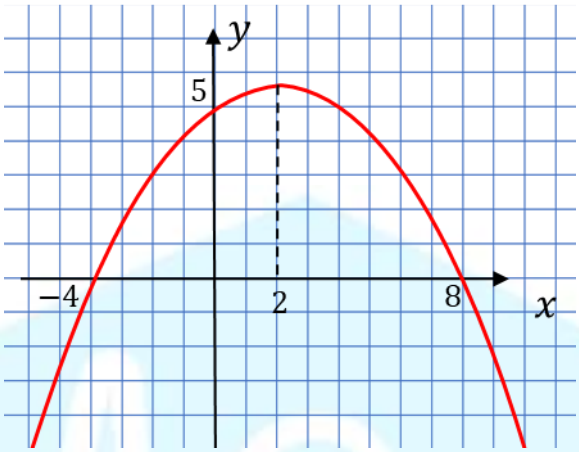
Javob a) _____

b) $f(x)$ ning qiymatlar sohasini toping.

Javob b) _____

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

39. $y = ax^2 + bx + c$ funksiya grafigi berilgan. Funksiya $x_0 = 2$ nuqtada eng katta qiymatga erishadi.



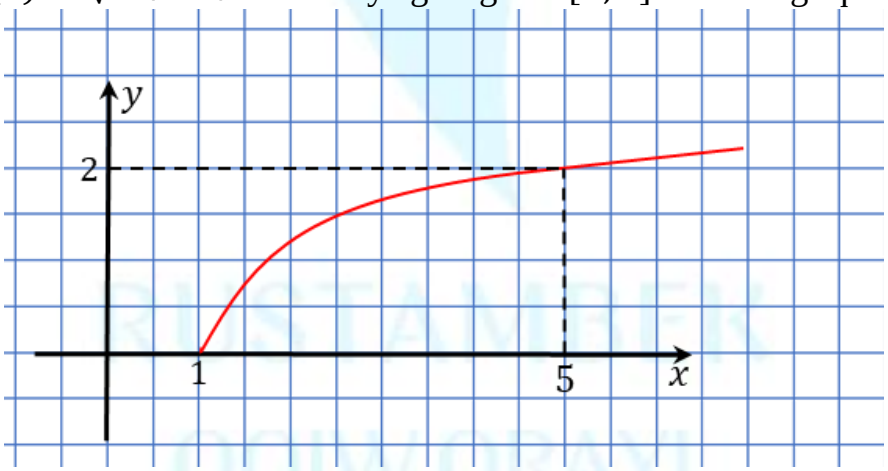
a) x ning $[-6; 9]$ oraliqdagi qaysi qiymatida $f'(x)$ funksiya eng kata qiymatga erishadi?

Javob a) _____

b) $[-6; 9]$ kesmada $f(x) \cdot f'(x) \leq 0$ tengsizlikning nechta butun yechimi bor?

Javob b) _____

40. Chizmada $f(x) = \sqrt{x + a} + b$ funksiya grafiginin $[1; 5]$ kesmadagi qismi tasvirlangan.



a) $a + b$ ni toping.

Javob a) _____

b) $x \in [1; 5]$ oraliqda $f(x)$ funksiyani Ox o'qi atrofida 360^0 ga aylantirishdan hosil bo'lgan jism hajmini toping $(\pi \approx 3\ deb\ oling)$.

Javob b) _____

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

41. ABC uchburchakda $AB = 5$, $BC = 7$ va $AC = 9$ Uning AC tomonidan olingan M nuqtadan uchburchakning AB va BC tomonigacha bo'lgan eng qisqa masofalar teng.

a) M nuqtadan AB tomongacha bo'lgan eng qisqa masofani toping.

Javob a) _____

b) $|MC| - |MA|$ ayirmani toping.

Javob b) _____

42. Radiusi $3\sqrt{6}$ ga teng bo'lgan sharga eng katta hajmli konus ichki chizilgan. $(\pi = 3)$

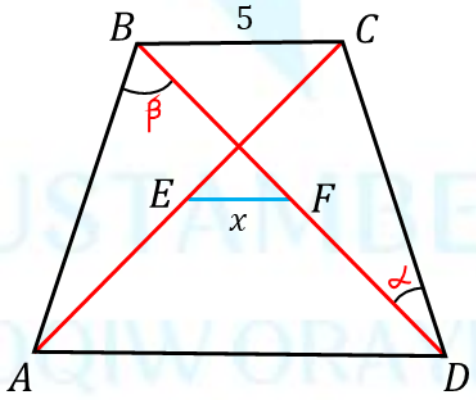
a) Konusning yasovchisini toping.

Javob a) _____

b) Konus hajmini toping.

Javob b) _____

43. Rasmda kichik asosi 5 ga, balandligi 4 ga bo'lgan teng yonli $ABCD$ trapetsiyada $cos\angle ABD = -\frac{2}{5\sqrt{5}}$, $cos\angle CDB = \frac{2}{\sqrt{5}}$ berilgan bo'lsa



a) Diagonallar o'rtasidagi kesma uzunligini toping.

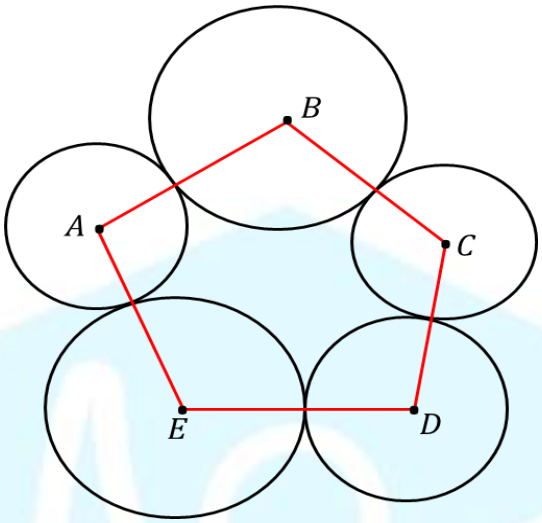
Javob a) _____

b) Trapetsiya yuzini toping.

Javob b) _____

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

44. Rasmda radiuslari har xil bo'lgan 5 ta aylana berilgan. Bunda $AB = 15$, $BC = 14$, $CD = 12$, $DE = 10$, $AE = 11$.



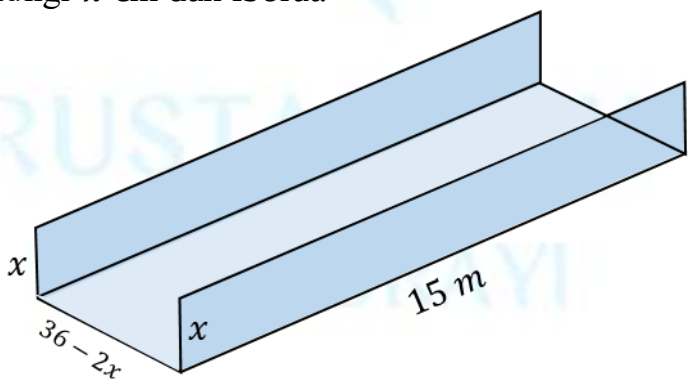
a) E markazli aylana uzunligini toping. ($\pi = 3$ deb oling)

Javob a) _____

b) Markazi C nuqtada bo'lgan aylana bilan chegaralangan sohani yuzini toping. ($\pi = 3$ deb oling)

Javob b) _____

45. Uyning tomiga eni 36 cm, uzunligi 15 m bo'lgan tunukadan eng katta sig'imli tarnov o'rnatilgan. Tarnov balandligi x cm dan iborat.



a) Tarnov balandligini x (cm) toping.

Javob a) _____

b) Tarnov sig'imi necha litrga teng.

Javob b) _____

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

MILLIY SERTIFIKAT (28.04.2024)

1. x, y, z natural sonlar uchun $\frac{2x+3y}{6} = z$ bo'lsa, x quyidagi sonlardan qaysi biriga qoldiqsiz bo'linadi?
A) 2
B) 3
C) 4
D) 6

2. $(1-(1-(1-(1-2^{-2})^{-1})^{-3})^{-1})^{-1}$ hisoblang.
A) 27
B) 28
C) $\frac{28}{27}$
D) $\frac{27}{28}$

3. Oltin va kumush qotishmasining massasi 1,06kg. Qotishmani suvga solinganda 70 gr massasini yo' qotadi. Oltin suvda massasining $\frac{1}{19}$ qismini, kumush esa $\frac{1}{10}$ qismini yo'qotadi. Oltin va kumuslining dastlabki massalarini toping.
A) Oltin 760 gr, kumush 300
B) Oltin 560 gr, kumush 500
C) Oltin 300 gr, kumush 760
D) Oltin 500 gr, kumush 560

4. Avtomobilning narxi 10000$ edi. Narx ketma-ket 15% ikki marta oshirgandan keyin Avtomobilning narxi qancha bo'ladi?
A) 12000
B) 11500
C) 12225
D) 13225

5. $3^8 \cdot 3^{-2} \cdot 2^{-4} \cdot 2^8 = 2^m \cdot 3^n$ bo'lsa, $m+n$ ni toping.
A) 6
B) 8
C) 10
D) 12

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

6. $\sqrt{22-30\sqrt{4-2\sqrt{3}}+5+3\sqrt{3}}$ hisoblang.

A) 10
B) $6\sqrt{3}$
C) 12
D) $5-3\sqrt{3}$

7. Hisoblang: $\frac{3}{2\sqrt[3]{2}+2\sqrt[3]{4}}-\frac{3}{2\sqrt[3]{2}-2\sqrt[3]{4}}+\sqrt[3]{4}$

A) $\sqrt[3]{4}$
B) $\sqrt[3]{16}+1$
C) $(\sqrt[3]{4}+1)^2$
D) $-(\sqrt[3]{4}+1)^2$

8. Agar $a=1{,}9, b=0{,}55$ bo'lsa, quyidagi ifodaning qiymatini toping. $\frac{a^2-4b^2-5a+10b}{(a+2b)^2-25}$

A) 10
B) 0,1
C) 0,01
D) 1

9. Kamayuvchi arifmetik progressiyada $a_3=1$ va $a_5^2=25$ bo'lsa, $a_1\cdot d$ ning qiymatini toping.

A) -14
B) -21
C) -6
D) 4

10. $b_n=\frac{2^n}{3^{n-1}}$ berilgan ketma-ketlikning hadlari yig' indisini toping.

A) 2
B) 4
C) 6
D) 8

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

11. $\sqrt{x-2}+\sqrt{1-x}=2$ tenglama nechta haqiqiy ildizga ega?
A) 1
B) 2
C) Cheksiz ko'p
D) Yechimga ega emas.

12. $(\sqrt{5}+2)^{x-1} \leq (\sqrt{5}-2)^{\frac{x-1}{x+1}}$ tengsizlikni musbat butun yechimlari nechta?
A) 1
B) 2
C) 3
D) 4

13. $2^{\ln x}-3^{\frac{1}{2}\ln x}=1$ tenglama nechta ildizgaega?
A) Cheksiz ko'p
B) 1
C) 2
D) Yechimga ega emas

14. $|x^2-x-6|>0$ nechta natural son tengsizlikni yechimi bo'la olmaydi?
A) 0
B) 1
C) 2
D) 3

15. $2^a=3, 2^b=5$ va $\left(\frac{25}{3}\right)^c=405$ bo'lsa, c ni a va b orqali ifodalang.
A) $\frac{2a-b}{2b-a}$
B) $\frac{4a-b}{2b+a}$
C) $\frac{4a+b}{2b-a}$
D) $\frac{4a-2b}{2b-a}$

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

16. Ifodani soddalashtiring $\frac{(\sin x-\cos x)^2}{\sin^2\left(\frac{\pi}{4}-x\right)}$

A) 2
B) $\frac{1-\sin 2x}{1+\sin 2x}$
C) $\frac{2(1-\sin 2x)}{1-\cos 2x}$
D) 1

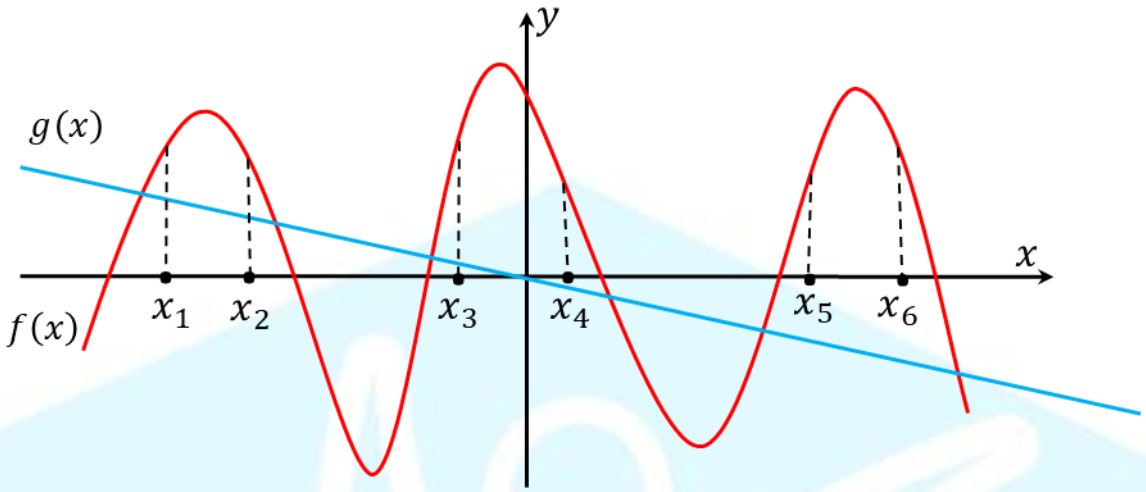
17. $\sqrt{3}\sin 2x - \cos 2x = \sqrt{3}$ tenglama $(0; 5\pi)$ oraliqda nechta ildizga ega?
A) 20
B) 18
C) 10
D) 8

18. $\frac{-2}{|x|+1} \geq |x| - 2$ tengsizlikni butun yechimlari nechta?
A) 0
B) 1
C) 2
D) 3

19. $g(x) = 3x^3 - x^2 - x + 4$ bo'lsa, $g\left(\frac{1+\sqrt{13}}{6}\right)$ ning qiymatini toping.
A) 0
B) 3
C) 4
D) 5

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

20. Chizmada $f(x)$ va $g(x)$ funksiya grafiklari tasvirlangan. $x_1, x_2, x_3, x_4, x_5, x_6$ shu nuqtalarning nechtasida $f'(x) \cdot g(x) \geq 0$ tengsizlik o'rinli bo'ladi?



A) 5
B) 3
C) 4
D) 6

21. $\int_{\frac{\pi}{3}}^{\frac{2\pi}{3}} x \cdot \sin x dx$ aniq integralni hisoblang.

A) 0
B) $\frac{\pi}{2}$
C) $\frac{\pi}{4}$
D) π

22. $\sqrt{3x-2} + 15\sqrt[4]{3x-2} = 16$ tenglamaning haqiqiy ildizlari ko'paytmasini toping.

A) 1
B) 2
C) 4
D) 16

23. $f(x) = ax^2 + bx + c$ kvadrat funksiyaning ildizlari x_1 va $x_2 (x_1 < x_2)$. Agar $|a| \cdot f(1) < 0, f(1) \cdot f(2) < 0$ va $a \cdot f(2) > 0$ bo'lsa, quyidagi munosabatlardan qaysilari o'rinli?

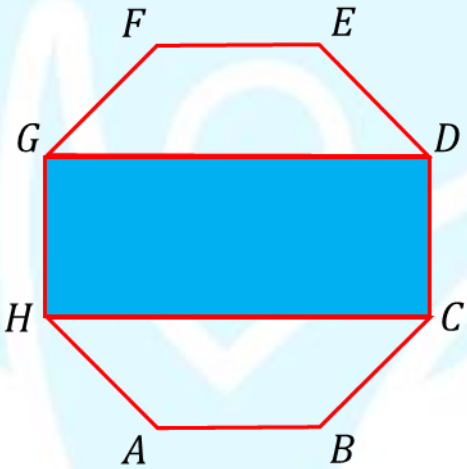
A) $x_1 < 1 < x_2 < 2$
B) $1 < x_1 < 2 < x_2$
C) $1 < x_1 < x_2 < 2$
D) $x_1 < x_2 < 1 < 2$

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

24. Aylananing uzunligi 12 bo'lsa, shu aylananing uzunigi 3 ga teng bo'lgan yoyining gradus o'lchovini toping.

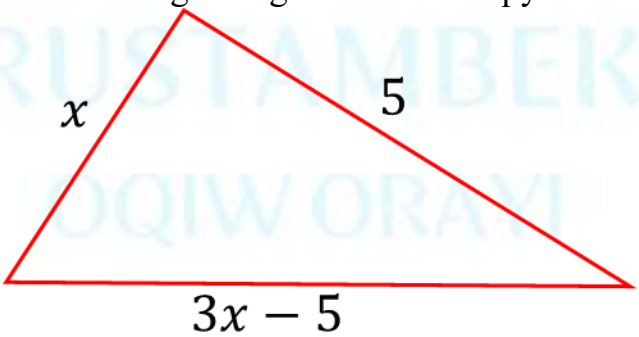
A) 90°
B) 60°
C) 45°
D) 30°

25. $ABCDEFGH$ muntazam sakkizburchak. $GHCD$ to'rtburchak yuzi 12 bo'lsa, sakkizburchak yuzini toping.



A) 18
B) 24
C) 28
D) 36

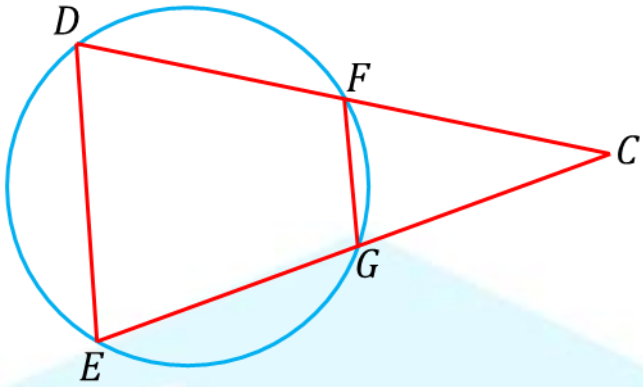
26. x ning qabul qilishi mumkin bo'lgan eng katta natural qiymatini toping.



A) 5
B) 4
C) 3
D) 2

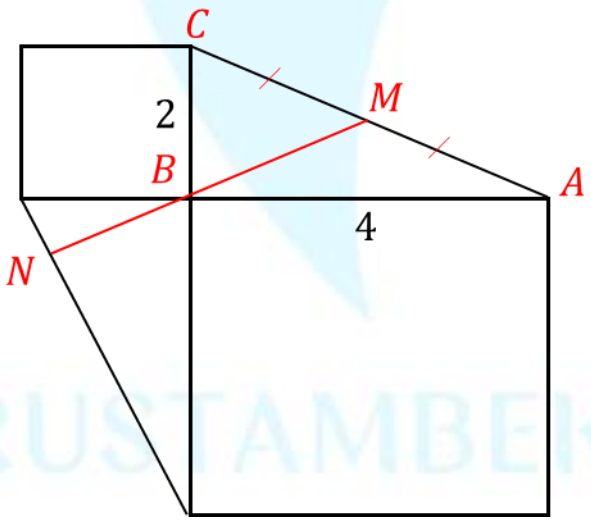
MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

27. $CF = 6, CG = 7, GE = 5$ va $ED = 6$ bo'lsa, FG kesma uzunligini toping.



A) 2
B) 3
C) 4
D) 5

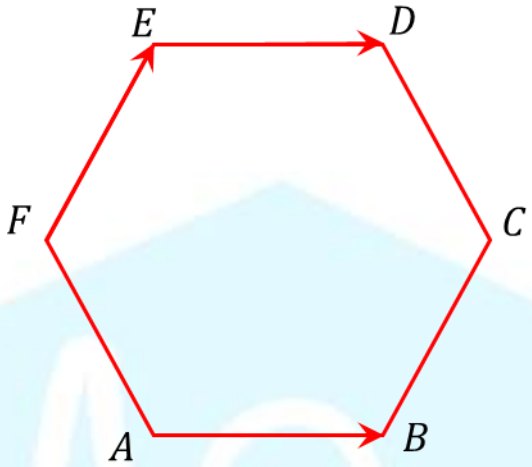
28. ABC to'g'ri burchakli uchburchakning katetlaridan kvadratlar hosil qilingan. M nuqta AC ning o'rta nuqtasi bo'lsa, MN kesma uzunligini toping.



A) $\frac{2}{\sqrt{5}}$
B) $\frac{3}{\sqrt{5}}$
C) $\frac{9}{\sqrt{5}}$
D) $\frac{7}{\sqrt{5}}$

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

29. Chizmada tomoni 4 ga teng bo'lgan muntazam oltiburchak tasvirlangan. $\overrightarrow{AB} + (\overrightarrow{FE} + \overrightarrow{ED})$ vektorning qiymatini toping.



A) 8
B) $8\sqrt{7}$
C) 4
D) $4\sqrt{7}$

30. ABC to'g'ri burchakli uchburchakning C to'g'ri burchak uchidan AB gipotenuzaga parallel tekslik o'tkazilgan. Tekslikdan gipotenuzagacha bo'lgan eng qisqa masofa 12 ga teng. Katetlarning tekslikdagi proyeksiyalari 16 va 9 ga teng bo'lsa, AB gipotenuza uzunligini toping.
A) 25
B) 30
C) 24
D) 32

31. $A = \{a, b, c, d, m, n\}$ va $B = \{a, b, c, k, l, m\}$ to'plamlar berilgan. $A \cap B$ to'plamning bo'sh bo'lmagan qism to'plamlar soni nechta?
A) 10
B) 8
C) 15
D) 16

32. Tomonlari 8,10,12,14 bo'lgan barcha uchburchaklardan tavakkaliga tanlangan uchburchakning muntazam bo lish ehtimolini toping.
A) $\frac{1}{5}$
B) $\frac{3}{16}$
C) $\frac{2}{5}$
D) $\frac{3}{5}$

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

Ustada bir nechta balandligi asosining diametridan ikki marta katta bo'lgan bir xil silindir shakldagi g'o'lalar bor. ($\pi \approx 3$ deb oling)

33. Usta bu go'ladan iloji boricha eng katta hajmli shar o'yib olmoqchi. Bunda shar hajmining g'o'la hajmiga nisbatini toping.

34. Usta bu go'ladan eng katta hajmli parallelepiped shaklidagi to'sin. yasamoqchi. O'yib olingan chiqindi hajmining to'sin hajmiga nisbatini toping.

35. Usta bu go'ladan eng katta hajmli konus yasamoqchi. O'yib olingan chiqindi hajmining g'o'la hajmiga nisbatini topíng.

A) $\frac{1}{2}$

B) 1

C) $\frac{1}{3}$

D) $\frac{2}{3}$

E) $\frac{1}{4}$

F) $\frac{3}{4}$

36. $\begin{cases} (|x|-6)^2+(y-4)^2=9 \\ (x-3)^2+y^2=a^2 \end{cases}$ tengfama berilgan.

a) Tenglama 4 ta ildizga ega bo'ladigan a ning natural qiymatini toping.

Javob a) _____

b) Tenglama 2 ta ildizga ega bo'ladigan a ning eng katta natural qiymatini toping.

Javob b) _____

RUSTAMBEK OQIW ORAYI

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

37. $\frac{1}{2}\cos 2x - \frac{1}{2}\cos 4x + \sin 3x \geq \cos 3x(1 + \sin x)$ tengsizlik berilgan.

a) Tengsizlikni qanoatlantiruvchi eng kichik musbat sonni toping.

Javob a) _____

b) Tengsizlikni qanoatlantiruvchi eng kichik musbat son va eng katta manfiy sonlar yig'indisini toping.

Javob b) _____

38. $\int_a^b (f(x) + x \cdot f'(x))dx = 4$ va $f(b) = 3, f(a) = 2, a + b = 3$ bo'lsa.

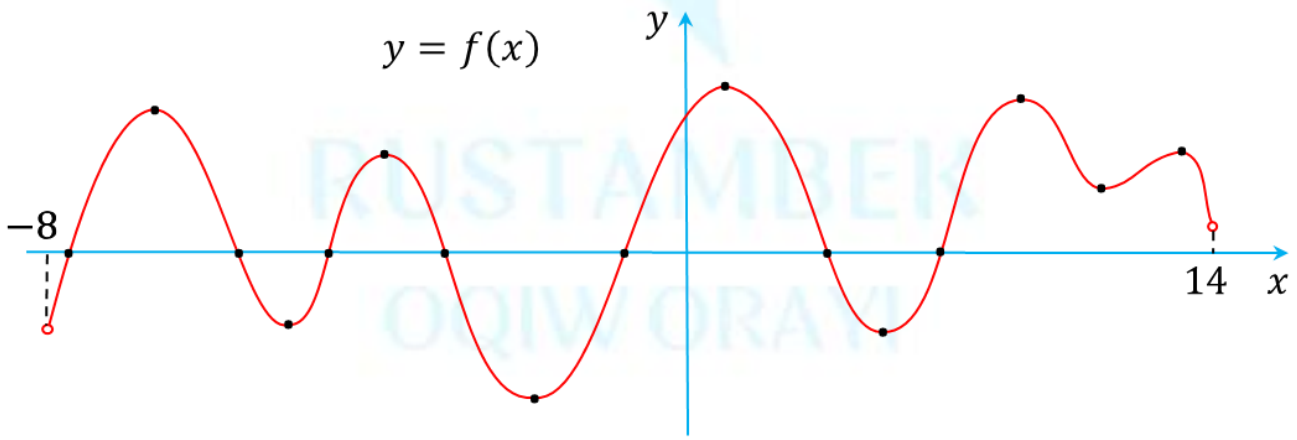
a) $a \cdot b$ ni toping.

Javob a) _____

b) $\int_{a-4}^{b+1} \frac{\sin 3x}{x^2+4}$ ni hisoblang.

Javob b) _____

39. Chizmada $(-8; 14)$ oraliqda $f(x)$ funksiya grafigi tasvirlangan.



a) $(-8; 14)$ oraliqda $f'(x) = 0$ tenglama nechta ildizga ega.

Javob a) _____

b) $(-8; 14)$ oraliqda $f(x) \cdot f'(x) = 0$ tenglama nechta ildizga ega.

Javob b) _____

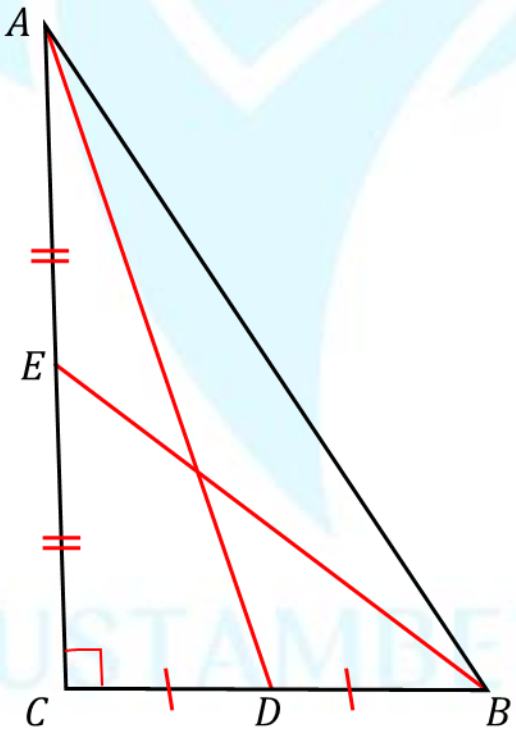
MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

40. $2g(x) + 3g\left(\frac{2}{x}\right) = x$ funksiya berilgan.

a) $g(1)$ ning qiymatini toping.
Javob a) _____

b) $g(2)$ ning qiymatini toping.
Javob b) _____

41. ABC to'g'ri burchakli uchburchakning o'tkir burchak uchidan chiqqan medianalari $AD = 22$ va $BE = 19$.

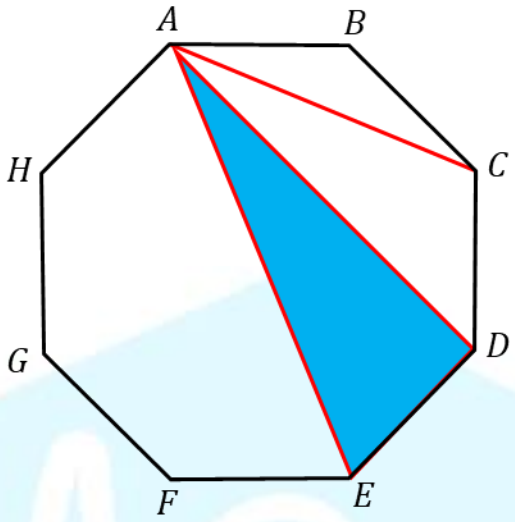


a) AB gipotenuza uzunligini toping.
Javob a) _____

b) ABC uchburchak yuzini toping.
Javob b) _____

42. Muntazam sakkizburchak tomoni $a = \sqrt{4 - 2\sqrt{2}}$.

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI



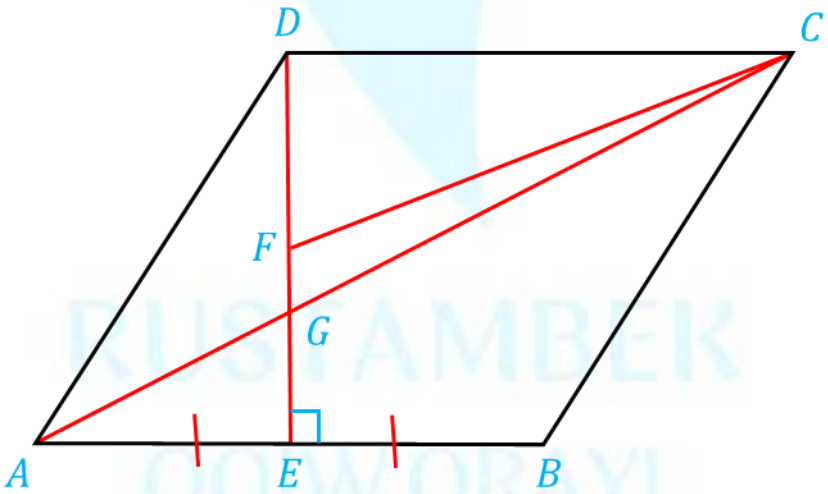
a) AC ning uzunligini toping

Javob a) _____

b) S_{ADE} ni toping.

Javob b) _____

43. $ABCD$ parallelogramda DE balandlik va E nuqta AB va F nuqta DE ning o'rta nuqtasi. $ABCD$ parallelogrammning yuzi 48 ga teng.



a) CBEF to'rtburchak yuzasini toping.

Javob a) _____

b) CFG uchburchak yuzasini AGE uchburchak yuzasiga nisbatini toping.

Javob b) _____

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

44. Yasovchisi katta asosi teksligi bilan $60°$ li burchak tashkil qiladigan va katta asos yuzasi 27π ga teng bo'lgan kesik konusga shar ichki chizilgan.

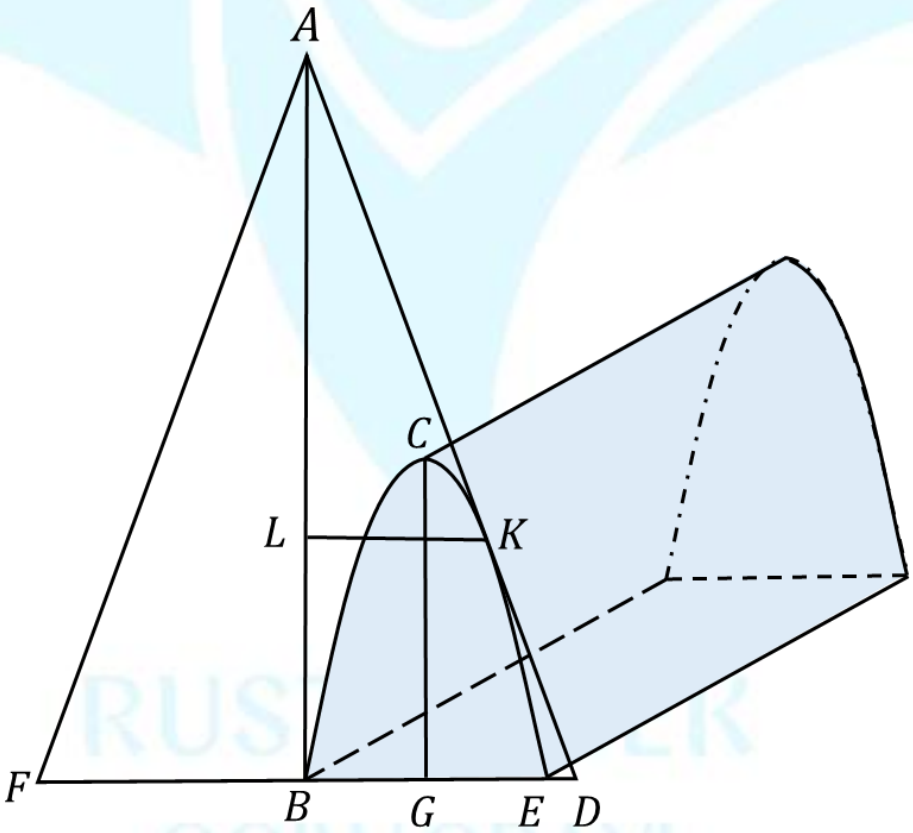
a) Konus yon sirti yuzasini toping.

Javob a) _____

b) Shar hajmini toping.

Javob b) _____

45. Usta parabola shaklidagi issiqxona qurdi va uni yashindan himoya qilish maqsadida AB yashin qaytargich o'rnatdi. $CG = 16, KL = 6, BE = 8$ va AK-parabolaga urinma. C – parabolaning eng baland nuqtasi, $KL \perp AB$ bo 1 sa,



a) $\tan \angle ADE = ?$

Javob a) _____

b) AB ning uzunligini toping.

Javob b) _____

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

MILLIY SERTIFIKAT (12.10.2024)
1-variant

1. 2321 sonining 2 ta tub bo'luvchisi bor. Shularning yig'indisini toping.
A) 221
B) 211
C) 222
D) 200

2. 2022^{2026} sonni 5 ga bo'lgandagi qoldiq bilan 2027^{2025} sonning oxirgi raqamiga ko'paytmasini toping.
A) 14
B) 28
C) 20
D) 24

3. 3 ta bir xil stulning narxi bitta stol narxining 90% iga teng bo'lsa, 4 ta huddi shunday stulning narxi bitta stol narxining necha foizini tashkil qiladi?
A) 120
B) 130
C) 125
D) 110

4. 1 ar yerni Sardor 80 soatda, Sardor va Bobur 1 ar yerni 60 soatda, Sardor va Abror 1 ar yerni 40 soatda haydasa, uchchalasi birgalikda 1 ar yerni necha soatda haydaydi?
A) $33\frac{3}{7}$
B) $33\frac{2}{7}$
C) $34\frac{3}{7}$
D) $34\frac{2}{7}$

5. Soddalashtiring: $\frac{x^{\frac{3}{5}}y^{-2}}{x^{-\frac{1}{2}}y^{\frac{7}{3}}}$
A) $x^{\frac{11}{10}}y^{\frac{13}{3}}$
B) $x^{\frac{11}{10}}y^{-\frac{13}{3}}$
C) $x^{\frac{11}{10}}y^{\frac{11}{3}}$
D) $x^{\frac{11}{10}}y^{-\frac{11}{3}}$

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MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

6. Hisoblang: $\frac{(\sqrt{3}+1)^2}{2+\sqrt{3}}+\frac{(\sqrt{7}-1)^2}{\sqrt{7}-4}$

A) 0
B) 4
C) -4
D) 1

7. Hisoblang: $\frac{\sqrt{18-12\sqrt{2}}}{\sqrt[4]{(2-2\sqrt{2})^4}}$

A) $\frac{\sqrt{6}}{3}$
B) $-\frac{\sqrt{6}}{3}$
C) $\frac{\sqrt{6}}{2}$
D) $-\frac{\sqrt{6}}{2}$

8. Soddalashtiring: $\frac{abc-a^3}{a^2b}+\frac{abc-b^3}{b^2c}+\frac{abc-c^3}{c^2a}$

A) $\frac{2a}{b}$
B) 1
C) 0
D) $-\frac{a}{b}$

9. 30 bilan 86 sonlar orasiga 7 ta son shunday joylashtirildiki, ular berilgan sonlar bilan birga arifmetik progressiyani tashkil qiladi. Qo'yilgan sonlar yig'indisini toping.

A) 204
B) 302
C) 406
D) 248

10. Cheksiz kamayuvchi geometrik progressiya uchun $b_1b_2b_3 = 5832$ va $b_1 + b_2 + b_3 = 78$ bo'lsa, hadlar yig'indisini toping:

A) 54
B) 78
C) 81
D) 108

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

11. $a+b=3, ab=-1, c=-1$ bo'lsa, $\frac{a^2(b-c)-b^2(a-c)}{a(b-c)^2-b(a-c)^2}$ ning qiymatini toping.

A) 1
B) -1
C) 0
D) -2

12. Tengsizlikni yeching: $\frac{25x-5}{|x-1|}>0$

A) $\left(\frac{1}{5};\infty\right)$
B) $(1;\infty)$
C) $\left(\frac{1}{5};1\right)\cup(1;\infty)$
D) $\left(-\infty;\frac{1}{5}\right)$

13. $7x^2-6x+1=0$ tenglamaning ildizlari x_1 va x_2 bo'lsa, ildizlari $\frac{1}{x_1^2}$ va $\frac{1}{x_2^2}$ bo'lgan keltirilgan kvadrat tenglamaning koeffitsiyentlari yig'indisini toping.

A) 72
B) 28
C) 29
D) 71

14. Tengsizlikning butun yechimlari yig'indisini toping:

$$\sqrt[4]{(x-2)^4}\cdot(x^2-x-12)<0$$

A) 0
B) 2
C) 4
D) 1

15. $\text{tg}\alpha=-\frac{3}{4}$ va $\alpha\in\left(\frac{\pi}{2};\pi\right)$ bo'lsa, $\sin\alpha$ ning qiymatini toping.

A) $\frac{3}{5}$
B) $\frac{3}{4}$
C) $\frac{4}{5}$
D) $\frac{5}{6}$

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

16. $\sqrt{\log_x \sqrt{4x}} = -\frac{1}{\log_4 x}$ tenglamaning haqiqiy ildizlari yig'indisini toping (agar u yagona bo'lsa, shuni toping).

A) $\frac{1}{8}$
B) $\frac{1}{4}$
C) $\frac{1}{16}$
D) $\emptyset$

17. $2^{x+1} + \frac{15}{2^x+1} = 11$ tenglamaning haqiqiy ildizlari yig'indisini toping.

A) 1
B) 2
C) 3
D) -2

18. Tenglamaning ildizlari yig'inisini toping.

$$\sqrt[3]{x+4} + \frac{4}{\sqrt[3]{x+4}+3} = 2$$

A) -12
B) -15
C) -8
D) 12

19. $y = \frac{\sqrt{-x^2+3x+10}}{|1-\log_x 2|\left(\sin x - \frac{\pi}{3}\right)}$ aniqlanish sohasiga tegishli butun sonlar nechta?

A) 5
B) 4
C) 3
D) 2

20. Soddalashtiring: $\frac{\sin\alpha+\sin 2\alpha+\sin 3\alpha+\cdots+\sin 15\alpha}{\cos\alpha+\cos 2\alpha+\cos 3\alpha+\cdots+\cos 15\alpha}$

A) $2\text{tg}16\alpha$
B) $\text{tg}16\alpha$
C) $2\text{tg}8\alpha$
D) $\text{tg}8\alpha$

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

21. Aniqmas integralni toping: $\int \frac{\ln\ln x}{x} dx$

A) $\ln\ln x + C$
B) $\ln x(\ln x - 1) + C$
C) $\ln x(\ln\ln x + 1) + C$
D) $\ln x(\ln\ln x - 1) + C$

22. Quyidagi funksiyalardan nechtasi juft funksiya?

$y_1 = \sin^2 x + \sqrt[3]{|x|}; y_2 = \cos^2 x + \sqrt[5]{x^4}$

$y_3 = \text{ctg}^3 x + \sqrt[3]{x^2}; y_4 = \sin^4 x + \sqrt[5]{x^6}$

A) 1 ta
B) 2 ta
C) 3 ta
D) 4 ta

23. Radiusi 4 ga teng aylanaga muntazam o'nikkiburchak ichki chizilgan. O'nikkiburchakning yuzini toping.

A) 24
B) 48
C) 64
D) 80

24. $ABCD$ to'g'ri to'rtburchakning A uchi koordinatalar boshida, B uchi Ox o'qida. C uchining koordinatasi $(5;4)$ va $\frac{1}{2}\overrightarrow{BE} = \overrightarrow{BC}$ bo'lsa, $ABED$ to'rtburchakning yuzini toping.

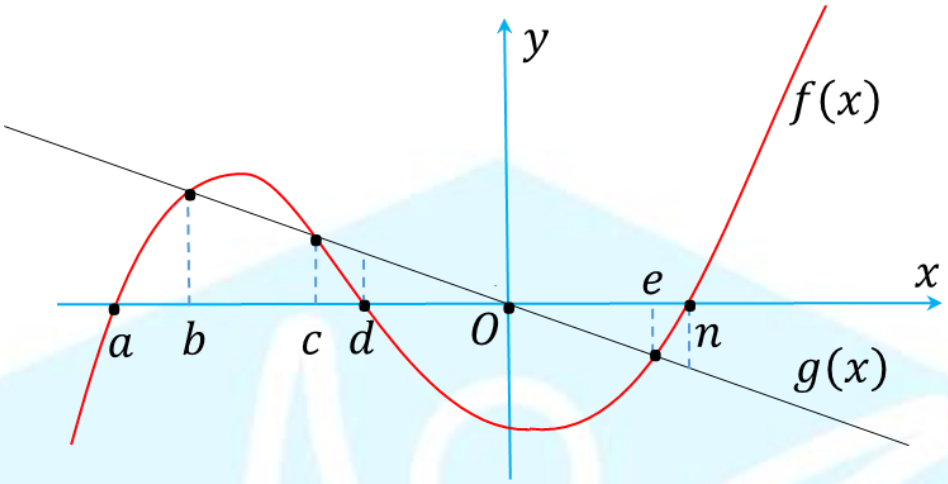
A) 15
B) 20
C) 30
D) 40

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

25. Grafikdan foydalanib quyidagi munosabatlardan nechtasi to'g'ri?

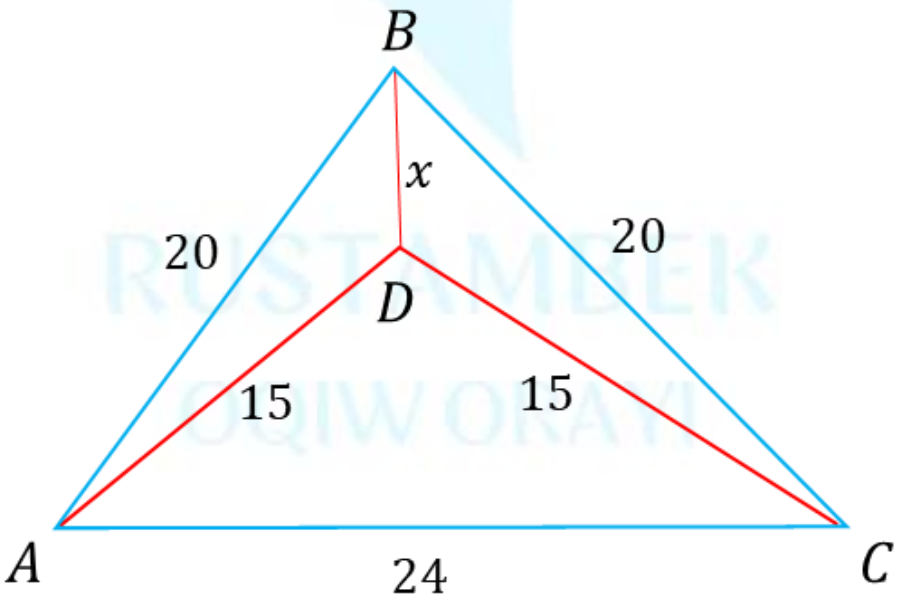
a) $f'(b) \cdot g(e) > 0$ b) $f'(c) \cdot g(a) > 0$

c) $f'(d) \cdot g(c) > 0$ d) $f'(d) \cdot g(e) > 0$



A) 1 ta
B) 2 ta
C) 3 ta
D) hech biri to'g'ri emas

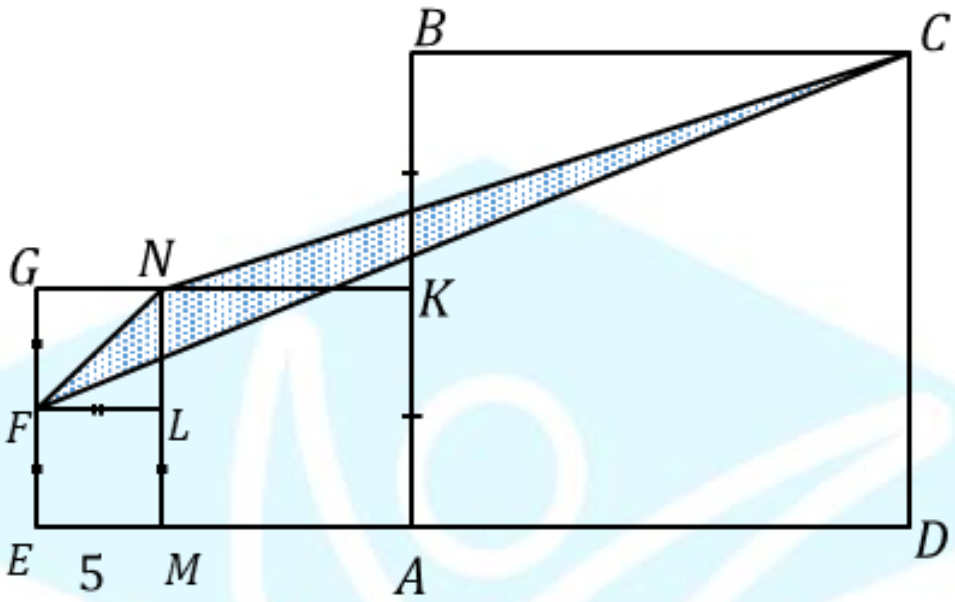
26. ABC va ADC teng yonli uchburchak. $AB = BC = 20, AD = DC = 15$ va $AC = 24$ bo'lsa, $BD = x$ ning qiymatini toping.



A) 9
B) 7
C) 8
D) 10

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

27. $ABCD, AMNK, MEFL, FGNL$ - kvadratlar. Agar $EF = 5$ bo'lsa, FNC uchburchakning yuzini toping.



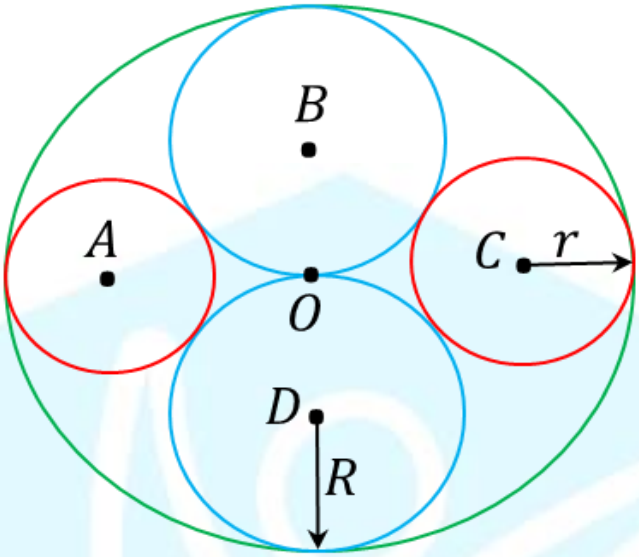
A) 50
B) 100
C) 55
D) 40

28. ABC teng yonli uchburchakka ichki aylana chizilgan $(AB = AC)$. Aylana uchburchakning AB tomonni urunish nuqtasida 6 va 4 ga teng kesmalarga ajratadi. Agar $AB > BC$ bo'lsa, uchburchaking yuzini toping.

A) 96
B) 48
C) $16\sqrt{21}$
D) $8\sqrt{21}$

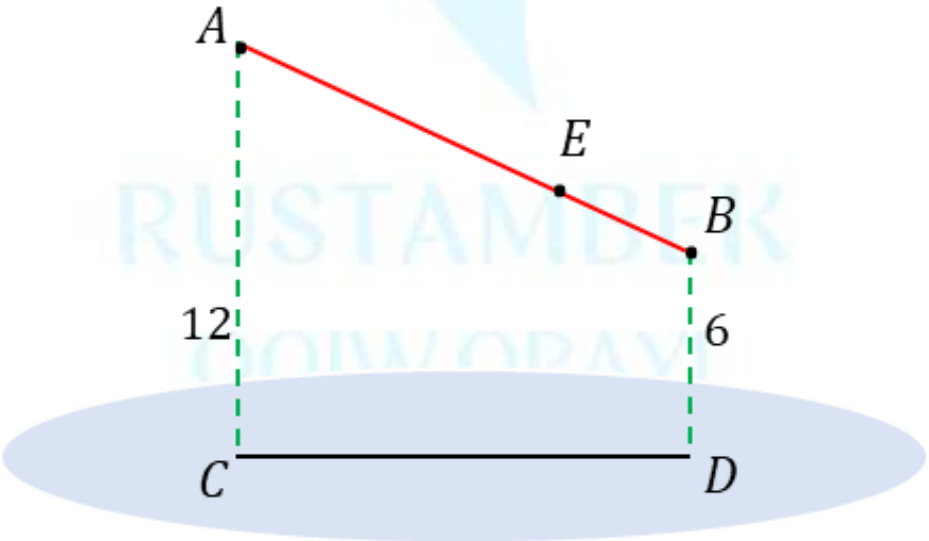
MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

29. O katta aylana markazi va markazi B va D aylanalar O nuqtada urinadi. Markazi C va D da bo'lgan aylananing radiuslari mos ravishda r va R bo'lsa, $\frac{r}{R}$ ning qiymatini toping.



A) $\frac{3}{4}$
B) $\frac{4}{5}$
C) $\frac{1}{2}$
D) $\frac{2}{3}$

30. AB kesma uchlaridan tekislikkacha bo'lgan masofalar mos ravishda $AC = 12$, $BD = 6$ va $\frac{BE}{EA} = \frac{1}{2}$ bo'lsa, E dan tekislikkacha bo'lgan masofani toping.



A) 8
B) 9
C) 6
D) 7

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

31. $A = \{2,3,5,7,9\}; B = \{3,4,6,7\}; C = \{2,4,7,3,6,11\}$ bo'lsa, $(A \cap B) \cup C$ ning qism to'plamlar sonini toping.
A) 64
B) 128
C) 256
D) 512

32. Raqamlari 6 dan kichik bo'lmagan uch xonali 3 ga bo'linadigan natural sonlar nechta?.
A) 18
B) 20
C) 22
D) 12

Asosi kvadrat bo'lgan to'g'ri parallelepiped shakldagi akvariumga suv quyilgan. Muntazam to'rtburchakli piramida to'liq botirilgan. Piramida asosi parallelepiped asosidan 4 marta kichik. Piramidaning ichini qattiq jism va akvarium devori qalinlikka ega emas deb olinsin.

33. Agar piramida solinganda u suvga to'liq botgan va uning balandligi 384 sm bo'lsa, akvariumdagi suv sathi dastlabkisidan qancha ko'tarilgan?

34. Piramida suvga to'liq botishi uchun eng kamida akvariumdagi suv qancha litr bo'lishi kerak? Akvarium asosining tomoni 16 sm ga, piramidaning balandligi 48 sm ga teng. Javobni butun songacha yaxlitlang.

35. Piramida to'liq solinganda suv sathi dastlabkisidan 0,5 sm ga ko'tarildi. Piramida balandligini toping.

A) 8
B) 48
C) 16
D) 12
E) 18
F) 24

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36. $|x|^3 - 2x^2 - 4|x| + 3 = 0$ tenglamani yeching.

a) Tenglama nechta manfiy ildizga ega?
Javob a)_____

b) Tenglamaning haqiqiy ildizlari yig'indisini toping.
Javob b)_____

37. $\cos x \cos 4x + \sin^2 2x = \cos x$ tenglamani yeching.

a) Tenglama $[0; 2\pi]$ oraliqda nechta ildizga ega?
Javob a)_____

b) Tenglama $[0; \pi]$ kesmadagi yechimlari yig' indisini toping.
Javob b)_____

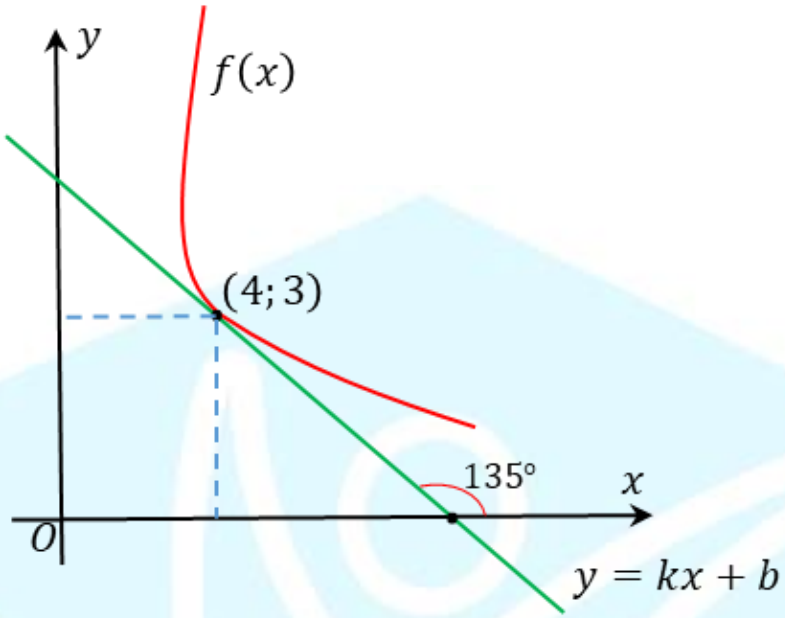
38. $f(x-2) = (x-1)g(x)$ va $g(x-1) = x^2 - 7x$ funksiyalar berilgan.

a) $g(x)$ ning qiymatlar sohasiga tegishli eng kichik butun yechimini toping.
Javob a)_____

b) $f(x) - g(x) = -14$ tenglamaning haqiqiy ildizlari yig'indisini toping.
Javob b)_____

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

39. $y = f(x)$ funskiyaga $(4; 3)$ nuqtadan urinma o'tkazilgan.



a) $g(2x + 1) = (x^2 + x + 1)f(x)$ bo'lsa, $g'(9)$ ning qiymatini toping.

Javob a)_____

b) Urinmaning tenglamasi $y = kx + b$ bo'lsa, $k + b$ ning qiymatini toping.

Javob b)_____

40. $f(x) = x^2 - 6x + 5$ va $g(x) = |2x - 6| - 4$ funksiyalar berilgan.

a) $f(x) = g(x)$ tenglmaning haqiqiy ildizlari nechta?

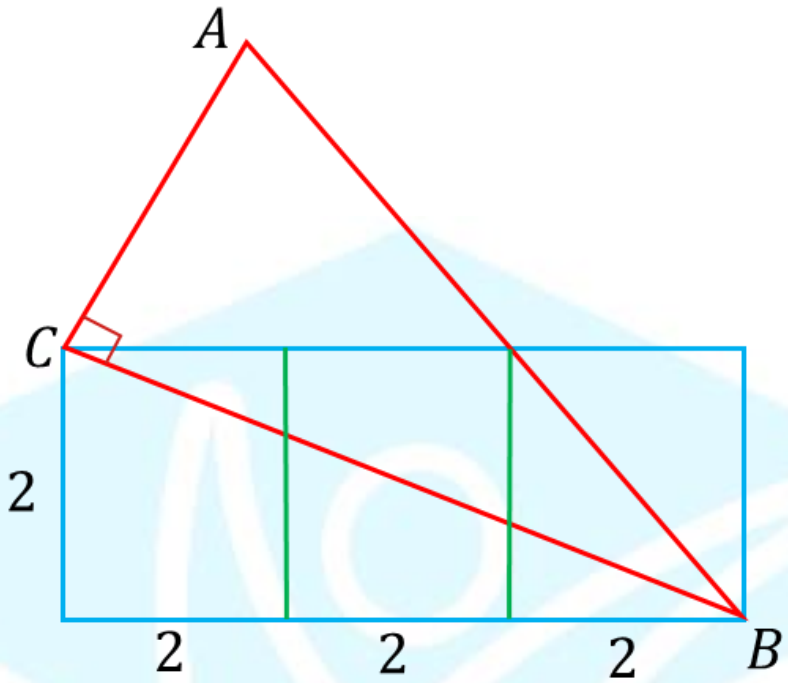
Javob a)_____

b) $f(x)$ va $g(x)$ funksiyalar kesishishidan hosil bo'lgan shakllarning yuzalari yig'indisini toping.

Javob b)_____

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

41. ABC - to'g'ri burchakli uchburchak va tomoni 2 ga teng uchta kvadratlar berilgan.



a) AB gipotenuza uzunligini toping.

Javob a)_____

b) ABC uchburchak yuzini toping.

Javob b)_____

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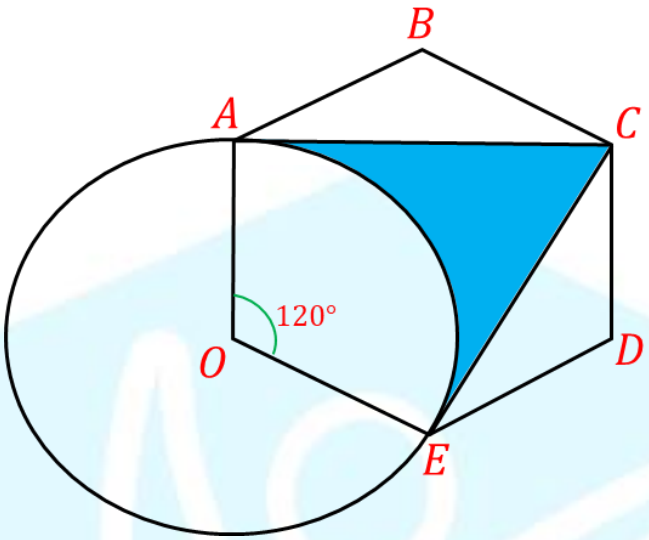
42. Muntazam oltiburchakning A va E uchlari aylanada yotadi. Aylana radiusi $R = \sqrt{\sqrt{3}+1}$ ga teng. $(\pi = 3 deb\ oling)$



a) Oltiburchakning aylana tashqarisidagi yuzasining aylana ichkarisidagi yuziga nisbatini toping.

Javob a)_____

b) Bo'yalgan soha yuzini toping.

Javob b)_____

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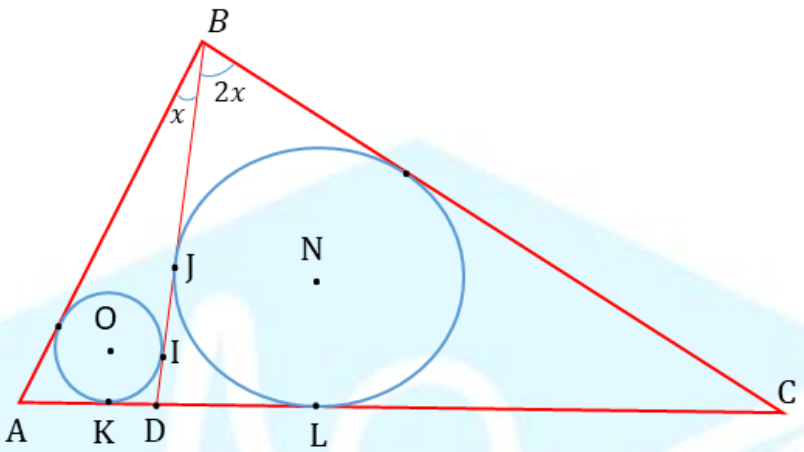
43. ABC uchburchakda BD kesma $\angle B$ ni $1:2$ nisbatda bo'ladi. Katta va kichik aylanalarning radiuslari mos ravishda 8 va 4 ga, $KL = \sqrt{129}$ ga teng.



a) IJ kesma uzunligini toping?

Javob a)_____

b) IJ kesma uzunligini toping?

Javob b)_____

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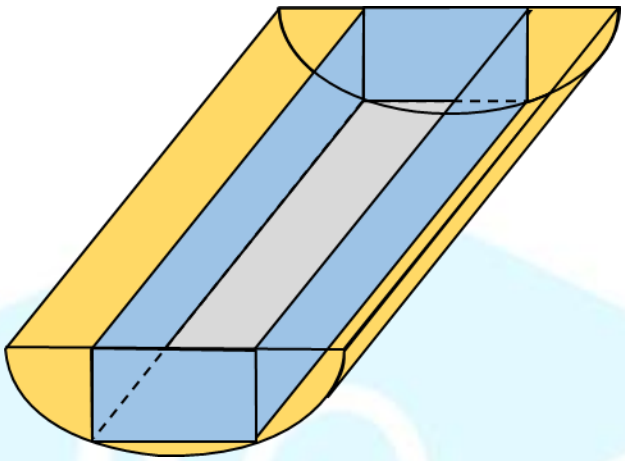
44. O'q kesimidan kesilgan yarim silindrdan eng katta hajmli parallelepiped o'yib olingan. $(\pi = 3 deb\ oling)$.



a) Silindr asosi diametrining parallelepiped asosi diagonaliga nisbatini toping.

Javob a)_____

b) O'yib olingan paralelepiped hajmini silindr hajmiga nisbatini toping.

Javob b)_____

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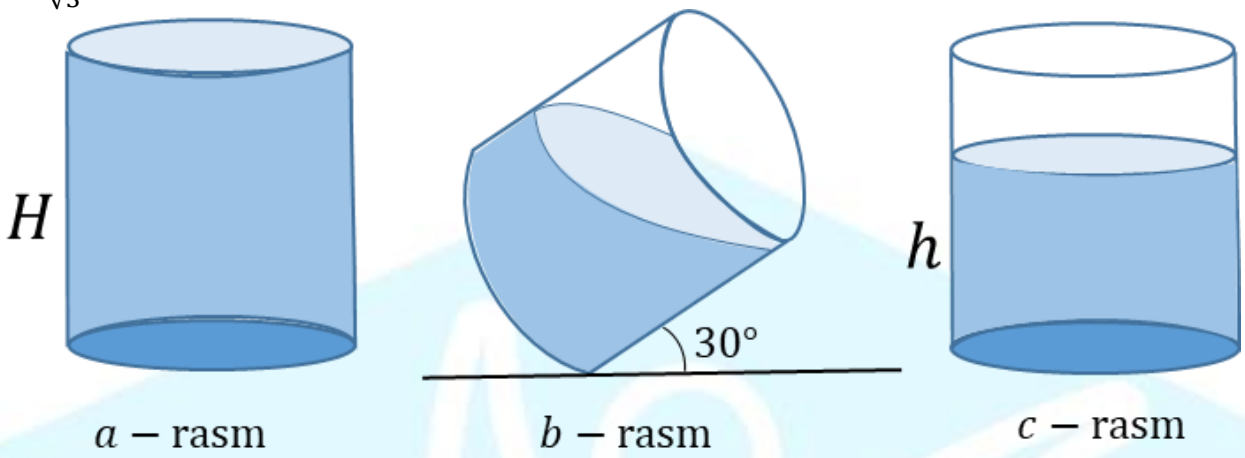
45. Silindrsimon idishga to'la suv quyildi (a –rasm). So'ng idishni tekislik bilan $30°$ burchak hosil qiladigan burchakka burishdi (b –rasm) va yana joyiga qaytarishdi (c –rasm). Agar $\frac{H}{2R} = \frac{4}{\sqrt{3}}$ bo'lsa:



a – rasm b – rasm c – rasm

a) $\frac{h}{H}$ ning qiymatini toping.

Javob a)_____

b) Agar idishda to'la suv 400 litr bo'lsa, to'kilgan suv necha litr?

Javob b)_____

RUSTAMBEK OQIW ORAYI

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

MILLIY SERTIFIKAT (10.12.2024)
2-variant

1. Natural a va b sonlar uchun $a \cdot b = 24$ tenglik bajarilsa, $a + 2b - 1$ ning eng katta qiymatini toping.
A) 25
B) 30
C) 10
D) 48

2. Hisoblang. $81^{0,75} \cdot 32^{-\frac{2}{5}} - 27^{0,(3)} \cdot 16^{-0,5} + 256^{\frac{1}{2}}$
A) 1
B) 22
C) 30
D) 10

3. *A* shahardan *B* shaharga 1-avtomobil o'zgarmas 120 km/h tezlik bilan, 10 daqiqadan so'ng 2-avtomobil 150 km/h tezlik bilan yo'lga chiqdi. Ular *B* shaharga bir vaqtda yetib keldi. *A* va *B* shaharlar orasidagi masofani toping.
A) 100
B) 120
C) 50
D) 60

4. To'g'ri to'rburchakning eni 25 % ga, bo'yi 20 % ga ortgan bo'lsa, yuzi necha foizga ortgan?
A) 45
B) 50
C) 60
D) 5

RUSTAMBEK OQIW ORAYI

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

5. Ifodani soddalashtiring.

$$\frac{77^{2m}}{7^{m-1}\cdot 11^{m}\cdot 7^{m}\cdot 11^{m+1}}$$

A) $\frac{77}{5}$
B) $\frac{7}{11}$
C) $\frac{11}{7}$
D) 1

6. Hisoblang.

$$\left(\frac{\sqrt{6}+2\sqrt{3}-\sqrt{2}-2}{\sqrt{6}+\sqrt{3}-\sqrt{2}-1}\right)^{2}$$

A) 2
B) $\sqrt{2}-1$
C) $\sqrt{2}+1$
D) 1

7. Hisoblang.

$$\frac{3}{2\sqrt[3]{2}+2\sqrt[3]{4}}-\frac{3}{2\sqrt[3]{2}-2\sqrt[3]{4}}+\sqrt[3]{4}$$

A) $\sqrt[3]{4}+1$
B) $\sqrt[3]{16}+1$
C) $\left(\sqrt[3]{4}+1\right)^{2}$
D) $-\left(\sqrt[3]{4}+1\right)^{2}$

RUSTAMBEK OQIW ORAYI

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

8. Tengsizlikni qanoatlantiruvchi natural sonlar ko'paytmasini toping.

$$\frac{x^2-6x+8}{x-1}-\frac{x-4}{x^2-3x+2}\leq 0$$

A) 6
B) 3
C) 12
D) 4

9. Arifmetik progressiyada $a_{11}=40$, $a_{31}=-20$ bo'lsa, $\frac{a_{101}}{a_{91}}$ ni toping.

A) $\frac{3}{20}$
B) $\frac{20}{23}$
C) $1\frac{3}{20}$
D) $\frac{17}{23}$

10. Geometrik progressiyaning dastkabki uchta hadi $log_2 x-2$; $log_2(2x)$; $log_2(4x)+5$ ga teng bo'lsa, x ni toping.

A) 16
B) 64
C) 4
D) 32

11. $x=3, y=\sqrt{3}$ bo'lsa,

$$\left(x^3+xy^2+\frac{xy(x^2+y^2)}{x-y}\right)\cdot\left(\frac{xy}{x+y}-x\right):\frac{x^2(x^2+y^2)}{x^2-y^2}$$

A) -9
B) 9
C) 3
D) $-\sqrt{3}$

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

12. Tengsizlikni yeching: $\frac{25x-5}{|x-1|} > 0$

A) $\left(-\infty;\frac{1}{5}\right)$

B) $\left(\frac{1}{5};1\right) \cup (1;\infty)$

C) $\left(\frac{1}{5};\ \infty\right)$

D) $(1;\ \infty)$

13. $7x^2 - 6x + 1 = 0$ tenglamaning ildizlari x_1 va x_2 bo'lsa, ildizlari $\frac{1}{x_1^2}$ va $\frac{1}{x_2^2}$ bo'lgan keltirilgan kvadrat tenglamaning koeffitsiyentlari yig'indisini toping.

A) 70

B) 29

C) 28

D) 68

14. Tengsizlikni nechta butun son qanoatlantiradi

$$7^{3x} + 1 \leq 7^{x-1} \cdot (55 \cdot 7^x - 41)$$

A) 1

B) Cheksiz ko'p

C) 2

D) 5

15. Ifodani soddalashtiring.

$$\frac{(sinx - cosx)^2}{sin^2\left(\frac{\pi}{4} - x\right)}$$

A) 2

B) $\frac{1-sin2x}{1+sin2x}$

C) $\frac{2(1-sin2x)}{1-cos2x}$

D) 1

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

16. Tenglamaning ildizlar ko'paytmasini toping.

$$log_2^2 x + (x-1)log_2 x + 2x = 6$$

A) $\frac{1}{2}$
B) 4
C) 2
D) $\frac{1}{4}$

17. $(x+1)(x+4)(x-2)(x+7) = 19$ tenglamaning ildizlar yig'indisini toping.
A) -10
B) -13
C) -17
D) -19

18. Tenglama $\left[-\frac{\pi}{2}; \pi\right]$ oraliqda nechta yechimga ega?

$$cos3x - sin2x = 0$$

A) 5
B) 6
C) 7
D) 8

19. Agar $|x-5| \leq 3$ bo'lsa, $9\left(\frac{1}{2}x-2\right)^2 - \left(\frac{1}{2}x-2\right)^4$ ifodaning eng katta qiymatini toping.
A) 18
B) 20
C) 22
D) 81

20. Agar $\frac{x}{y} = 2023$ bo'lsa, $\frac{x^2-xy}{x \cdot y} = ?$
A) 2022
B) 2023
C) 2024
D) 2012

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

21. Integralni hisoblang

$$\int \frac{2x^2+1}{x^4+x^2}dx$$

A) $-\frac{1}{x^2+1}+arctg(x+1)+C$
B) $\frac{1}{x}+arctgx+C$
C) $-\frac{1}{x}+arctgx+C$
D) $x+arctgx+C$

22. Quyidagi funksiyalardan nechtasi juft funksiya?
$y_1=sin^2x+\sqrt[3]{|x|};\ y_2=cos^2x+\sqrt[3]{x^2};$
$y_3=tg^3x+\sqrt{|x|};\quad y_4=ctg^4x+\sqrt[4]{|x|^3};$
A) 1 tasi
B) 2 tasi
C) 3 tasi
D) 4 tasi

23. Markazi $(4;3)$ nuqtadaga bo'lgan aylana Oy o'qiga urinadi. Shu aylana radiusini toping.
A) 3
B) 4
C) 5
D) 7

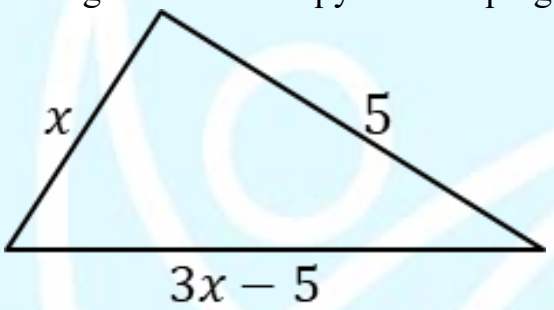
24. ABC uchburchakning yuzi 60 ga teng. $\overrightarrow{BF}=\frac{1}{2}\overrightarrow{AB}$, $\overrightarrow{BE}=\frac{1}{2}\overrightarrow{BC}$ bo'lsa, BEF uchburchak yuzini toping.
A) 15
B) 20
C) 30
D) 45

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

25. $y = |x^2 - 4x + 3|$ funksiyaning $[2; 4]$ oraliqda eng katta va eng kichik qiymatlari yig'indisini toping.

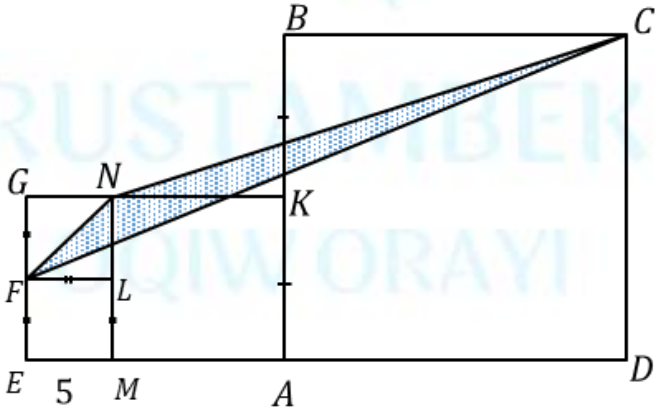
A) 5
B) 4
C) 3
D) 12

26. x ning qabul qilish bo'lgan eng katta natural qiymatini toping.



A) 4
B) 5
C) 2
D) 3

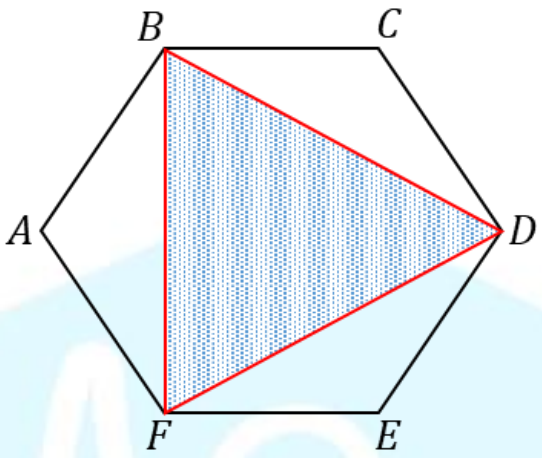
27. $EFLM, FGNL, MNKA, ABCD$ – kvadratlar berilgan. Agar $EM = 5$ bo'lsa, FNC uchburchak yuzini toping.



A) 50
B) 100
C) 40
D) 45

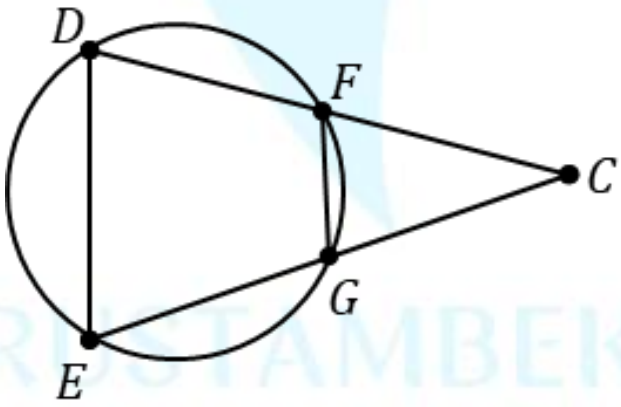
MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

28. $ABCDEF$ oltiburchakning yuzi 36 ga teng. Bo'yalgan BDF uchburchakning yuzini toping.



A) 16
B) 18
C) 20
D) 24

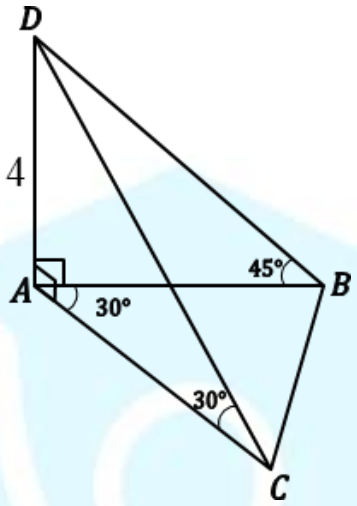
29. $CF = 6, CG = 7, GE = 5$ va $ED = 6$ bo'lsa, FG kesma uzunligini toping.



A) 6
B) 4
C) 2
D) 3

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

30. Tekislikka ikkita og'ma va perpendikulyar tushirilgan. Agar $AD = 4$, $\angle ABD = 45^0$, $\angle BAC = 30^0$, $\angle ACD = 30^0$ bo'lsa, Tekislikdagi og'ma uchlari orasidagi masofa(BC) ni toping.



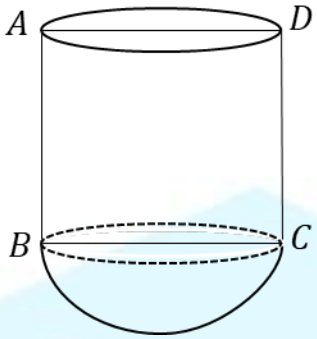
A) 6
B) 3
C) 2
D) 4

31. $A = \{a, b, c, d, n, l\}$ va $B = \{a, b, k, d, m, n\}$ bo'lsa, $A \cap B$ ning bo'sh bo'lmagan qism to'plamlar sonini toping.
A) 16
B) 15
C) 32
D) 31

32. Raqamlari 6 dan kichik bo'lmagan uch xonali 3 ga bo'linadigan natural sonlar nechta?
A) 18
B) 19
C) 20
D) 22

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

Topshiriqlar(33-35) va javob variantlari (A-F) ni o'zaro moslashtiring.
Rasmda usti ochiq silindr va yarim shar tasvirlangan. $(\pi \approx 3)$



33. Yarim shar hajmi silindr hajmiga teng. $AB = 20\ cm$ bo'lsa, Shar radiusini toping.

34. $R = AB = 2\ dm$ bo'lsa, jismning (idishning) to'la sirtining yuzini toping.

35. $R = AB = 2\ dm$ bo'lsa, berilgan idishga necha litr suv ketadi?

A) 48

B) 32

C) 40

D) 30

E) 64

F) 70

36. $3x^2 - 4(3a - 2)x + a^2 + 2a = 0$ kvadrat tenglama berilgan.

a) Tenglama bitta ildizga ega bo'ladigan a ning barcha qiymatlarining yig'indisini toping.

Javob a)_____

b) Yechimga ega bo'lmaydigan a ning butun qiymatlari nechta?

Javob b)_____

37. $sinx - cosx + sin3x = cos3x + cos5x - sin5x$ tenglamani yeching.

a) Tenglamaning $\left[-\frac{\pi}{2}; \pi\right]$ oraliqda yechimlari nechta?

Javob a)_____

b) Tenglamaning $\left[-\frac{\pi}{2}; \pi\right]$ kesmadagi barcha yechimlari yig'indisini toping.

Javob b)_____

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

38. $f(x) = x^3 + ax + b$ $(a \neq b)$ funksiyaga $x_0 = a,\ x_0 = b$ nuqtalarda o'tkazilgan urinmalar parallel bo'lsa

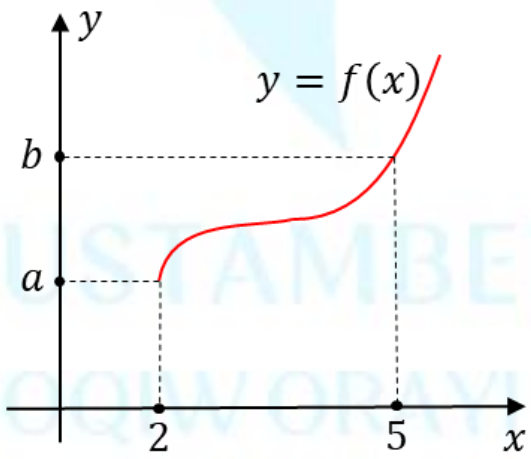
a) $f(1)$ ni hisoblang.

Javob a)_____

b) $b = 2$ bo'lsa $f'(1)$ ni hisoblang.

Javob b)_____

39. Funksiya grafigidan $f(2) = a, f(5) = b$ berilgan. $\int_2^5 f(x) \cdot f'(x)dx = 13{,}5$ va $a + b = 9$ bo'lsa,



a) $\frac{a \cdot b}{2}$ ni hisoblang.

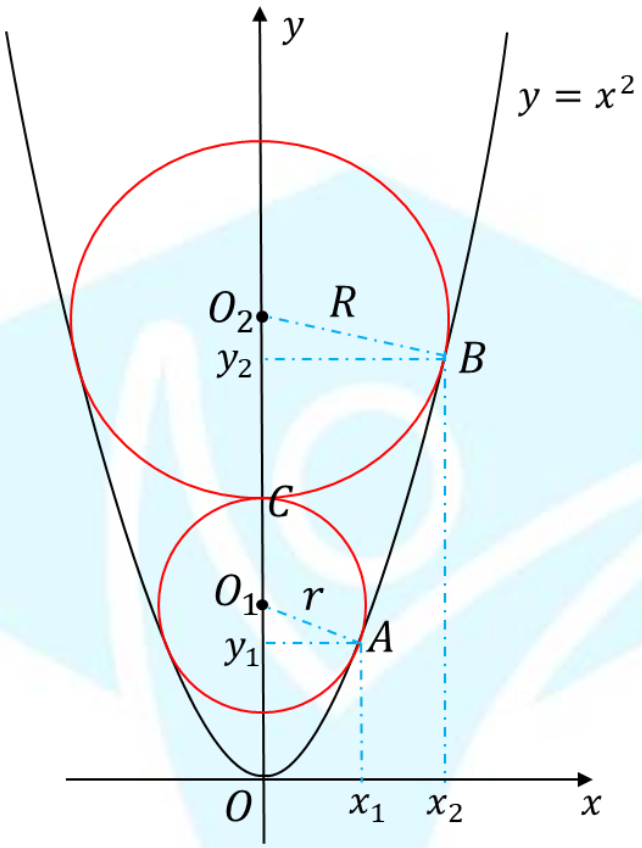
Javob a)_____

b) $\int_2^5 f(x)dx + \int_a^b f^{-1}(x)dx$ ni hisoblang ($f^{-1}(x) - f(x)$ –ning teskari funksiyasi).

Javob a)_____

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

40. $y = x^2$ parabolaga va ikkita aylana uringan(A va B nuqtalar) va ikkita aylana o'zaro uringan(C nuqtada).



a) O_1 **va** $(0; y_1)$ **nuqtalar orasidagi masofani toping.**

Javob a)_____

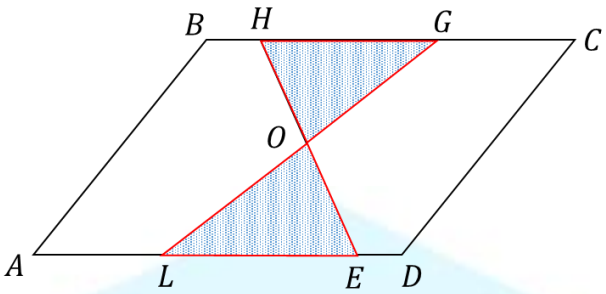
b) $O_1A = r = 2023$ **bo'lsa,** O_2B **ni toping.**

Javob b)_____

RUSTAMBEK OQIW ORAYI

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

41. $ABCD$ parallelogram berilgan. $BH:BC = ED:AD = 1:5$, $CG:BC = AL:AD = 3:7$ bo'lsa,



a) Bo'yalgan soha yuzini parallelogram yuziga nisbatini toping.

Javob a)_____

b) $ABHOL$ beshburchak yuzini parallelogram yuziga nisbatini toping.

Javob b)_____

42. ABC uchburchakka aylana ichki chizilgan. M, N, K nuqtalar aylananing AB, AC, BC tomonlariga mos ravishda urinish nuqtalari. Bunda $BK = 3, KC = 5, \angle ABC = 60^0$ ga teng.

a) ABC uchburchakning yuzini toping.

Javob a)_____

b) MN kesmani toping.

Javob b)_____

43. $ABCDE$ beshburchak berilgan. $AB = BC = CD = DE, \angle B = 96^0, \angle C = \angle D = 108^0$ bo'lsa,

a) $\angle A$ ning ichki burchagini toping.

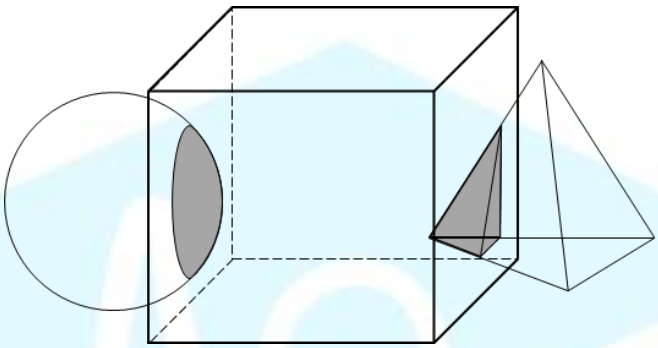
Javob a)_____

b) $\angle E$ ning ichki burchagini toping.

Javob b)_____

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

44. Rasmda tasvirlangan shar va kub umumiy qismining(sharning kub ichidagi qismi) hajmi shar hajmining $\frac{1}{12}$, kub hajmining esa $\frac{1}{16}$ qismini tashkil qiladi. Muntazam tetraedr va kub umumiy qismining(muntazam tetraedrning kub ichidagi qismi) hajmi muntazam tetraedr hajmining $\frac{1}{10}$, kub hajmining esa $\frac{1}{20}$ qismini tashkil qiladi.



a) Shar hajmining muntazam tetraedr hajmiga nisbatini toping.

Javob a)_____

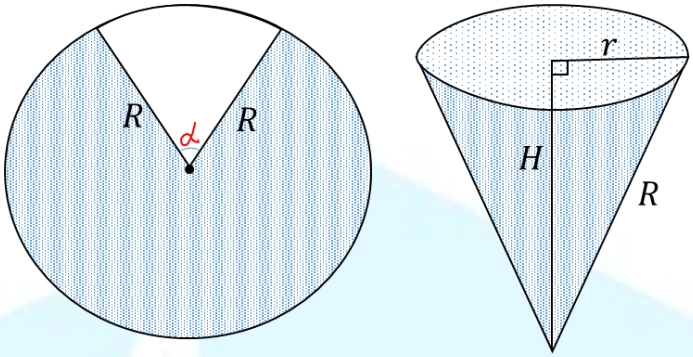
b) Agar muntazam tetraedrning qirrasi $6\sqrt{2}$ ga teng bo'lsa, kub hajmini toping.

Javob b)_____

RUSTAMBEK OQIW ORAYI

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

45. Rasmda doiradan markaziy burchagi α ga teng bo'lgan sektor qirqib olindi. Qolgan qismidan konus yasaldi (bo'yalgan qism). ($\pi \approx 3, \sqrt{6} \approx 2{,}45$ deb oling).



a) $\alpha = 60^0, R = 12$ ga teng bo'lsa, konus hajmini toping.

Javob a)_____

b) Konus eng katta hajmga ega bo'lsa, α burchakni toping va butun qismigacha yaxlitlang.

Javob b)_____

RUSTAMBEK OQIW ORAYI

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

MILLIY SERTIFIKAT (01.12.2024 yil)

1-variant

1. $\overline{2023ab}$ ko'rinishidagi olti xonali sonlar orasida 36 ga qoldiqsiz bo'linadiganlari nechta?
A) 3 ta
B) 2 ta
C) 1 ta
D) Mavjud emas

2. Hisoblang: $4,(36):3,1(9)+\frac{1}{3\frac{1}{7}}$
A) $\frac{35}{22}$
B) $1\frac{15}{22}$
C) $\frac{17}{35}$
D) $2\frac{5}{22}$

3. Kema daryo oqimi bo'yicha harakatlanib S masofaga 80 daqiqa vaqt sarflaydi. Oqimga qarshi harakatlanib S masofaning yarmini 60 daqiqada bosib o'tadi. Kemaning tezligi oqim tezligidan necha marta katta?
A) 6
B) 7
C) 4
D) 5

4. Bir oilaning oylik maoshi 15000000 so'm. Uning 60% i oilaviy harajatlarga sarflanar edi. Qolgan pulning 30% ni bankga omonatga qo'yadi. Oila bankga necha so'm pul qo'ygan?
A) 1800000
B) 2000000
C) 2500000
D) 2200000

5. $x+y=10^z, x^2+y^2=10^{z+1}, x^3+y^3=a\cdot 10^{3z}+b\cdot 10^{2z}$ bo'lsa, a va b ning ratsional qiymatlari yig'indisini toping.
A) 15,5
B) 16,5
C) 18,5
D) 14,5

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

6. Hisoblang: $\frac{1}{2\sqrt{6}+5} - 5 + 2\sqrt{6}$

A) $4\sqrt{6}$
B) 10
C) 0
D) $3\sqrt{6}$

7. $\sqrt{21-12\sqrt{3}} \cdot \sqrt{(\sqrt{3}-4)^2}$ hisoblang.

A) $11\sqrt{3}-18$
B) $14\sqrt{3}-17$
C) $15+7\sqrt{3}$
D) $18-11\sqrt{3}$

8. Arifmetik progressiyada $a_1 + a_3 + a_5 + \cdots + a_{2n-1} = 96$; $a_{n-2} + a_{n+2} = 12$ bo'lsa, n ning qiymatini toping.

A) 8
B) 32
C) 24
D) 16

9. Cheksiz kamayuvchi geometrik progressiyaning yig'indisi 22,5 ga, dastlabki ikkita hadi yig'indisi 20 ga va $0 < q < 1$ bo'lsa, progressiyaning to'rtinchi hadini toping.

A) $\frac{5}{18}$
B) 1
C) $\frac{5}{3}$
D) $\frac{5}{9}$

10. $a = 2024$ va $b = 2023$ bo'lsa, $a^3 - b^3 + a^2 + b^2 + 2 - 5ab$ ning qiymatini toping.

A) 4
B) 1
C) -1
D) 0

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

11. Agar $x+y=3$, $x\cdot y=-1$ bo'lsa, $\frac{x(y+1)^2-y(x+1)^2}{x^2(y+1)-y^2(x+1)}$ ni toping.

A) -1
B) 0
C) 1
D) 10

12. $12345''$ ni gradusda, minutda, sekundta ifodalang.

A) $3^0 25' 45''$
B) $3^0 45' 55''$
C) $4^0 25' 45''$
D) $4^0 26' 45''$

13. $\frac{4sin^2a-cos^4a-2sin^2acos^2a}{1-cos^2 4asin^2 4a-cos^4 4a}$ ni soddalashtiring.

A) $\frac{1}{8\cos 2a}$
B) $\frac{1}{2\cos 2a}$
C) 1
D) $-\frac{1}{\cos 2a}$

14. $16^{\frac{1}{x}}-20\cdot 2^{\frac{2}{x}-2}+4=0$ tenglamaning haqiqiy ildizlari nechta?

A) 3 ta
B) 1 ta
C) 2 ta
D) 3 ta

15. $\sqrt{\log_2\sqrt{4x}}=-\frac{1}{\log_4 x}$ tenglamaning haqiqiy ildizlari ko'paytmasini toping.(Agar u bitta bo'lsa, shu ildizini toping)

A) $\frac{1}{16}$
B) $\frac{1}{4}$
C) $\frac{1}{2}$
D) 2

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

16. $|3x+6|=15$ tenglamaning haqiqiy ildizlari ko'paytmasini toping.(Agar u bitta bo'lsa, shu ildizini toping)

A) -21
B) -7
C) -5
D) 0

17. $\frac{x^2+4}{x+2\sqrt{x}+2}=\frac{x^2-5x+4}{x+3\sqrt{x}+2}$ tenglamaning haqiqiy ildizlari yig'indisini toping. (Agar u bitta bo'lsa, shu ildizini toping)

A) 1
B) 0
C) -1
D) Yechimga ega emas

18. $2\sqrt{x-3}>x-6$ tengsizlikni qanoatlantiruvchi barcha butun sonlar yig'indisini toping.

A) 56
B) 63
C) 74
D) 81

19. $\sqrt{x^2-6x+9}\cdot\sqrt{-x^2+3x+10}>0$ tengsizlikni qanoatlantiruvchi butun sonlar nechta?

A) 5 ta
B) 6 ta
C) Cheksiz ko'p
D) 8 ta

20. $f(x)=\frac{\sqrt{-x^2+3x+10}}{|1-log_x 2|\left(sinx-\frac{\pi}{3}\right)}$ funksiyaning aniqlanish sohasiga tegishli nechta butun son bor?

A) 5 ta
B) 6 ta
C) 7 ta
D) 3 ta

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

21. Aniqmas integralni toping. $\int \frac{\ln \ln x}{x} dx$

A) $\ln x\,(\ln \ln x - 1) + C$
B) $\ln x\,(\ln \ln x + 1) + C$
C) $\ln \ln x + C$
D) $\ln x + C$

22. $f(x) = \sin^3 \frac{x}{2}$ bo'lsa, $f'\left(\frac{2\pi}{3}\right)$ ni toping.

A) $\frac{9}{16}$
B) $\frac{9}{8}$
C) $\frac{7}{15}$
D) $\frac{7}{5}$

23. $ABCD$ to'rtburchakga aylana ichki chizilgan. $AB = CD = 7$ va $AD = 6$ bo'lsa, BC ni toping.

A) 6
B) 8
C) 14
D) 15

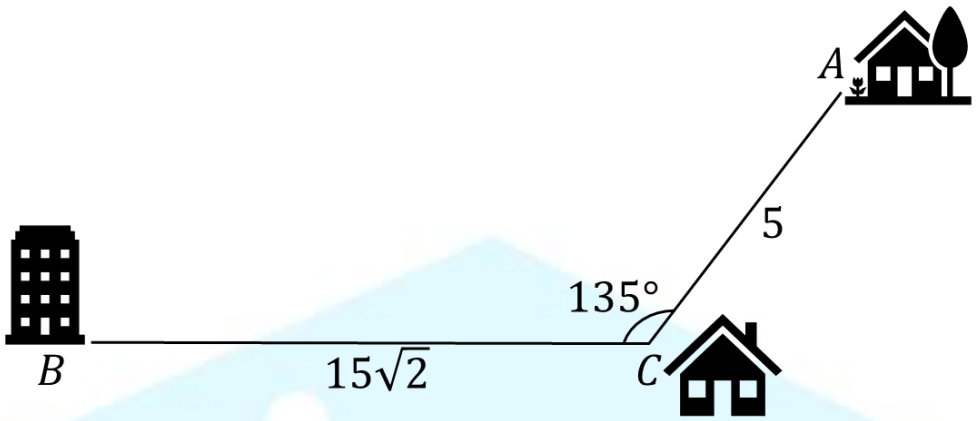
24. ABC teng yonli uchburchakga aylana ichki chizilgan $AB = AC$. Aylana urinish nuqtasidan AB tomonni 6 va 4 ga teng kesmalarga ajratdi $(AB > BC)$. ABC uchburchakning yuzini toping.

A) 96
B) $10\sqrt{21}$
C) 48
D) $8\sqrt{21}$

RUSTAMBEK OQIW ORAYI

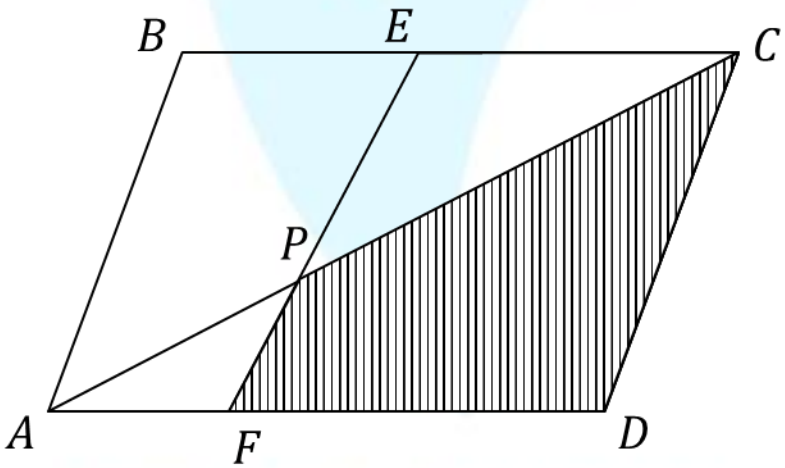
MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

25. A dan B gacha bo'lgan eng qisqa masofani toping.



A) 25
B) 15
C) 10
D) $10\sqrt{2}$

26. $ABCD$ parallelogramda BC tomonda E nuqta, AD tomonda F nuqta olingan. EF va AC kesmalar P nuqtada kesishadi. $AD = 4AF, AC = 3AP$. $ABEP$ to'rtburchakning yuzi 16 ga teng bo'lsa shtrixlangan soha yuzini toping.

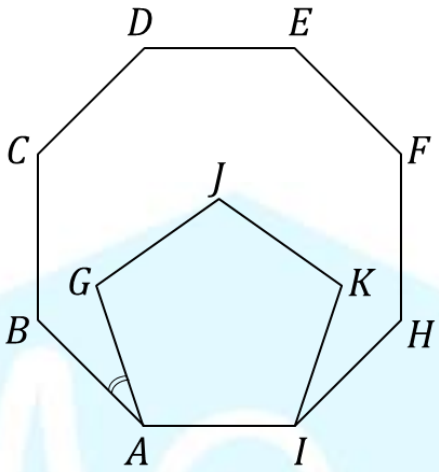


A) 22
B) 21
C) 20
D) 23

27. $y = x^2 - \sqrt{9 + x^2}$ funksiyaning eng kichik butun qiymatini toping.
A) -3
B) 1
C) 0
D) 3

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

28. $ABCDEFHI$ muntazam sakkizburchak va $AGJKI$ muntazam beshburchak berilgan. Bunga ko'ra BAG burchakni toping.



A) 27^0
B) 36^0
C) 54^0
D) 20^0

29. $ABCD$ to'g'ri to'rtburchakning A uchi koordinatalar boshidan, B uchi Ox o'qida. C uchining koordinatasi $(5;4)$ va $\frac{1}{2}\overrightarrow{BE} = \overrightarrow{BC}$ bo'lsa, $ABED$ to'rtburchakning yuzini toping.

A) 20
B) 15
C) 30
D) 40

30. Tekislikda yotmagan A nuqta orqali tekislikga AH balandlik va AM og'ma tushirilgan. Agar og'ma va tekislik orasidagi burchak 37^0 va $AH = 6$ bo'lsa, H uchidan AM og'magacha bo'lgan eng qisqa masofani toping. $(\cos 37^0 = 0{,}8\ deb\ oling)$.

A) 1,8
B) 3,6
C) 4,8
D) 2,4

31. $A \in \{-3 \le x < 5; x \in Z\}$, $B \in \{-5 \le x < 3; x \in Z\}$, $C \in \{-4 \le x < 6; \in Z\}$, $D \in \{-3 \le x < 7; x \in Z\}$ bo'lsa, $(A \cup C)' \cap (B \cup D)$ ning qism to'plamlari sonini toping.

A) 2
B) 16
C) 8
D) 4

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

32. To’rt xonali sonlar ichidan raqamlari toq sonlardan iborat bo’lgan va 5 ga karrali son bo’lish ehtimolligini toping.

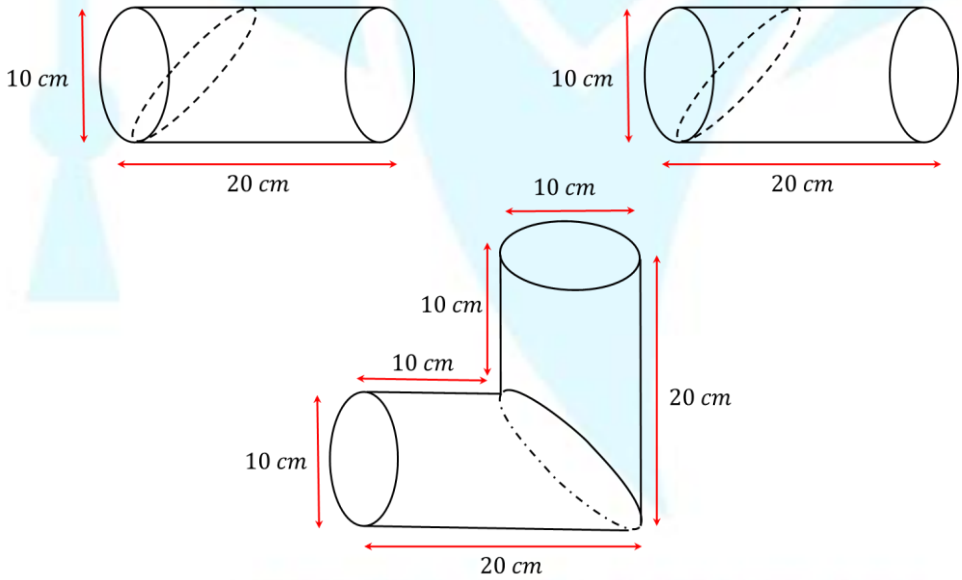
A) $\frac{1}{72}$

B) $\frac{1}{36}$

C) $\frac{1}{108}$

D) $\frac{1}{5}$

Topshiriqlar(33-35) va javob variantlari (A-F) ni o’zaro moslashtiring.
Diametri $10\ cm$ ga teng bo’gan ikkita bir xil silindr berilgan. Silindirdan kesim kesib olinib tirsak yasaldi. $(\pi \approx 3\ deb\ oling)$



33. Hosil bo’lgan jism yon sirtining yuzini (cm^2) toping.

34. Hosil bo’lgan jismning hajmini (cm^3)toping.

35. Kesimning uzunligini (cm) toping.

A) 1200

B) 900

C) $30\sqrt{2}$

D) $10\sqrt{13}$

E) 2250

F) 3000

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

36. $\begin{cases} x^2 - 3x + 9 = 5y^2 + y - 13 \\ y^2 - 3y + 2 = xy - 3y - 2x + 6 \end{cases}$

a) Tenglamalar sistemasini qanoatlantiruvchi nechta $(x; y)$ juftligi mavjud

Javob: a) _____

b) Yechimlari $(x_1; y_1); (x_2; y_2); \ldots (x_n; y_n)$ bo'lsa, $x_1 + x_2 + x_3 + \ldots + x_n$ ni toping.

Javob: b)_____

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37. $2\cos^2 3x - (4a^2 - 7)\cos 3x + 2a^2 - 4 = 0$ tenglama berilgan.

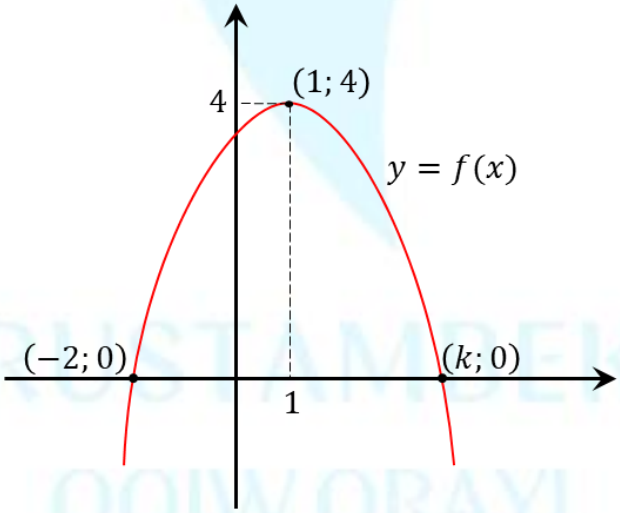
a) $\left[-\frac{\pi}{2}; \frac{\pi}{2}\right]$ oraliqda eng kam yechimga ega bo'ladigan ildizlari nechta.

Javob: a)_____

b) $\left[-\frac{\pi}{3}; \frac{\pi}{2}\right]$ oraliqda 3ta ildizga ega bo'ladigan a ning eng kichi natural qiymatini toping.

Javob: b)_____

38. $f(x) = ax^2 + bx + c$ kvadrat funksiya berilgan. Parabola uchi $(1; 4)$ nuqtada. Parabola Ox oqini $(-2; 0)$ va $(k; 0)$ nuqtalarda kesib o'tadi.



a) $\frac{a+b+c}{k}$ ni hisoblang.

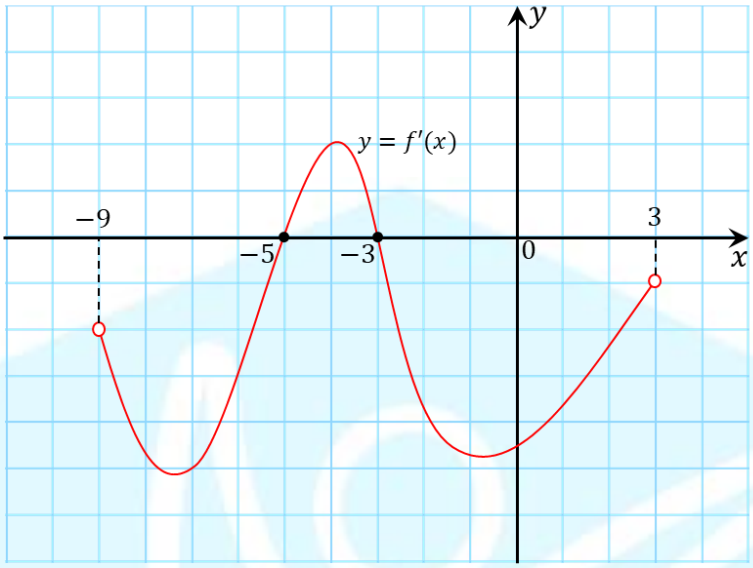
Javob: a)_____

b) Agar $g(x) = 3f\left(\frac{x}{5}\right) - 2$ bo'lsa, $g(x)$ funksiyaning parabola uchlari koordinatalari yig'indisini toping.

Javob: b)_____

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

39. $(-9; 3)$ oraliqda $f(x)$ funksiyaning hosilasining grafigi tasvirlangan.



a) $f(x)$ funksiyaning $(-5; 3)$ oraliqdagi qaysi nuqtada eng katta qiymatga erishadi.

Javob: a)_____

b) $f(x)$ funksiyaning $(-9; -3)$ oraliqdagi qaysi nuqtada eng kichik qiymatga erishadi.

Javob: b)_____

40. $y_1 = \sqrt{x-1} + 2$ va $y_2 = \frac{x+3}{2}$ funksiyalar A va B nuqtalarda kesishadi.

a) A va B nuqtalar orasidagi masofani toping.

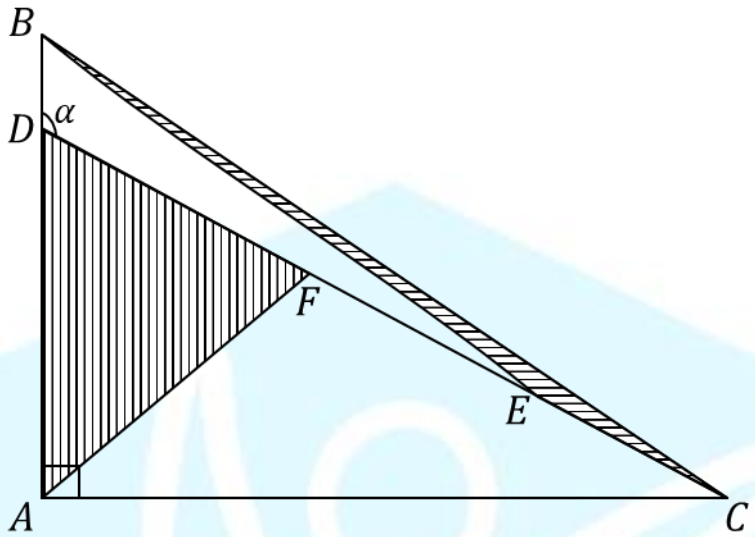
Javob: a)_____

b) y_1 va y_2 funksiyalarning kesishishidan hosil bo'lgan soha yuzini toping.

Javob: b)_____

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

41. ABC to'g'ri burchakli uchburchak berilgan. $\angle BDF = \alpha = 135^0$, $BD = \sqrt{2}$, $FE = 2EC = 2$, $AF = 3$ bo'lsa,



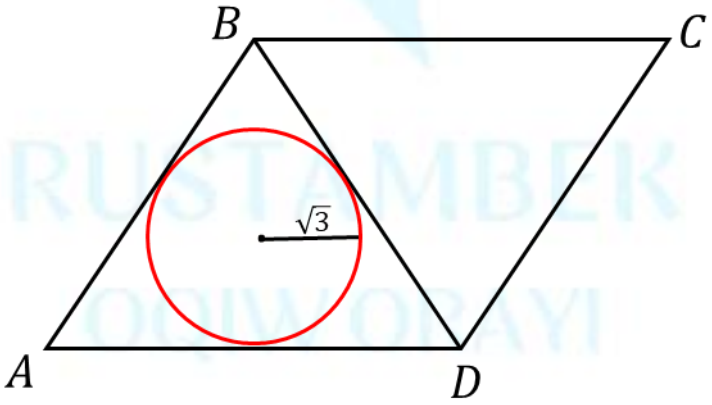
a) ABC uchburchakning BC gipotenuzasini toping.

Javob: a)_____

b) Shtrixlangan sohalar yuzlarining yig'indisini toping.

Javob: b)_____

42. $ABCD$ parallelogramning o'tmas burchagi 120^0 ga va perimetri 26 ga teng. ABD uchburchakga aylana ichki chizilgan. Aylana radiusi $\sqrt{3}$ ga teng.



a) Parallelogram yuzini toping.

Javob: a)_____

b) Parallelogramning katta tomonini toping.

Javob: b)_____

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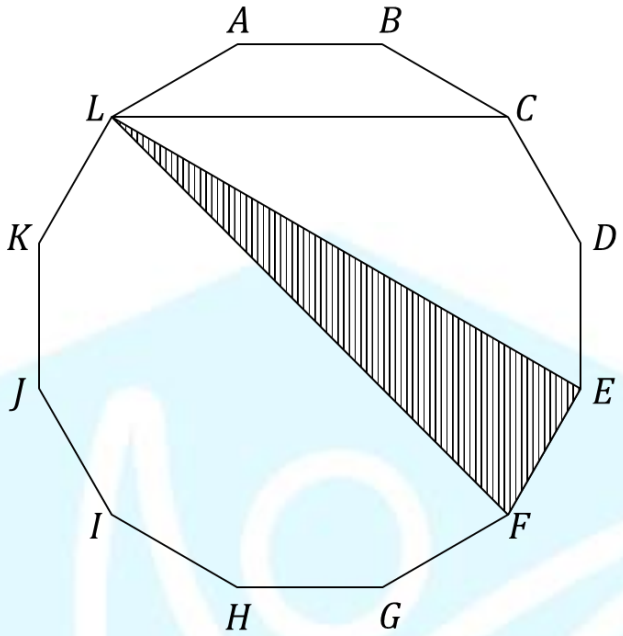
43. Muntazam o'nikkiburchakning tomoni $\sqrt{3}-1$ ga teng.



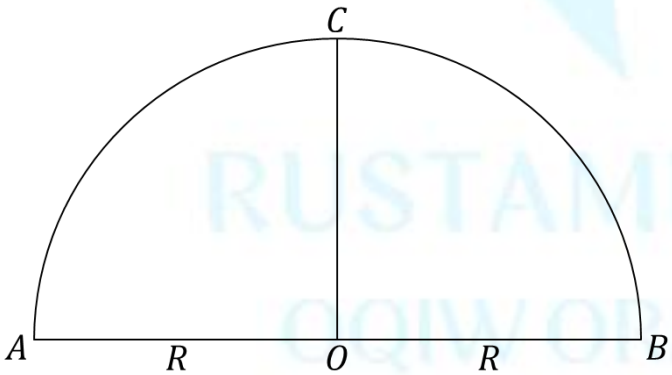
a) $|LC|$ ni toping.

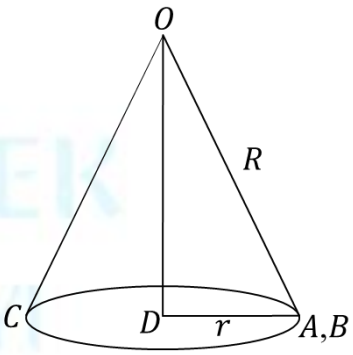
Javob: a)_____

b) LEF bo'yalgan soha yuzasini toping.

Javob: b)_____

44. Radiusi R ga teng bo'lgan yarim aylana berilgan. Undan konus yasaldi.





a) Konus yasovchisi va o'qi orasidagi burchakning sinusini toping.

Javob: a)_____

b) $R=2\sqrt{3}$ bo'lsa, konusga ichki chizilgan sfera sirtining yuzini toping.
$(\pi \approx 3\ deb\ olinsin)$

Javob: b)_____

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

45. Kema harakatga kelishi uchun ishchilarga va yoqilg'iga pul sarflaydi. Ishchilarga soatiga 250 $ dan, yoqilgi uchun esa soatiga v^3 $ pul sarflaydi. Kemaning o'rtacha tezligi v (km/h) ga teng.

a) Agar 10 km masofani bosib o'tish uchun eng kam pul sarflansa, v (km/h) toping.

Javob: a)_____

b) 10 km masofani bosib o'tish uchun eng kam qancha harajat sarflanadi.

Javob: b)_____

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MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

MILLIY SERTIFIKAT (01.12.2024 yil)

2-variant

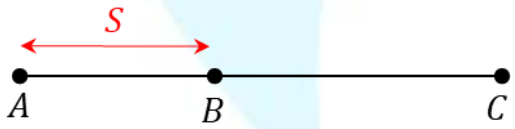
1. $8 \cdot 40^{45} \cdot 36^{2} \cdot 625^{25} \cdot 216$ necha xonali son?

A) 149
B) 148
C) 147
D) 150

2. $\frac{1}{30}+\frac{1}{60}+\frac{1}{100}+\frac{1}{150}+\frac{1}{210}$ ni hisoblang.

A) $\frac{1}{15}$
B) $\frac{1}{14}$
C) $\frac{2}{19}$
D) $\frac{1}{90}$

3. A va B shahardan ikki turist C shaharga yo'lga chiqdi. Agar A va B shahardagi turistlar bir biriga qarab yursa t_1 vaqtda uchrashadi. Ikki turist C shaharga t_2 vaqtda birga yetib boradi. Turistlarning tezliklari ko'paytmasini toping.



A) $\frac{S}{2}\cdot\left(\frac{1}{t_1}+\frac{1}{t_2}\right)$
B) $\frac{S}{2}\cdot\left(\frac{1}{t_1}-\frac{1}{t_2}\right)$
C) $\frac{S^2}{2}\cdot\left(\frac{1}{t_1^2}-\frac{1}{t_2^2}\right)$
D) $\frac{S^2}{4}\cdot\left(\frac{1}{t_1^2}-\frac{1}{t_2^2}\right)$

4. Bir oilaning oylik maoshi 15000000. Uning 60 % i oilaviy harajatlarga sarflanadi. Qolgan pulning 30 % ini bankga omonatga qo'yadi. Oila bankga necha so'm pul qo'yadi?

A) 1800000
B) 2000000
C) 2500000
D) 2200000

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

5. $a \cdot b = 3^4 \cdot 5^2 \cdot 7^3 \cdot 11$ bo'lsa, $EKUB(a; b)$ ning eng katta qiymatini toping.
A) 105
B) 315
C) 735
D) 1025

6. $\text{tg}\frac{\pi}{4} + \sqrt{3}\sin\frac{7\pi}{3}$ ni hisoblang.
A) 1
B) 1,5
C) 2
D) 2,5

7. Kamayuvchi arifmetik progressiyada $a_1 + a_3 + a_5 = 15$ va $a_2^2 + a_3^2 + a_4^2 = 83$ bo'lsa, $a_{13} = ?$
A) 25
B) -17
C) -15
D) 15

8. $\sqrt[3]{54 + 30\sqrt{3}} + \sqrt[3]{54 - 30\sqrt{3}}$ ni hisoblang.
A) 3
B) 9
C) 6
D) 18

9. $|x + 2| + |x + 5| = 9 + |x - 4|$ tenglama nechta haqiqiy ildizga ega?
A) 1 ta
B) 2 ta
C) 3 ta
D) Haqiqiy yechimga ega emas

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10. 6 ta haddan iborat bo'lgan geometrik progressiyada dastlabki uchta hadi yig'indisi 26 ga, oxirgi uchta hadi yig'indisi 702 ga teng bo'lsa, maxrajini toping.

A) 8
B) 6
C) 2
D) 3

11. a ning qanday qiymatida $\sqrt{25-x^2}=a$ tenglama haqiqiy ildizga ega?

A) $[0;5]$
B) $[0;25]$
C) $(0;25)$
D) $(0;5)$

12. $7^a=6$, $6^b=12$ bo'lsa, $\log_{81} 98\sqrt{3}$ ni a va b orqali ifodalang.

A) $\frac{4+ab}{16a-8ab}$
B) $\frac{4+ab}{16a+8ab}$
C) $\frac{4-ab}{16a+8ab}$
D) $\frac{4-ab}{16a-8ab}$

13. $2\sin^2\left(x-\frac{\pi}{3}\right)-5\sin\left(x-\frac{\pi}{3}\right)+2=0$ tenglama $[-\pi;2\pi]$ nechta yechimga ega?

A) 1 ta
B) 2 ta
C) 3 ta
D) 4 ta

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

14. $\frac{3^x-3^{x-2}}{3^x-2^x} > 1+\left(\frac{2}{3}\right)^x$ tengsizlikni yeching.

A) $(-\infty;0)$

B) $\left(0;\log_{\frac{2}{3}}\frac{1}{3}\right)$

C) $\left(-1;\log_{\frac{2}{3}}\frac{1}{3}\right)$

D) $(-\infty;0)\cup\left(0;\log_{\frac{2}{3}}\frac{1}{3}\right)$

15. $\lg^2(x+1)=\lg(x-1)\cdot\lg(x+1)+2\lg^2(x-1)$ haqiqiy ildizlar ko'paytmasini toping.

A) 2

B) $3\sqrt{2}$

C) 1

D) $\sqrt{2}$

16. Hisoblang: $\frac{1}{2\sqrt{6}+5}-5+2\sqrt{6}$

A) $4\sqrt{6}$

B) 10

C) 0

D) $3\sqrt{6}$

17. $-5\sqrt[4]{x}+\sqrt{x}+6\geq 0$ tengsizlikni yeching.

A) $[0;16]$

B) $[0;16]\cup[81;\infty)$

C) $[16;81]$

D) haqiqiy yechimga ega emas

18. $\left(\frac{8a^3+b^3}{4a^2-b^2}+b\right):\frac{a^2}{2a-b}$ ifodani soddalashtiring.

A) 1

B) $2a-b$

C) 4

D) $2a+b$

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

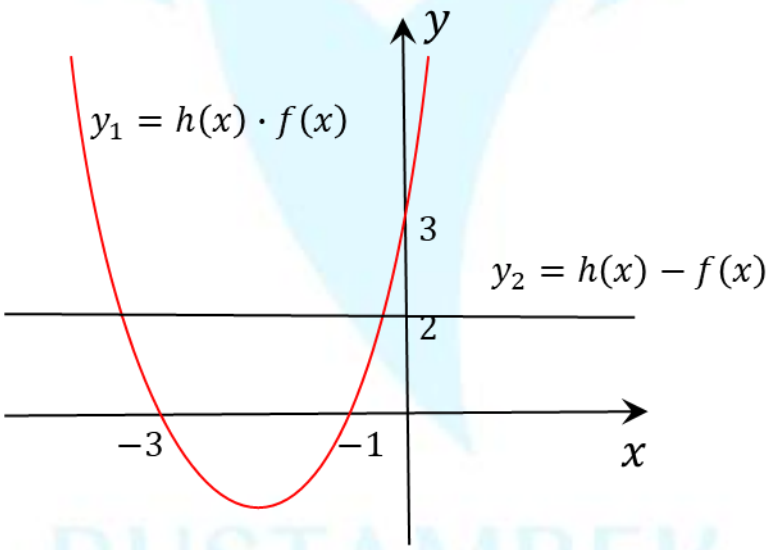
19. $\left(2x+1-\frac{6}{x}\right)\left(\frac{28}{x}-7+\left(\sqrt{-3-2x}\right)^2\right)\geq 0$ tengsizlikning butun yechimlari yig'indisini toping.

A) -22
B) -25
C) -27
D) -28

20. $y=x^2-\sqrt{9+x^2}$ funksiyaning eng kichik butun qiymatini toping.

A) -4
B) -2
C) -1
D) -3

21. $h(x)=kx+l$ va $f(x)=mx+n$ bo'lsa, $\frac{k+l}{m+n}$ =?



A) 1
B) 2
C) 3
D) 4

22. $f(x)=3^x\log_3(3x)$ bo'lsa, $f'(1)$ ni toping.

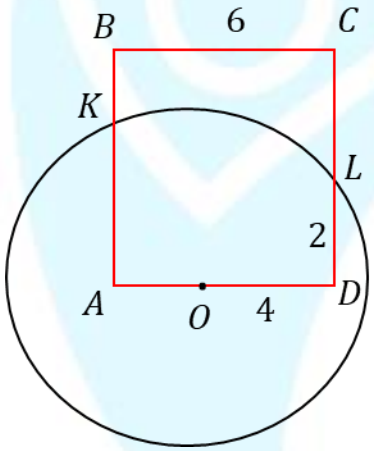
A) $\frac{\ln^2 3+1}{\ln 3}$
B) $\frac{3\ln^2 3+3}{\ln 3}$
C) $\frac{3\ln^2 3-3}{\ln 3}$
D) $\frac{3\ln^2 3+1}{\ln 3}$

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

23. $f(x) = |x^2 + 3x + 2|$ va $g(x) = x + 2$ funksiyalar bilan chegaralangan sohalar yuzini toping.

A) $\frac{1}{2}$
B) $\frac{1}{3}$
C) 1
D) 2

24. Rasmda O markazli aylana bilan $ABCD$ kvadrat tasvirlangan. Agar K va L nuqtalar aylana va kvadrat kesishgan nuqtalar va $OD = 4$, $DL = 2$ va $BC = 6$ bo'lsa, KL kichik yoyning uzunligini toping.



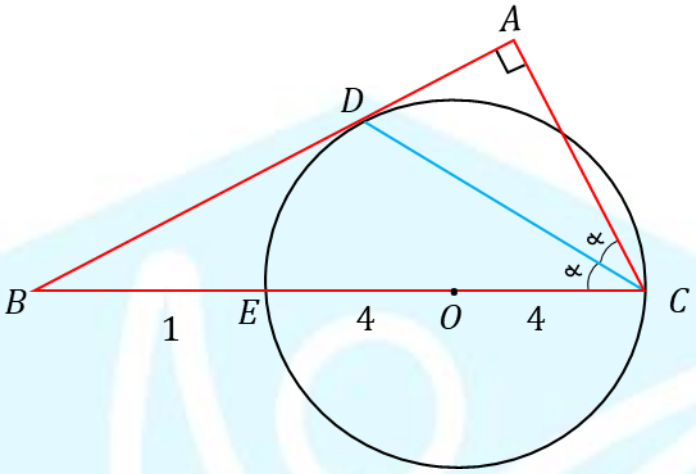
A) $\sqrt{3}\pi$
B) 2π
C) $\sqrt{5}\pi$
D) $\sqrt{6}\pi$

25. ABC uchburchakda $AB = 5$, $BC = 4$ va $AC = 3$ ga teng. C burchak uchidan AB tomonga balandlik va bissektrisa tushirilgan bo'lsa, ular orasidagi masofani toping.

A) $\frac{13}{35}$
B) $\frac{11}{35}$
C) $\frac{17}{35}$
D) $\frac{12}{35}$

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

26. ABC to'gri burchakli uchburchakka aylana shunday chizilganki, aylana AB katetga urinib shu katet qarshisidagi burchakdan o'tadi. Aylana markazi O nuqta BC gipotenuzada joylashgan, aylana gipotenuzani E nuqtada kesib o'tadi. Agar $BE = 1, OC = 4$ va $\angle BCD = \angle ACD$ bo'lsa, O nuqtadan DC tomongacha bo'lgan masofani toping.



A) $\frac{2\sqrt{10}}{5}$
B) $\frac{3\sqrt{10}}{5}$
C) $\frac{4\sqrt{10}}{5}$
D) $\frac{\sqrt{10}}{5}$

27. $ABCD$ to'g'ri burchakli trapetsiya kichik asosi kata yon tomoni teng, balandligi 4 ga teng va katta dioganali $4\sqrt{5}$ ga teng bo'lsa, trapetsiya yuzini toping.
A) 32
B) 35
C) 26
D) 24

28. Tekislikda yotmagan A nuqta orqali tekislikga AH balandlik va AM og'ma tushirilgan. Agar og'ma va tekislik orasidagi burchak 37^0 va $AH = 6$ bo'lsa, H uchidan AM og'magacha bo'lgan eng qisqa masofani toping. $(\cos 37^0 = 0{,}8\ deb\ oling)$.
A) 1,8
B) 3,6
C) 4,8
D) 2,4

29. ABC uchburchak yuzasi 60 ga teng. $\overrightarrow{BE} = -\frac{1}{2}\overrightarrow{BA}$ bo'lsa, ACE uchburchak yuzini toping.
A) 30
B) 60
C) 90
D) 120

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

30. Tomonlari soni n juft son bo'lgan muntazam ko'pburchakning bir uchidan chiqqan eng kata va eng kichik dioganallari orasidagi burchak $45°$ ga teng. Muntazam ko'pburchak ichki burchaklar yig'indisini toping.

A) $1080°$
B) $1440°$
C) $720°$
D) $1800°$

31. Bo'sh to'plamlar sonini toping. R – haqiqiy sonlar to'plami, I – irratsional sonlar to'plami.

1) $\{x|\ x^2 - \sqrt{10} + \pi = 0; x \in R\}$
2) $\{x|\ x^2 + 1 = 0; x \in R\}$
3) $\{x|\ |x| = -3; x \in R\}$
4) $\{x|\ x^2 + 3x + 2 = 0; x \in I\}$

A) 1 ta
B) 2 ta
C) 3 ta
D) 4 ta

32. To'rt xonali sonlar ichidan raqamlari toq sonlardan iborat bo'lgan va 5 ga karrali son bo'lish ehtimolligini toping.

A) $\frac{1}{72}$
B) $\frac{1}{36}$
C) $\frac{1}{108}$
D) $\frac{1}{5}$

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$O(0;0;0)$; $A(0;0;3)$ va $B(\sqrt{2};\sqrt{2};0)$ bo'lib, D va C nuqtalar mos ravishda OX va OY o'qlarida joylashgan. OB kesma OCD uchburchakning balandligi va medianasi bo'ladi. ($\pi \approx 3$ deb hisoblang)

33. $AOCD$ piramida hajmini toping.

34. AOB uchburchakning AO tomoni atrofida $360°$ ga aylantirishdan hosil bo'lgan jism hajmini toping.

35. OCD uchburchakning CD tomon atrofida $360°$ ga aylantirishdan hosil bo'lgan jism hajmini toping.

A) 3

B) 4

C) 6

D) 12

E) 16

F) 24

36. a, b, c sonlar $x^3 - 9x^2 + 11x - 1 = 0$ tenglamaning haqiqiy ildizlari.
$t = \sqrt{a} + \sqrt{b} + \sqrt{c}$ bo'lsa,
a) $a + b + c + abc + ab + bc + ac$ ni toping.

Javob: a)_____

b) $t^4 - 18t^2 - 8t$ ni hisoblang

Javob: b)_____

37. Quyidagi tenglama berilgan:

$$\sqrt{7 + 8\cos^2\frac{\pi x}{18}} = 4\sin^2\frac{\pi x}{18}$$

a) $[0; 18]$ oraliqdagi yechimlar yig'indisini toping.

Javob: a)_____

b) $[20; 30]$ oraliqdagi ildizlari sonini toping.

Javob: b)_____

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

38. Agar $f(x) = \frac{x+3}{x-1}$ berilgan bo'lsa, ($f^{-1}(x) - f(x)$ funksiyaga teskari funksiya)

a) $f^{-1}(2)$ ni hisoblang.

Javob: a)_____

b) $f(x) = f^{-1}(x)$ tenglamaning ildizi bo'la olmaydigan nechta butun bor?

Javob: b)_____

39. To'g'ri burchakli trapetsiyaning ichki sohasiga eng katta yuzali to'g'ri to'rtburchak chizilgan. To'g'ri to'rtburchakning bir tomoni trapetsiyaning katta asosida yotadi. Trapetsiyaning asoslari 6 va 16 ga teng. Trapetsiya balandligi 15 ga teng.

a) To'g'ri to'rtburchak yuzini toping.

Javob: a)_____

b) Trapetsiya yuzidan to'g'ri to'rtburchak yuzalar ayirmasining modulini toping.

Javob: b)_____

40. $f(x)$ funksiya uchun $f''(x) = 12x^2 + 6x$, $f'(1) = 9$ va $f(1) = 5$ tengliklar o'rinli bo'lsa,

a) $f(0)$ ni hisoblang.

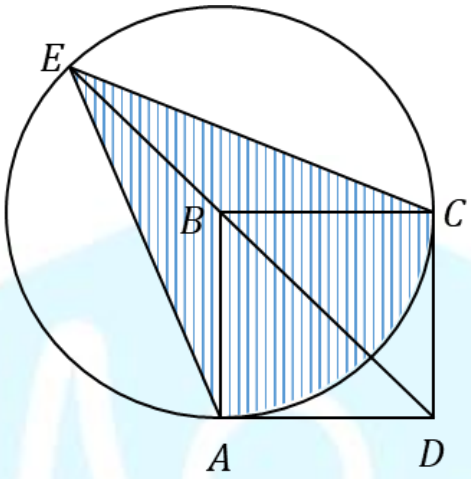
Javob: a)_____

b) $f(2024) = 2$ va $f(2023) = 3$ bo'lsa, $\int_{2023}^{2024}\big(f(x) + xf'(x)\big)\,dx$ ni hisoblang.

Javob: b)_____

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

41. Rasmda $ABCD$ kvadrat va markazi B nuqtada va radiusi r ga teng aylana berilgan. $(\pi \approx 3\ deb\ oling)$



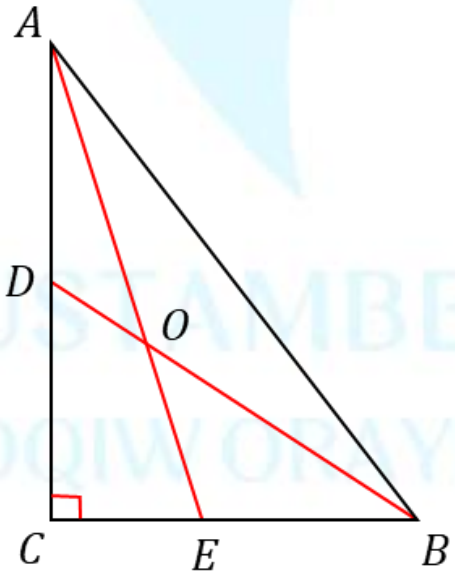
a) Kvadrat ichidagi bo'yalgan sohaning bo'yalmagan soha yuziga nisbatini toping.

Javob: a)_____

b) Agar $r = 2$ bo'lsa, bo'yalgan soha yuzini toping.

Javob: b)_____

42. ABC to'g'ri burchakli uchburchakning AC va BC katetlarida mos ravishda D va E nuqtalar shunday tanlab olinganki $AD = BC$ va $CD = BE$ tengliklar o'rinli bo'lsa,



a) $\angle AOD$ burchakni toping,

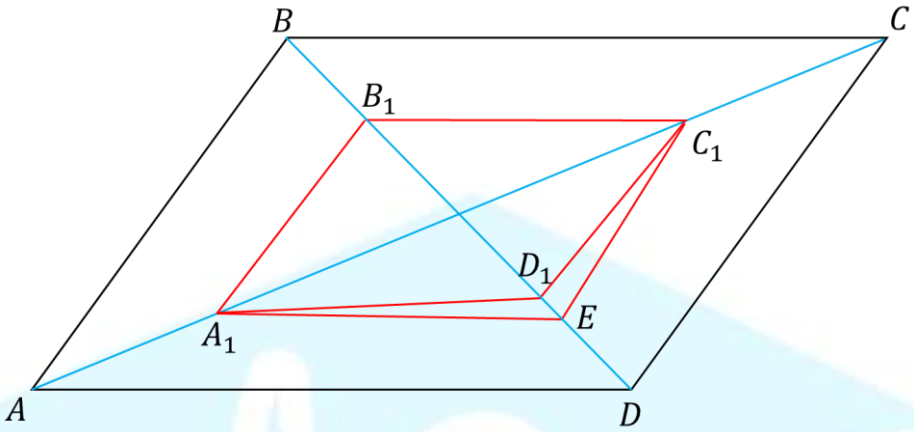
Javob: a)_____

b) $BC = 10$ va $AE = 2\sqrt{58}$ bo'lsa, S_{ABC} ni hisoblang.

Javob: b)_____

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

43. $ABCD$ parallelogramning diagonallarida olingan A_1, B_1, C_1, D_1 va E nuqtalar uchun, $A_1E||AD$ va $C_1E||CD$ bo'lib, $AC:A_1C_1 = 5:3$ va $BD:B_1D_1 = 3:2$ nisbatlar o'rinli bo'lsa,



a) $\frac{S_{A_1C_1E}}{S_{ACD}}$ ni toping.

Javob: a)_____

b) $\frac{S_{A_1B_1C_1D_1}}{S_{ABCD}}$ ni toping.

Javob: b)_____

44. Sharga shar hajmining $\frac{1}{4}$ qismini tashkil qiluvchi konus ichki chizilgan. ($\pi \approx 3$ deb oling)

a) $H_{konus} = \sqrt[3]{2+\sqrt{5}}$ bo'lsa, shar hajmini toping. $H_{konus} > R_{shar}$

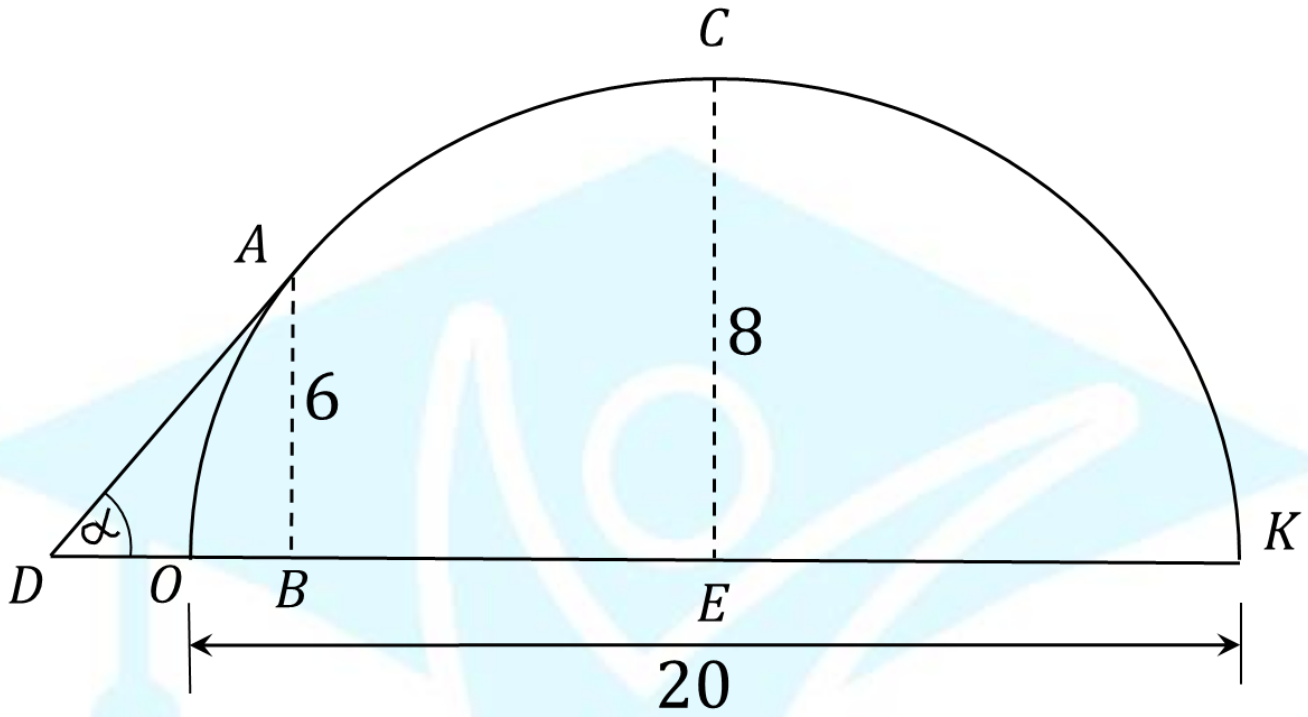
Javob: a)_____

b) $R_{shar} = H_{konus} = \sqrt{3+2\sqrt{2}}$ bo'lsa, konusga ichki chizilgan sfera sirtining yuzini toping.

Javob: b)_____

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

45. Sirk karkasining eng baland nuqtasidan yergacha bo'lgan masofa 8 ga va kengligi 20 ga teng bo'lgan parabola shaklida. Karkas qulab ketmasligi uchun balandligi 6 ga teng nuqtasida yerga tros tortilgan.



a) tg α ni toping.

Javob: a)_____

b) OD ni toping,

Javob: b)_____

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MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

MILLIY SERTIFIKAT (01.12.2024 yil)

3-variant

1. 7^{2023} o'nlar xonasidagi raqamni toping.

A) 4
B) 1
C) 3
D) 7

2. Hisoblang:

$$6-\frac{31}{30}-\frac{61}{60}-\frac{101}{100}-\frac{151}{150}-\frac{211}{210}$$

A) 1
B) $\frac{15}{13}$
C) $\frac{142}{185}$
D) $\frac{13}{14}$

3. Agar A va B natural sonlarining ko'paytmasi $A \cdot B = 3^4 \cdot 5^2 \cdot 7^3 \cdot 11$ga teng bo'lsa, $\text{EKUB}(A; B)$ ning eng katta qiymatini toping.

A) 478
B) 3117
C) 315
D) 319

4. Ikki turli natural sonlarning yig'indisi 36 va kvadratlaring yig'indisi eng kichik bo'lsa, ularning ko'paytmasini toping.

A) 323
B) 324
C) 325
D) 326

5. Soddalashtiring:

$$\left(\frac{8a^3+b^3}{4a^2-b^2}+b\right):\frac{a^2}{2a-b}$$

A) $2a-b$
B) $2a-b$
C) 4
D) 1

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

6. Soddalashtiring:

$$\frac{(\sqrt{11}-\sqrt{5})(\sqrt{15}+\sqrt{33}-\sqrt{22}-\sqrt{10})}{\sqrt{108}-\sqrt{72}}$$

A) 1
B) 2
C) 3
D) 4

7. a soni 1,4,7 ... arifmetik progressiyaning biror hadi bo'lib quyidagi ifodaning qiymati 2 ga teng bo'lsa, a ning qiymatini toping.

$$\frac{1}{\sqrt{4}+\sqrt{1}}+\frac{1}{\sqrt{7}+\sqrt{4}}+\cdots+\frac{1}{\sqrt{a+3}+\sqrt{a}}=2$$

A) 6
B) 46
C) 9
D) 49

8. Ish haqi dastlab 10% ga, keyin esa 20% ga oshdi. Ish haqi dastlabgi holatiga nisbatan necha % ga oshgan?
A) 30
B) 33
C) 32
D) 35

9. $|2x+3|=15$ tenglama ildizlari yig'indisini (agar u bitta bo'lsa shu ildizning o'zini) toping.
A) -3
B) -9
C) -1
D) 6

10. Agar funksiya $f(x)=\frac{6x-5}{x+6}$ bo'lsa, ushbu funksiyaga teskari funksiyani toping
A) $\frac{6x-8}{2-x}$
B) $\frac{7x+3}{2x+1}$
C) $\frac{x-7}{6-x}$
D) $\frac{6x+5}{6-x}$

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

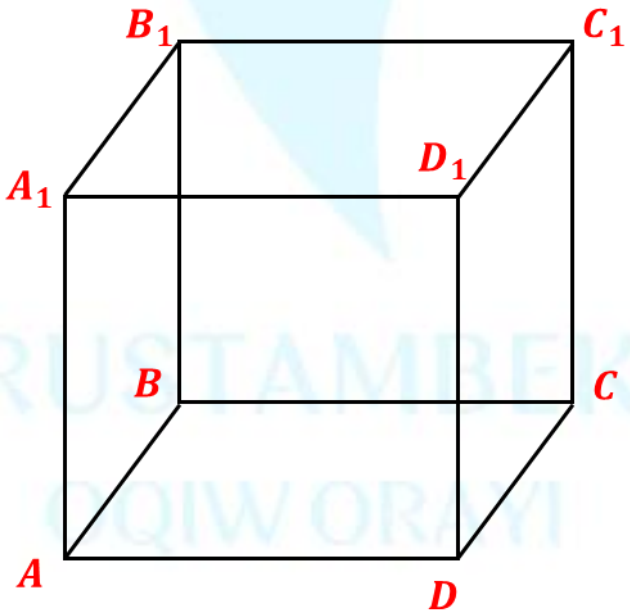
11. Agar geometrik progressiya uchun $b_{m+n} = A$ va $b_{m-n} = B$ ushbu rekurrent tengliklar berilgan bo'lsa, b_m ni toping.

A) $\sqrt{\frac{A}{B}}$
B) $\sqrt{AB}$
C) $\sqrt{A-B}$
D) $A+B$

12. Tekislikda yotmagan M nuqtadan tekislikning A va B nuqtalariga tekislik bilan 30° va 60° burchak hosil qiluvchi MA va MB og'malar tushirildi. Agar M nuqtadan tekislikkacha eng qisqa masofa $2\sqrt{3}$ bo'lsa, A va B nuqtalar orasidagi eng qisqa masofani toping.

A) $2\sqrt{10}$
B) 6
C) 4
D) $2\sqrt{3}$

13. $ABCDA_1B_1C_1D_1$ kub berilgan bo'lib, $\overrightarrow{AC} \cdot \overrightarrow{AC_1} = 12$ bo'lsa, kub qirrasi uzunligini toping.

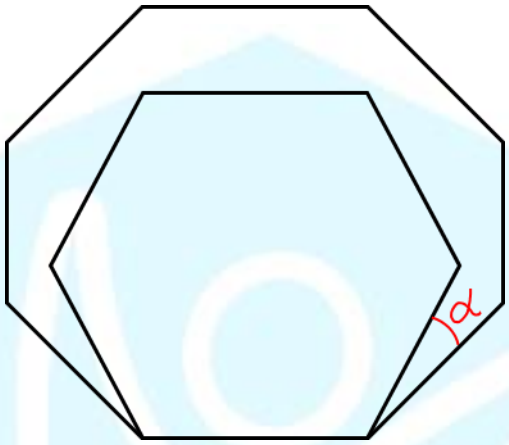


A) $\sqrt{3}$
B) 2
C) $\sqrt{6}$
D) $2\sqrt{3}$

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

14. Agar rasmda muntazam sakkizburchak va muntazam oltiburchak tasvirlangan bo'lsa, α burchakni toping.

A) 20°
B) 15°
C) 45°
D) 75°



15. $f(x) = |x^2 + 3x + 2|$ va $g(x) = -x - 1$ funksiyalar bilan chegaralargan soha yuzini toping.

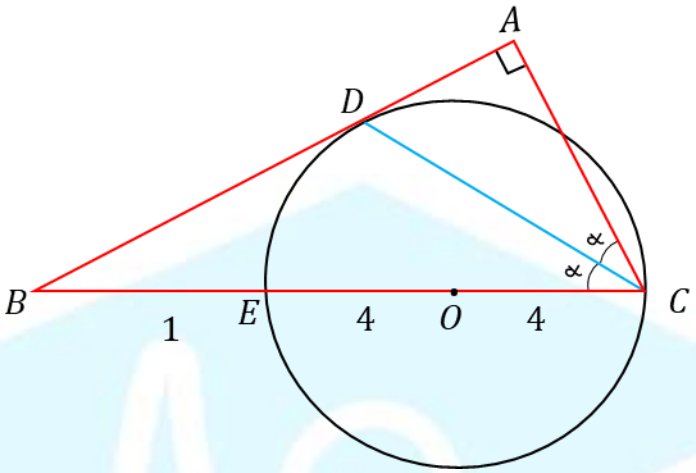
A) 1
B) $\frac{1}{2}$
C) $\frac{3}{2}$
D) 4

16. Agar $f(x) = |\log_{\cos x} \sin x - \ln\pi|$ bo'lsa $f'\left(\frac{\pi}{4}\right)$ ni toping.

A) $\log_2 e$
B) $-4\log_2 e$
C) $-4\log_4 e$
D) $4\log_2 e$

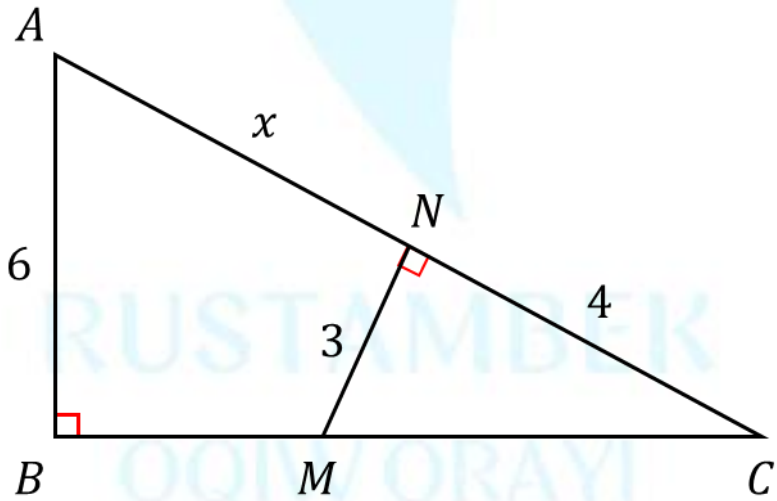
17. ABC to'g'ri burchakli uchburchakka aylana shunday chizilganki, aylana AB katetga urinib shu katet qarshisidagi burchakdan o'tadi. Aylana markazi O nuqta BC gipotenuzada

joylashgan, aylana gipotenuzani E nuqtada kesib o'tadi. Agar $BE = 1$, $OC = 4$ va $\angle BCD = \angle ACD$ bo'lsa, O nuqtadan DC tomongacha bo'lgan masofani toping.



A) $\frac{2\sqrt{10}}{5}$
B) $\frac{3\sqrt{10}}{5}$
C) $\frac{4\sqrt{10}}{5}$
D) $\frac{\sqrt{10}}{5}$

18. Agar ABC va MNC uchburchaklar to'g'ri burchakli uchburchaklar va $AB = 6$, $MN = 3$, $NC = 4$ bo'lsa, x ning qiymatini toping.



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

19. Rombning bir uchi aylana markazida qolgan uchlari esa aylanada yotadi. Agar shu aylanaga tashqi chizilgan muntazam uchburchak yuzi $48\sqrt{3}$ bo'lsa, rombning yuzini toping.
A) 8
B) 16

C) $4\sqrt{3}$
D) $8\sqrt{3}$

20. Tenglamaning ildizlari ko'paytmasini toping.

$$\frac{4\log_{16}^2 x+\frac{1}{2}}{\log_{16} x-\frac{1}{4}}(\log_2 x-1)-\log_2 x=8$$

A) 8
B) $\frac{1}{2}$
C) 2
D) 1

21. Tenglama nechta haqiqiy ildizga ega?
$(x+1)^{2023}+(x+1)^{2022}\cdot(x-2)+(x+1)\cdot(x-2)^2+\cdots+(x+1)\cdot(x-2)^{2022}+(x-2)^{2023}=0$
A) 2023
B) 2024
C) 2
D) 1

22. Tengsizlikni butun ildizlari yig'indisini toping.

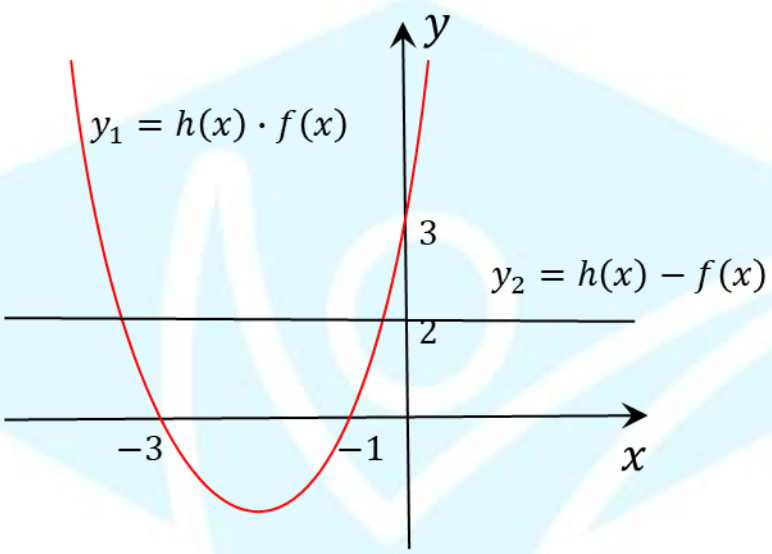
$$\frac{x+1}{(x-2)^2}\cdot\sqrt{6+5x-x^2}\geq 0$$

A) 18
B) 19
C) 20
D) 21

23. Agar $\sin a+\cos a=\frac{2}{\sqrt{5}}$ bo'lsa, $\frac{\sin^4 a}{\cos^2 a}+\frac{\cos^4 a}{\sin^2 a}=?$
A) 97
B) 100
C) 101
D) 98

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

24. $h(x) = kx + l$ va $f(x) = mx + n$ bo'lsa, $\frac{k+l}{m+n}$ =?



A) 1
B) 2
C) 3
D) 4

25. Tengsizlikni yeching: $3^x - 3^{x-1} - 2^{x+2} + 2^{x-3} + 2^{x-1} \geq 0$
A) 4
B) $(4; \infty)$
C) $[4; \infty)$
D) $[5; \infty]$

26. Tengsizlikni yeching: $5\sqrt[4]{x} - \sqrt{x} - 6 \leq 0$
A) $[0; 16] \cup [27; \infty)$
B) $[0; 16) \cup [81; \infty)$
C) $[0; 16] \cup [81; \infty)$
D) $[81; \infty)$

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

27. $P(0;1)$ nuqtani 3 radianga burishdan hosil bo'lgan nuqta qaysi chorakda yotadi?
A) II
B) III
C) I
D) IV

28. $O(12;5)$ nuqta aylana markazi va aylana Ox o'qiga urinadi. Aylana radiusini toping?
A) 12
B) 13
C) 7
D) 5

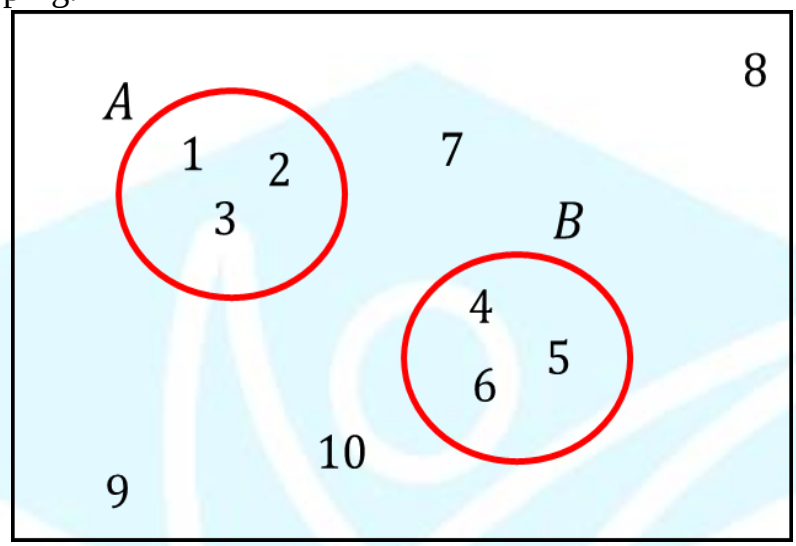
29. Hisoblang: $\frac{(\sqrt{22}-2)\sqrt{26+2\sqrt{88}}}{9}$
A) 9
B) 1
C) 2
D) 0,5

30. Hadlari 1,3,7,13,21 ..... shu tartibda ketgan ketma-ketlikni ikkita ketma-ket hadlari ayirmasi, hadlari 2,4,6,8 ... ga teng bo'lgan arifmetik progressiyani tashkil qiladi. Berilgan ketma-ketlikning nechanchi hadi 4033 ga teng?
A) 61
B) 62
C) 63
D) 64

31. 0,1,2,4,8,9 raqamlari yordamida raqamlari takrorlanmaydigan uch xonali sonlar hosil qilindi. Bular ichidan tanlangan bir sonning toq bo'lishi ehtimolini toping.
A) $\frac{10}{23}$
B) $\frac{8}{25}$
C) $\frac{4}{25}$

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

32. Quyida universal to'plam ichida A va B to'plamlar berilgan. $(A \cup B)' \cup A$ qism to'plamlari sonini toping.



A) 32
B) 64
C) 128
D) 256

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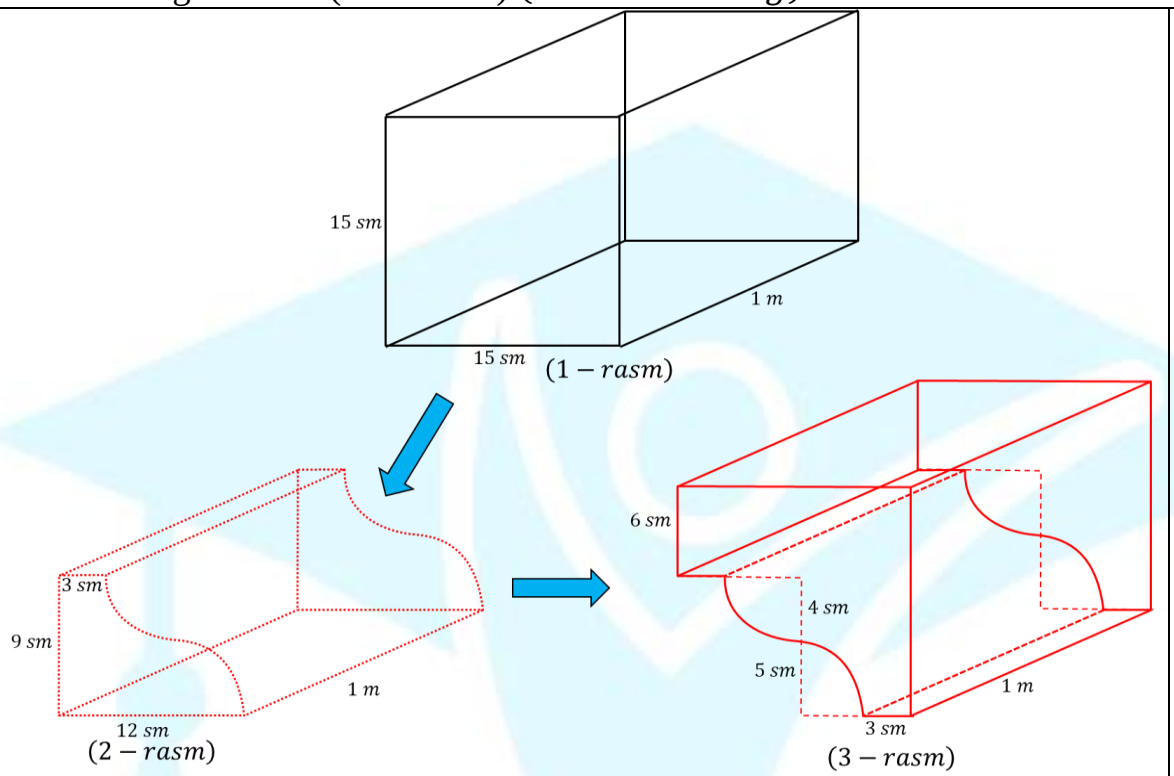
Topshiriqlar (33-35) va javob variantlari (A-F) ni o'zaro moslashtiring.

Quyida to'g'ri parallelepipeddan qirqib olingan karniz tasvirlangan. Chizmadagi ma'lumotlarga asosan $(3-rasm)$ $(\pi \approx 3\ deb\ oling)$



A) 155,25

B) 15525

C) 15825

D) 58,605

E) 56,805

F) 125625

33. O'q kesimi yuzini toping. (sm^2)

34. To'la sirti yuzini toping. (dm^2)

35. Hajmini toping. (sm^3)

36. $(x^2-2x+k)^2+3x(x^2+2x+k)=30x^2$ tenglama berilgan. Tenglama yagona ildizga ega bo'ladigan k ning qiymati k_1 bo'lsin. Tenglama ikkita, uchta va to'rtta ildizga ega bo'ladigan k ning qiymati eng katta qiymatlari mos ravishda k_2 $k_3 k_4$ lar bo'lsin.

a) Tenglama yechimga ega bo'lmaydigan k ning eng kichik butun qiymatini toping.

Javob: a)_____

b) $k_1 \cdot k_3(k_2+k_4)$ ning qiymatini toping.

Javob: b)_____

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

37. $\sqrt{6x-5-x^2}\cdot\left(\cos 2x-\frac{1}{2}\right)=0$ tenglamani yeching.

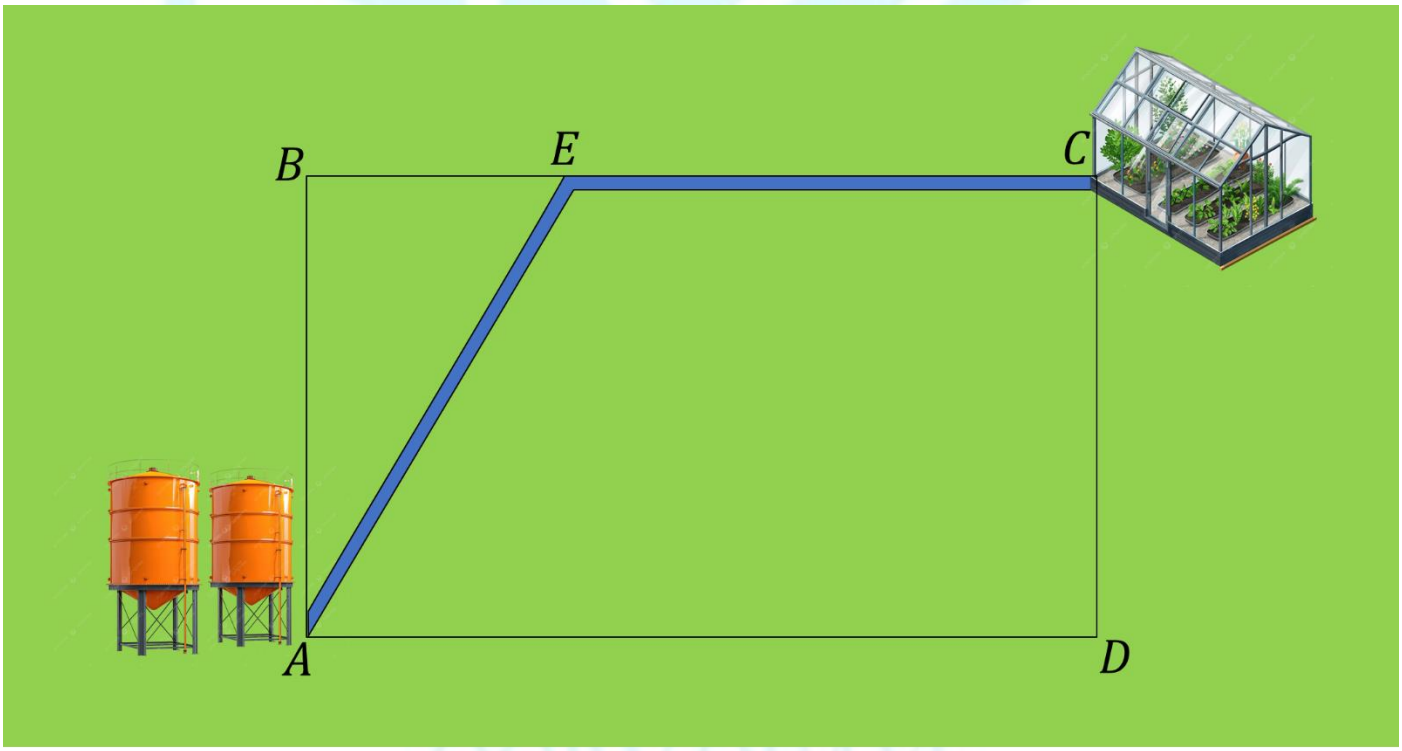
a) Tenglama nechta haqiqiy ildizga ega?

Javob: a)_____

b) Tenglamaning eng kichik musbat haqiqiy ildizini toping.

Javob: b)_____

38. ABCD to'g'ri to'rtburchak shaklidagi yerning A nuqtasida suv ombori va C nuqtasida issiqxona tasvirlangan. Suv omboridan issiqxonaga A dan E orqali C nuqtaga suv olib borish uchun AE yo'l bo'yicha soatiga $3\ m$, EC yo'l bo'yicha esa soatiga $5\ m$ tezlikda ariq qazilmoqda. Bunda $AB=30\ m, BC=80\ m$.



a) Agar ariq o'tkazish uchun eng minimal vaqt sarflangan bo'lsa, suv omboridan issiqxonagacha bo'lgan ariqni qazish uchun qancha vaqt sarflangan?

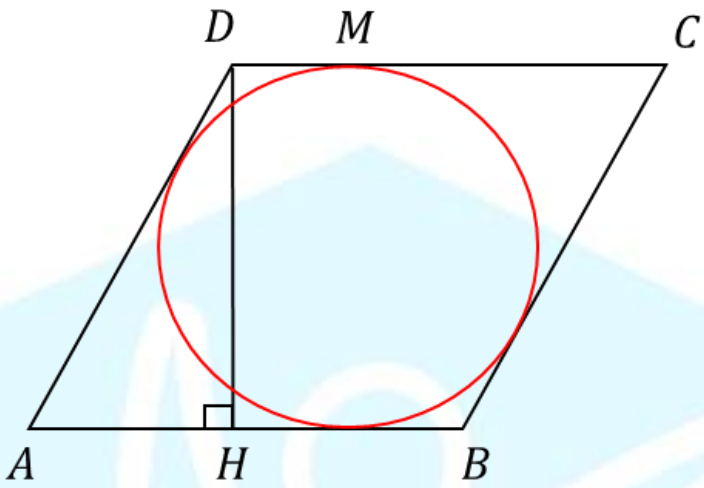
Javob: a)_____

b) Ariq qazish minimal vaqtda bajarilgan bo'lsa, EC ariq uzunligini toping.

Javob: b)_____

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

39. ABCD rombning AB tomonini DH balandlik $AH:HB = 3:2$ nisbatda bo'ladi. Rombga DC tomoniga M nuqtada urinuvchi doira ichki chizilgan.



a) Romb yuzining doira yuziga nisbatini toping ($\pi \approx 3$ *deb oling*).

Javob: a)_____

b) $|CM|:|MD|$ nisbatni toping.

Javob: b)_____

40. Silindrga muntazam oltiburchakli piramida ichki chizilgan. Piramida uchi silindr yuqori asosida, piramida asosi silindr asosida joylashgan. Silindr va piramida yon sirtlarining nisbati $\frac{\sqrt{2}\pi}{3}$ ga teng.

a) Silindr va piramida hajmlarining nisbatini toping.

Javob: a)_____

b) Piramida apofemasi asos tekisligi bilan qanday burchak tashkil qiladi?

Javob: b)_____

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

41. $f(x) + 4f\left(\frac{1}{x}\right) = \frac{1}{x}$ funksional tenglama berilgan.

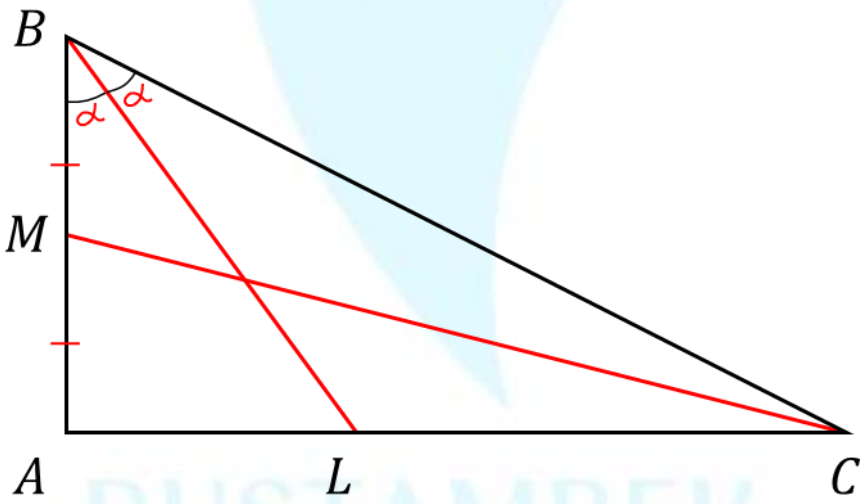
a) $f\left(\frac{1}{2}\right)$ ning qiymatini toping.

Javob: a)_____

b) $f(x)$ funksiya grafigiga $x_0 = 1$ nuqtada o'tkazilgan uirnmaning burchak koeffitsiyentini toping.

Javob: b)_____

42. To'g'ri burchakli uchburchakda CM mediana va BL bissektrisa. Bunda $BL = \frac{8}{\sqrt{3}}, BC = 8$ ga teng.



a) Kichik katet uzunligini toping.

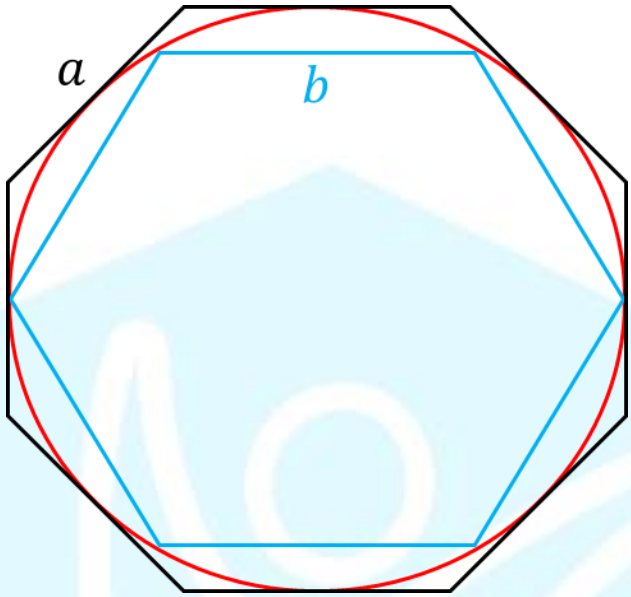
Javob: a)_____

b) CM mediana uzunligini toping.

Javob: b)_____

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

43. Muntazam sakkizburchakka aylana, aylanaga muntazam oltiburchak ichki chizilgan. Sakkizburchak tomoni $\boldsymbol{a}$ ga, oltiburchak tomoni $\boldsymbol{b}$ ga teng.



a) $\frac{\boldsymbol{a}}{\boldsymbol{b}}$ **nisbatni toping.**

Javob: a)_____

b) Muntazam oltiburchak yuzi $3\sqrt{6}+3\sqrt{3}$ **ga teng bo'lsa, sakkizburchak yuzini toping.**

Javob: b)_____

44. $f(x)=\sqrt{4-x^2}+2$ funksiya berilgan.

a) Koordinatalar boshidan funksiya grafigigacha bo'lgan eng qisqa masofani toping.

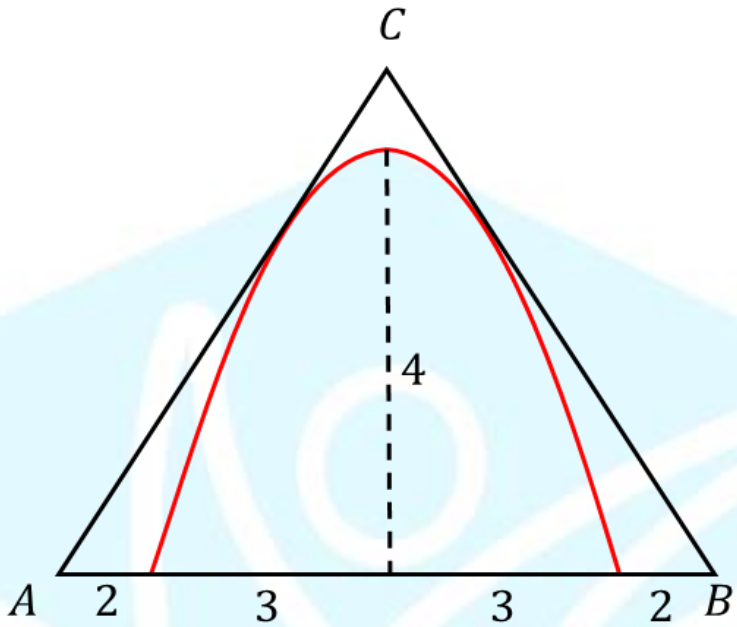
Javob: a)_____

b) $\int_0^2 \boldsymbol{f(x)dx}$ **integralni hisoblang.**

Javob: b)_____

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

45. ABC uchburchak shakldagi konsert maydonini qurish uchun ABC uchburchak shaklidagi qismiga beton quyildi hamda uning parabola shaklidagi qismi taxta bilan qoplandi.



a) Qanday yuzadagi taxta ishlatilgan?

Javob: a)_____

b) Beton bilan qoplangan ABC uchburchak shakldagi sahnani yuzini toping. Javob:

Javob: b)_____

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MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

04.12.2022
KALITLARI

T/R	Yopiq
1	B
2	A
3	A
4	A
5	B
6	D
7	A
8	B
9	A
10	B
11	C
12	B
13	B
14	C
15	A
16	A
17	C
18	D
19	A
20	C
21	D
22	A
23	B
24	A
25	D
26	D
27	C
28	B
29	C
30	A
31	B
32	B
33	A
34	B
35	C

T/R	a, b	Ochiq test
36	a)	6
	b)	9,1
37	a)	$\frac{\pi}{6}$
	b)	3
38	a)	-1
	b)	$3,5$
39	a)	16
	b)	1
40	a)	14
	b)	$\frac{100}{3}$
41	a)	$\frac{3\sqrt{6}}{4}$
	b)	$\frac{\sqrt{6}}{2}$
42	a)	12
	b)	25
43	a)	$\frac{7}{25}$
	b)	$\frac{7}{4}$
44	a)	$3\sqrt{2}$
	b)	54π
45	a)	6
	b)	10 %

RUSTAMBEK OQIW ORAYI

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

19.02.2023
KALITLARI

T/R	Yopiq
1	B
2	D
3	C
4	A
5	A
6	D
7	D
8	D
9	D
10	B
11	B
12	C
13	D
14	A
15	B
16	A
17	D
18	D
19	C
20	D
21	D
22	C
23	C
24	D
25	B
26	A
27	C
28	D
29	A
30	D
31	A
32	B
33	D
34	C
35	B

T/R	a, b	Ochiq test
36	a)	6
	b)	5
37	a)	5
	b)	$log_2 25$
38	a)	-9
	b)	4
39	a)	15
	b)	8
40	a)	3
	b)	$\frac{128}{5}$
41	a)	$2\sqrt{6}$
	b)	3
42	a)	72
	b)	12π
43	a)	1
	b)	$\frac{25\sqrt{3}}{4}$
44	a)	6
	b)	12
45	a)	36
	b)	716

RUSTAMBEK OQIW ORAYI

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

24.12.2023
KALITLARI

T/R	Yopiq
1	A
2	C
3	A
4	B
5	D
6	C
7	B
8	A
9	C
10	B
11	A
12	D
13	C
14	C
15	D
16	B
17	A
18	D
19	B
20	B
21	A
22	C
23	A
24	B
25	D
26	A
27	C
28	D
29	B
30	C
31	C
32	D
33	C
34	E
35	A

T/R	a, b	Ochiq test
36	a)	1
	b)	13,6
37	a)	-20^0
	b)	11
38	a)	$[-1;3]$
	b)	$[0;0,5]$
39	a)	-6
	b)	10
40	a)	-1
	b)	24
41	a)	$\frac{7\sqrt{11}}{8}$
	b)	1,5
42	a)	12
	b)	$192\sqrt{6}$
43	a)	3
	b)	32
44	a)	24
	b)	108
45	a)	9
	b)	243

RUSTAMBEK OQIW ORAYI

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

28.04.2024 yil
KALITLARI

T/R	Yopiq
1	B
2	E
3	A
4	D
5	C
6	B
7	C
8	B
9	B
10	C
11	D
12	A
13	B
14	B
15	C
16	A
17	C
18	D
19	C
20	C
21	B
22	A
23	A
24	A
25	B
26	B
27	B
28	C
29	D
30	A
31	C
32	A
33	C
34	A
35	D

T/R	a, b	Ochiq test
36	a)	7
	b)	12
37	a)	$\frac{\pi}{12}$
	b)	$-\frac{\pi}{6}$
38	a)	2
	b)	0
39	a)	9 ta
	b)	16 ta
40	a)	$\frac{4}{5}$
	b)	$-\frac{1}{5}$
41	a)	26
	b)	$16\sqrt{105}$
42	a)	2
	b)	$\sqrt{2}$
43	a)	24
	b)	1
44	a)	48π
	b)	36π
45	a)	4
	b)	36

RUSTAMBEK OQIW ORAYI

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

12.10.2024

1-VARIANT KALITLARI

T/R	Yopiq
1	C
2	B
3	A
4	D
5	B
6	A
7	C
8	C
9	C
10	C
11	A
12	C
13	B
14	D
15	A
16	C
17	A
18	B
19	C
20	D
21	D
22	C
23	B
24	C
25	A
26	B
27	A
28	D
29	D
30	A
31	B
32	C
33	A
34	D
35	F

T/R	a, b	Ochiq test
36	a)	2
	b)	0
37	a)	7
	b)	$\frac{11\pi}{6}$
38	a)	-12
	b)	1
39	a)	3
	b)	6
40	a)	3
	b)	$\frac{8}{3}$
41	a)	$5\sqrt{2}$
	b)	10
42	a)	$\frac{3\sqrt{3}-2}{2}$
	b)	2
43	a)	1
	b)	15
44	a)	$\frac{2\sqrt{10}}{5}$
	b)	$\frac{2}{3}$
45	a)	$\frac{5}{8}$
	b)	150

RUSTAMBEK OQIW ORAYI

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

12.10.2024 2-variant
KALITLARI

T/R	Yopiq
1	D
2	B
3	A
4	B
5	B
6	A
7	C
8	C
9	C
10	D
11	A
12	B
13	C
14	C
15	A
16	A
17	A
18	A
19	B
20	A
21	C
22	C
23	B
24	A
25	B
26	A
27	A
28	B
29	D
30	D
31	B
32	D
33	D
34	A
35	C

T/R	a, b	Ochiq test
36	a)	$\frac{18}{11}$
	b)	1
37	a)	7
	b)	$\frac{5\pi}{3}$
38	a)	1
	b)	1
39	a)	9
	b)	24
40	a)	$\frac{1}{2}$
	b)	2024
41	a)	$\frac{13}{70}$
	b)	$\frac{57}{140}$
42	a)	$10\sqrt{3}$
	b)	$\sqrt{\frac{48}{7}}$
43	a)	126^0
	b)	102^0
44	a)	$\frac{3}{2}$
	b)	144
45	a)	$200\sqrt{11}$
	b)	66^0

RUSTAMBEK OQIW ORAYI

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

01.12.2024 yil
1-variant. KALITLARI

T/R	Yopiq
1	A
2	B
3	D
4	A
5	D
6	C
7	A
8	D
9	D
10	A
11	C
12	A
13	A
14	B
15	A
16	A
17	B
18	B
19	A
20	D
21	A
22	A
23	B
24	D
25	A
26	A
27	A
28	A
29	C
30	C
31	D
32	A
33	B
34	E
35	D

T/R	a, b	Ochiq test
36	a)	4
	b)	7
37	a)	4
	b)	1
38	a)	1
	b)	15
39	a)	-3
	b)	-5
40	a)	$2\sqrt{5}$
	b)	$\frac{4}{3}$
41	a)	$5\sqrt{2}$
	b)	5
42	a)	$20\sqrt{3}$
	b)	8
43	a)	2
	b)	1
44	a)	$\frac{1}{2}$
	b)	12
45	a)	5
	b)	750

RUSTAMBEK OQIW ORAYI

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

01.12.2024
2-variant KALITLARI

T/R	Yopiq
1	A
2	B
3	D
4	A
5	B
6	D
7	C
8	C
9	B
10	D
11	A
12	B
13	C
14	B
15	B
16	C
17	B
18	C
19	C
20	D
21	B
22	B
23	C
24	C
25	D
26	A
27	C
28	C
29	C
30	A
31	C
32	A
33	B
34	D
35	E

T/R	a, b	Ochiq test
36	a)	21
	b)	-37
37	a)	18
	b)	2 ta
38	a)	5
	b)	1 ta
39	a)	96
	b)	69
40	a)	1
	b)	-2021
41	a)	3
	b)	$2\sqrt{2}+3$
42	a)	$45°$
	b)	70
43	a)	$\frac{9}{50}$
	b)	$\frac{2}{5}$
44	a)	4
	b)	12
45	a)	0,8
	b)	2,5

RUSTAMBEK OQIW ORAYI

MILLIY SERTIFIKATDA TUSHGAN ORIGINAL TEST SAVOLLARI

01.12.2024
3-variant KALITLARI

T/R	Yopiq
1	A
2	D
3	C
4	B
5	C
6	A
7	B
8	C
9	A
10	D
11	B
12	C
13	C
14	B
15	A
16	D
17	A
18	C
19	D
20	C
21	D
22	A
23	A
24	B
25	C
26	C
27	B
28	D
29	C
30	D
31	B
32	C
33	A
34	D
35	B

T/R	a, b	Ochiq test
36	a)	7
	b)	225
37	a)	4
	b)	1
38	a)	24
	b)	57,5
39	a)	$\frac{5}{3}$
	b)	4
40	a)	$\frac{2\pi}{\sqrt{3}}$
	b)	$45°$
41	a)	0
	b)	$\frac{1}{3}$
42	a)	4
	b)	$2\sqrt{13}$
43	a)	$2\sqrt{2}-2$
	b)	16
44	a)	$2\sqrt{2}$
	b)	$\pi+4$
45	a)	16
	b)	$22\frac{2}{9}$

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@AzamatTengelov
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Qoraqalpog'iston Respublikasi Qo'ng'irot tumani
Rustambek oqiw orayi