

O'ZBEKISTON RESPUBLIKASI
XALQ TA'LIMI VAZIRLIGI
RESPUBLIKA TA'LIM MARKAZI

ALGEBRA

FANIDAN UZVIYLASHTIRILGAN O'QUV DASTURI

ASOSIDA NAZORAT ISHLARINI O'TKAZISH BO'YICHA

METODIK TAVSIYALAR

9 - sinf



Algebra fanidan 8 – sinf uchun taqvim - mavzu reja

(haftasiga 3 soatdan, jami 102 soat)

Darslar tartibi	Bo'lim va mavzular	Soat	Dars turi, dars uslubi	Uyga vazifa
	I chorak	27		
1	7-8 sinflar “Algebra” kursida o'rganilgan mavzularni takrorlash	1		
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	I bob. Kvadrat funksiya	12		
4	Kvadrat funksiyaning ta'rif	1		
5	$y = x^2$ funksiya	1		
6	$y = ax^2$ funksiya	1		
7	$y = ax^2$ funksiya	1		
8	$y = ax^2 + bx + c$ funksiya	1		
9	$y = ax^2 + bx + c$ funksiya	1		
10	Kvadrat funksiyaning grafigini yasash	1		
11	Kvadrat funksiyaning grafigini yasash	1		
12	Kvadrat funksiyaning grafigini yasash	1		
13	Mashklar yechish	1		
14	1 - nazorat ishi	1		
15	Mashklar yechish	1		
	II bob. Kvadrat tengsizliklar	11		
16	Kvadrat tengsizlik va uning yechimi	1		
17	Kvadrat tengsizlik va uning yechimi	1		
18	Kvadrat tengsizlikni kvadrat funksiya grafigi yordamida yechish	1		
19	Kvadrat tengsizlikni kvadrat funksiya grafigi yordamida yechish	1		

20	Kvadrat tengsizlikni kvadrat funksiya grafigi yordamida yechish	1		
21	Intervalar usuli.	1		
22	Intervalar usuli.	1		
23	Intervalar usuli.	1		
24	Mashklar yechish	1		
25	2 - nazorat ishi	1		
26	Mashklar yechish			
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27	Butun ko'rsatkichli daraja	1		
	II chorak	21		
28	Natural ko'rsatkichli darajaning arifmetik ildizi	1		
29	Arifmetik ildizning xossalari	1		
30	Arifmetik ildizning xossalari	1		
31	Ratsional ko'rsatkichli daraja	1		
32	Ratsional ko'rsatkichli daraja	1		
33	Sonli tengsizliklarni darajaga ko'tarish	1		
34	Sonli tengsizliklarni darajaga ko'tarish	1		
35	Mashklar yechish	1		
36	3 - nazorat ishi	1		
37	Mashklar yechish	1		
	IV bob. Darajali funksiya	10		
38	Funksiyaning aniqlanish sohasi	1		
39	Funksiyaning o'sishi va kamayishi	1		
40	Funksiyaning juftligi va toqligi	1		
41	$y = \frac{k}{x}$ funksiya	1		
42	$y = \frac{k}{x}$ funksiya	1		
43	Daraja qatnashgan tengsizlik va tenglamalar	1		
44	Daraja qatnashgan tengsizlik va tenglamalar	1		
45	Mashklar yechish	1		
46	4 - nazorat ishi	1		
47	Mashklar yechish	1		
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49	Burchakning radian o'lchovi	1		
50	Nuqtani koordinatalar boshi atro-fida burish	1		
51	Nuqtani koordinatalar boshi atro-fida burish	1		
52	Burchakning sinus, kosinus, tangens va kotangensi ta'riflari	1		
53	Burchakning sinus, kosinus, tangens va kotangensi ta'riflari	1		
54	Burchakning sinus, kosinus, tangens va kotangensi ta'riflari	1		
55	Mashklar yechish	1		
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59	Ayni bir burchakning sinusi, kosinusi, tangensi va kotangensi orasidagi asosiy munosabatlar	1		
60	Ayni bir burchakning sinusi, kosinusi, tangensi va kotangensi orasidagi asosiy munosabatlar	1		
61	Trigonometrik ayniyatlar	1		
62	Trigonometrik ayniyatlar	1		
63	α va $-\alpha$ burchakning sinusi, kosinusi, tangens va kotangensi	1		
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65	6 - nazorat ishi	1		
66	Mashklar yechish	1		
67	Qo'shish formulalari	1		
68	Qo'shish formulalari	1		
69	Ikkilangan burchakning sinusi va kosinusi	1		
70	Ikkilangan burchakning sinusi va kosinusi	1		
71	Keltirish formulalari	1		
72	Keltirish formulalari	1		
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74	7 - nazorat ishi	1		
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79	Arifmetik progressiya	1		
80	Arifmetik progressiya	1		
81	Arifmetik progressiya dastlabki n ta hadining yig'indisi	1		
82	Arifmetik progressiya dastlabki n ta hadining yig'indisi	1		
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84	Geometrik progressiya	1		
85	Geometrik progressiya dastlabki n ta hadining yig'indisi	1		
86	Geometrik progressiya dastlabki n ta hadining yig'indisi	1		
87	Geometrik progressiya dastlabki n ta hadining yig'indisi	1		
88	8 - nazorat ishi	1		
89	Mashklar yechish	1		
90	Cheksiz kamayuvchi geometrik progressiya	1		
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92	Amaliy masalalar yechish	1		
93	Amaliy masalalar yechish	1		
94	Mashklar yechish	1		
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97	Kvadrat funktsiya	1		
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100	Progressiyalar	1		
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74	7 - nazorat ishi	1		
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	VI bob. Progressiyalar	19		
76-77	Arifmetik progressiya	2		
78	Arifmetik progressiya dastlabki n ta hadining yig'indisi			
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79-80	Arifmetik progressiya dastlabki n ta hadining yig'indisi			
81-82	Geometrik progressiya	2		
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86	Mashklar yechish	1		
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88	Mashklar yechish	1		
89-90	Cheksiz kamayuvchi geometrik progressiya	2		
91	Amaliy masalalar yechish	1		
92	Mashklar yechish	1		
93	9 - nazorat ishi	1		
94	Mashklar yechish	1		
	Takrorlash. Masala va misollar yechish.	8		
95	Kvadrat funktsiya	1		
96	Kvadrat tengsizliklar	1		
97	Ratsional ko'rsatkichli daraja	1		
98	Darajali funktsiya	1		
99	Trigonometriya elementlari	1		
100	Progressiyalar	1		
101	10 - nazorat ishi	1		
102	Yakunlovchiy dars	1		

I CHORAK
Algebra 9 - sinf
1 – nazorat ishi
I variant

1. Parabola uchining koordinatalarini toping: $y = -2x^2 + 8x - 13$.
2. Kvadrat funksiyaning nollarini toping: $y = -9x + 7x^2$.
3. Parabolaning koordinata o'qlari bilan kesishish nuqtalarining koordinatalarini toping: $y = -x^2 + 4x - 3$.
4. Erkin tushayotgan jism birinchi 4 sekundda bosib o'tgan yo'lni $H = \frac{gt^2}{2}$, formula bo'yicha hisoblash mumkin, bu yerda $g = 9,8m/sek^2$. Chuqurlikka tushayotgan toshning birinchi 5 sekundda bosib o'tadigan masofani toping.
5. Ikki sonning yig'indisi 14 ga teng. Bu sonlarning ko'paytmasi qanday eng katta qiymatga ega bo'lishini aniqlang.

II variant

1. Parabola uchining koordinatalarini toping: $y = 2x^2 + 12x + 15$
2. Kvadrat funksiyaning nollarini toping: $y = 6x - 5x^2$.
3. Parabolaning koordinata o'qlari bilan kesishish nuqtalarining koordinatalarini toping: $y = -x^2 + 4x + 5$
4. Erkin tushayotgan jism birinchi 4 sekundda bosib o'tgan yo'lni $H = \frac{gt^2}{2}$, formula bo'yicha hisoblash mumkin, bu yerda $g = 9,8m/sek^2$. Chuqurlikka tushayotgan toshning birinchi 10 sekundda bosib o'tadigan masofani toping.
5. Ikki sonning yig'indisi 14 ga teng. Bu sonlarning ko'paytmasi qanday eng kichik qiymatga ega bo'lishini aniqlang.

2 – nazorat ishi
I variant

1. Ko'paytuvchilarga ajrating: $x^2 - 12x + 35$.
2. Tengsizlikni yeching: a) $2x^2 - 13x + 6 < 0$; b) $x^2 - 9 > 0$
3. Tengsizlikni intervallar usuli bilan yeching: a) $(x+8)(x-4) > 0$;
b) $\frac{x-5}{x+7} < 0$

4. Uzunligi 180 m devor bilan o'rash mumkin bo'lgan to'g'ri to'rtburchak shaklidagi eng katta yer maydoninig yuzini toping.
5. To'g'ri tortburchakning bir tomoni ikkinchisidan 5 m katta, yuzi esa 300 m^2 dan katta. Shu to'g'ri to'rtburchakning katta tomoni qanday uzunlikda bo'lishi mumkin?

II variant

1. Ko'paytuvchilarga ajrating: $x^2 - 18x + 45$.
2. Tengsizlikni yeching: a) $2x^2 - x - 15 > 0$; b) $x^2 - 16 < 0$.
3. Tengsizlikni intervallar usuli bilan yeching: a) $(x+11)(x-9) < 0$;
b) $\frac{x+3}{x-8} > 0$.
4. To'g'ri burchakli to'rtburchak shaklidagi yer maydonining bir tomoni tosh devordan iborat. Uni 120 m li devor bilan o'rash kerak. Bu yer maydonining mumkin bo'lgan eng katta yuzini toping.
5. To'g'ri burchakli uchburchakning bir kateti ikkinchisidan 10 sm ga qisqa, yuzi esa 408 sm^2 dan oshmaydi. Kichik katetining uzunligi qanday bo'lishi mumkin.

II CHORAK

3 – nazorat ishi

I variant

1. Hisoblang: a) $2 \cdot 2^{-3}$; b) $\left(\frac{1}{4}\right)^{-2} \cdot 4$; d) $\frac{(3^{-2})^3 \cdot 27^2}{3}$.
2. Ifodaning qiymatini toping: a) $5\sqrt[4]{16} - 0,2\sqrt[3]{-0,027} + \sqrt[5]{1}$;
b) $\sqrt[5]{32 \cdot 0,00001}$; d) $\frac{\sqrt[4]{243}}{\sqrt[4]{3}}$.
3. Ifodaning qiymatini toping: $\sqrt[3]{2-\sqrt{3}} \cdot \sqrt[3]{2+\sqrt{3}}$.
4. to'g'ri burchakli uchburchakning bir kateti ikkinchisidan 1 dm ga kichik. Bu uchburchakning yuzi 10 dm^2 . Uchburchak gipotenuzasining uzunligi qiymatini 0,1 dm aniqlikda toping.
5. Yuzasi 600 m^2 bo'lgan to'g'ri to'rtburchak shaklidagi yer maydonini sport o'yinlari uchun jihozlashga kirishildi. Maydon atrofini metal setka bilan orab, ichida yana shunday setka bilan ikkita bir hil to'g'ri to'rtburchakli maydonchalar ajratildi. Eng kam miqdorda metal setka ketishi uchun maydonning o'lchamlari qanday bo'lishi kerak?

II variant

1. Hisoblang : a) $5 \cdot 5^{-2}$; b) $\left(\frac{1}{2}\right)^{-2} \cdot 4$; d) $\frac{(2^{-2})^4 \cdot 16^2}{2^3}$.
2. Ifodaning qiymatini toping: a) $3\sqrt[3]{-27} - 0,1\sqrt[4]{81} - \sqrt{1}$;
b) $\sqrt[4]{16 \cdot 0,0001}$; d) $\frac{\sqrt[4]{324}}{\sqrt[4]{4}}$.
3. Ifodaning qiymatini toping: $\sqrt[5]{2 - \sqrt{5}} \cdot \sqrt[5]{2 + \sqrt{5}}$
4. Rombning bitta diagonalini ikkinchisidan 2 sm ga katta. Romb yuzi 12 sm^2 ga teng. Romb tomoni uzunligi qiymatini 0,1 sm aniqlikda toping.
5. Voleybol o'yinlari uchun yuzi 720 m^2 bo'lgan to'g'ri to'rtburchak shaklidagi maydonni ajratish ko'zda tutilmoqda. Buning uchun maydon atrofini balandligi 3 m bo'lgan metal setka bilan o'rash va balandligi 1,5 m bo'lgan setka bilan ikkita teng to'g'ri to'rtburchaklarga ajratish kerak. Maydonning o'lchamlari qanday bo'lganda o'raladigan setka narxi eng arzon bo'ladi? Bunda bir metr 3 m li setka narxi bir metr 1,5 m li setkadan ikki barobar qimmat.

4 - nazorat ishi

I variant

1. Funksiyaning aniqlanish sohasini toping: $y = \sqrt{x^2 - 4x}$.
2. Funksiyaning juft yoki toq bo'lishini aniqlang: $y = \frac{6 - x^2}{x + 2x^3}$
3. Funksiyalarning grafiklarini yasamasdan, ularning kesishish nuqtalarini toping: $y = \frac{12}{x}$ va $y = \frac{x}{3}$.
4.
$$p = \begin{cases} 2t + 20, & \text{agar } 0 \leq t < 40, \\ 100, & \text{agar } 40 \leq t < 60, \\ -\frac{2}{3}t + 140, & \text{agar } 60 \leq t \leq 150, \end{cases}$$
 formula yordamida bakdagi suv temperaturasi ($^{\circ}\text{C}$ da) vaqt t (minutlarda) funksiyasi sifatida o'zgarishi berilgan.
 $p(20)$; $p(40)$; $p(50)$; $p(60)$; $p(90)$ ni toping. $p = f(t)$ funktsiya grafigini yasang. Berilgan har bir oraliqda qaralayotgan jarayon qanday fizik ma'noga ega $[0; 40]$, $[40; 60]$, $[60; 150]$?
5. Poyezd v km/soat tezlik bilan harakatlanib, A va B shaharlar orasidagi 600 km masofani t soatda bosib o'tadi. a) v ni t orqali; b) t ni v orqali bog'lash formulalarini yozing.

II variant

1. Funksiyaning aniqlanish sohasini toping: $y = \sqrt{3x - x^2}$.
2. Funksiyaning juft yoki toq bo'lishini aniqlang: $y = \frac{-x - 4x^3}{x + x^3}$.
3. Funksiyalarning grafiklarini yasamasdan, ularning kesishish nuqtalarini toping: $y = \frac{8}{x}$ va $y = \frac{x}{2}$.
4. Velosipedchining harakat t (soatlarda) vaqtining bosib o'tgan s (km da) yo'lga bog'liqligi quyidagicha berilgan:

$$s = \begin{cases} 15t, & \text{agar } 0 \leq t < \frac{7}{6}, \\ 17,5, & \text{agar } \frac{7}{6} \leq t < \frac{3}{2}, \\ -12t + 35,5, & \text{agar } \frac{3}{2} \leq t \leq \frac{5}{2}. \end{cases}$$

$s(0)$; $s(1)$; $s(1,4)$; $s(2)$ ni toping. $s = f(t)$ funksiyaning grafigini yasang (masshtab t o'qda : 1 birlik - 6 katak; s o'qda: 10 birlik - 4 katak). Velosipedchining harakati qay tarzda amalga oshganini izohlab bering.

5. Asoslari a sm va b sm, balandligi 20 sm bo'lgan to'g'ri burchakli parallelepiped 120 sm^3 hajmga ega. b ning a ga bog'liqligi formulasini yozing. Bu funksiyaning aniqlanish sohasi qanday ?

III CHORAK

5 - nazorat ishi

I variant

1. Berilgan sonlarni 0,01 aniqlikda yozing: a) $\frac{\pi}{4}$; b) $\frac{\pi}{6}$; d) $\frac{3}{2}\pi$.
2. Sonlarni taqqoslang: a) $\frac{\pi}{2}$ va 1,5; b) π va $3\frac{1}{3}$; d) $-\frac{\pi}{2}$ va -2.
3. $\alpha = \frac{5\pi}{6}$ bo'lsa, α burchakka qo'shni burchakni radianda ifodalang.
4. Dengiz kompasining aylanasi rumblar deb ataluvchi 32 ta teng qismga bo'linadi. Bir rumbni burchakning gradus va radian o'lchovida ifodalang.
5. Teng yonli uchburchakning uchidagi burchagi 36° . Uchburchakning hamma burchaklarini radianlarda ifodalang.

II variant

1. Berilgan sonlarni 0,01 aniqlikda yozing: a) $\frac{\pi}{2}$; b) $\frac{3}{4}\pi$; d) $\frac{\pi}{3}$.
2. Sonlarni taqqoslang: a) $\frac{\pi}{2}$ va 2; b) π va $3\frac{1}{5}$; d) $-\frac{\pi}{6}$ va $-\frac{1}{2}$.
3. $\alpha = \frac{11}{12}\pi$ bo'lsa, α burchakka qo'shni burchakni radianda ifodalang.
4. Vintning parragi $3\frac{1}{5}$ ga aylandi. U qanday burchakka aylangan?
5. Teng yonli uchburchakning uchidagi burchagi 45° . Uchburchakning hamma burchaklarini radianlarda ifodalang.

6 - nazorat ishi

I variant

1. Sonning ishorasini aniqlang: $\sin 160^\circ \cos 205^\circ \tan 97^\circ$.
2. Agar $\sin \alpha = 0,6$ va $\frac{\pi}{2} < \alpha < \pi$ bo'lsa, $\cos \alpha$ va $\tan \alpha$ ni hisoblang.
3. Mashinaning vali 1 sekundda 60 ta aylanadi. Burchak tezligi necha rad/sek.
4. $R = 12$ sm li yoyning radian o'lchovi 0,75. Yoyning uzunligi qanday?
5. Hisoblang: $\sin\left(-\frac{\pi}{2}\right) - 3\cos\left(-\frac{\pi}{4}\right) + 3\sin\left(-\frac{\pi}{4}\right) - 4\sin \pi$.

II variant

1. Sonning ishorasini aniqlang: $\sin 116^\circ \cos 116^\circ \tan 197^\circ$.
2. Agar $\cos \alpha = 0,8$ va $0 < \alpha < \frac{\pi}{2}$ bo'lsa, $\sin \alpha$ va $\tan \alpha$ ni hisoblang.
3. Valning burchak tezligi 15 rad/sek. Uning bir soatdagi aylanishlar sonini toping.
4. $R = 8$ sm li yoyning radian o'lchovi 0,25. Yoyning uzunligi qanday?
5. Hisoblang: $2\sin\left(-\frac{\pi}{4}\right)\cos\left(-\frac{\pi}{4}\right) + 3\sin\left(-\frac{\pi}{2}\right) + 5\cos\left(-\frac{\pi}{6}\right)$.

7 - nazorat ishi

I variant

1. Qo'shish formulasi yordamida hisoblang:
a) $\cos 225^\circ$; b) $\sin \frac{5}{12}\pi$.
2. Ifodani soddalashtiring: $\cos \alpha \cos 2\alpha + \sin(-\alpha) \sin 2\alpha$.

3. Agar $\cos \alpha = -\frac{15}{17}$ va $\frac{\pi}{2} < \alpha < \pi$ bo'lsa, $\sin 2\alpha$ ni hisoblang.
4. Ifodani soddalashtiring: $\cos^2 \alpha - \cos 2\alpha$.
5. Ifodani soddalashtiring: $\cos(\pi - \alpha)\cos(2\pi - \alpha) + \cos^2 \alpha$.

II variant

1. Qo'shish formulasi yordamida hisoblang:

a) $\sin 75^\circ$; b) $\cos \frac{3}{4}\pi$.

2. Ifodani soddalashtiring: $\sin \alpha \cos 2\alpha - \cos(-\alpha)\sin(-2\alpha)$.
3. Agar $\cos \alpha = \frac{5}{13}$ va $0 < \alpha < \frac{\pi}{2}$ bo'lsa, $\sin 2\alpha$ ni hisoblang.
4. Ifodani soddalashtiring: $1 - 2\sin^2 \alpha + \cos 2\alpha$.
5. Ifodani soddalashtiring: $\cos(2\pi - \alpha)\cos(2\pi + \alpha) - \sin^2 \alpha$.

IV CHORAK

8 - nazorat ishi

I variant

1. Ustaxona yanvarda 106 ta mahsulot, keyingi har bir oyda avvalgisidan 12 ta ortiq mahsulot tayyorladi. Iyun oyida ustaxona nechta mahsulot tayyorlagan?
2. Jism birinchi sekundda 12m ga, keyingi har bir sekundda avvalgisidan 3 m ortiq masofaga siljidi. Yarim soatda jism qanday masofani bosib o'tgan?
3. Agar $b_7 = 256$ va $q = -2$ bo'lsa, (b_n) geometrik progressiyaning birinchi hadini toping.
4. Agar $b_7 = 72,9$ va $q = 1,5$ bo'lsa, (b_n) geometrik progressiyaning dastlabki yettita hadining yig'indisini toping.
5. Agar $\begin{cases} a_5 + a_{11} = 62 \\ a_4 - a_1 = 12 \end{cases}$ bo'lsa, (a_n) arifmetik progressiyaning birinchi hadi va ayirmasini toping.

II variant

1. Ustaxona yanvarda 106 ta mahsulot, keyingi har bir oyda avvalgisidan 12 ta ortiq mahsulot tayyorladi. Dekabr oyida ustaxona nechta mahsulot tayyorlagan?

2. Erkin tushayotgan jism birinchi t sekundda bosib o'tgan yo'lini $H = \frac{gt^2}{2}$, formula bilan topiladi, bu yerda $g \approx 9,8 \text{ m/s}^2$. Chuqurlikka tushayotgan jismning birinchi 10 sekund ichida bosib o'tgan masofani toping.
3. Agar $b_6 = 243$, $q = -3$ bo'lsa, (b_n) geometrik progressiyaning birinchi hadini toping.
4. Agar $b_5 = \frac{16}{9}$ va $q = \frac{2}{3}$ bo'lsa, (b_n) geometrik progressiyaning dastlabki yettita hadining yig'indisini toping.
5. Agar $\begin{cases} b_7 - b_1 = 30 \\ b_2 + b_{10} = 54 \end{cases}$ bo'lsa, (b_n) arifmetik progressiyaning birinchi hadi va ayirmasini toping.

9 - nazorat ishi

I variant

1. Cheksiz kamayuvchi geometrik progressiyaning yig'indisini toping:
36; 12; 4; ...;
2. Cheksiz kamayuvchi geometrik progressiyaning yig'indisi 54 ga teng. Agar $q = -\frac{1}{4}$ bo'lsa, b_1 ni toping.
3. 2 dan 92 gacha (92 ham kiradi) natural sonlar yig'indisini toping.
4. 1 dan 121 gacha barcha toq sonlar yig'indisini toping.
5. Geometrik progressiyada $q = 2$ va $S_5 = 93$. bo'lsa, b_1 va b_5 ni toping.

II variant

1. Cheksiz kamayuvchi geometrik progressiyaning yig'indisini toping:
49; 7; 1; ...;
2. Cheksiz kamayuvchi geometrik progressiyaning yig'indisi 81 ga teng. Agar $q = -\frac{1}{9}$ bo'lsa, b_1 ni toping.
3. 2 dan 102 gacha (102 ham kiradi) natural sonlar yig'indisini toping.
4. 1 dan 100 gacha barcha toq sonlar yig'indisini toping.
5. Geometrik progressiyada $q = 2$ va $S_8 = 765$. bo'lsa, b_1 va b_5 ni toping.

10 - nazorat ishi

Test

I variant

1. Qaysi funksiya kvadratik funksiya bo'ladi?

$$1) y = x + 2x^2 - 3 \quad 2) y = x^2 - x^3 \quad 3) y = 5x - 1 \quad 4) y = \sqrt{x} - x^2.$$

2. Funksiyaning nollarini toping: $y = 3x^2 - 5x + 2$.

1) 3 va 2 2) -1 va 0 3) 1 va $\frac{2}{3}$ 4) -1 va $\frac{2}{3}$.

3. To'g'ri burchakli uchburchakning katetlar yig'indisi 12 ga teng. Katetlari qanday bo'lganda uchburchakning yuzi eng katta bo'ladi.

1) 8 va 4 ; 2) 6 va 6 ; 3) 9 va 3 ; 4) 2 va 10 .

4. To'g'ri to'rtburchakning bir tomoni ikkinchisidan 5 m ga katta, uning yuzi esa $300m^2$ dan ortiq. Bu to'g'ri to'rtburchakning katta tomoni qanday uzunlikda bo'lishi mumkin?

1) 20 dan ortiq; 2) 5 dan ortiq; 3) 20 dan kichik; 4) 15 dan kichik.

5. Tengsizlikni yeching: $2x^2 - x - 1 \leq 0$.

1) $-2 \leq x \leq 2$ 2) $-\frac{1}{2} \leq x \leq 1$ 3) $x \geq 1$ 4) $0 \leq x \leq 4$

6. Ifodaning qiymatini toping: $(-2)^{-2} + 0,4^{-1} - (\sqrt{3})^0$.

1) $2,5$ 2) $1,75$ 3) $1,25$ 4) $2,25$.

7. Ifodani soddalashtiring: $\frac{m^{-3} \cdot m^2}{m^{-4}}$.

1) m^{-2} 2) m^{-3} 3) m^2 4) m^3 .

8. Ikki sonning yig'indisi 18 ga teng. Bu sonlarning ko'paytmasi qanday eng katta qiymatga ega bo'lishini aniqlang.

1) 7 2) 9 3) 6 4) 8

9. Doira yuzi $S = \pi r^2$ formula bilan hisoblanadi, bu yerda r - doira radiusi (m), $\pi \approx 3,14$; S - doira yuzi (m^2). Radiusi $6,2$ m bo'lgan doiraning yuzini toping.

1) $\approx 120,81$ 2) $\approx 122,71$ 3) $\approx 121,71$ 4) $\approx 120,71$

10. Doira yuzi $S = \pi r^2$ formula bilan hisoblanadi, bu yerda r - doira radiusi (m), $\pi \approx 3,14$, S - doira yuzi (m^2). Yuzi $107 m^2$ bo'lgan doira radiusini toping.

1) $\approx 5,8$ 2) $\approx 5,7$ 3) $\approx 5,5$ 4) $\approx 6,7$

11. Hisoblang: $\sin 80^\circ \cos 20^\circ - \cos 80^\circ \sin 20^\circ$.

1) 1 2) -1 3) $\frac{\sqrt{3}}{2}$ 4) $-\frac{\sqrt{3}}{2}$.

12. (a_n) - arifmetik progressiyada $a_1 = -3$ va $d = 0,7$. a_{11} ni toping.

1) 4 2) 5 3) 3 4) 6.

13. Agar $b_1 = -17$ va $d = 6$ bo'lsa, (b_n) arifmetik progressiyaning dastlabki to'qqizta hadining yig'indisini toping.

1) 62 2) -63 3) 65 4) 63

14. Agar $c_5 = 6$ va $c_7 = 54$ bo'lsa, (c_n) geometrik progressiyaning maxrajini toping.

1) 2 yoki -2 2) 3 yoki -3 3) 4 yoki -4 4) 4

15. Agar $c_1 = -4$ va $q = 3$ bo'lsa, geometrik progressiyaning dastlabki to'qqizta hadining yig'indisini toping.

1) 484 2) 383 3) -384 4) -484

II variant

1. Qaysi funksiya kvadratik funksiya bo'lmaydi?

1) $x + 2x^2$ 2) $y = x^2 - 1$ 3) $y = x^2 + \frac{1}{x}$ 4) $y = x^2 - x - 1$.

2. Funksiyaning nollarini toping: $y = -3x^2 - 5x - 2$.

1) -3 va -2 2) 0 va 1 3) -1 va $-\frac{2}{3}$ 4) 1 va $-\frac{2}{3}$.

3. Сумма катетов прямоугольного треугольника равна 14. Найдите катеты, при которых площадь треугольника будет наибольшей.

1) 8 и 4; 2) 6 и 8; 3) 9 и 5; 4) 7 и 7.

4. Один из катетов прямоугольного треугольника на 10 см меньше другого, а площадь треугольника не превышает 408см^2 . Какую длину может иметь меньший из катетов?

1) меньше 24 см; 2) меньше 20 см;
3) меньше 25 см; 4) меньше 23 см.

5. Tengsizlikni yeching: $5x^2 + 9x - 2 < 0$.

1) $-2 < x < 1$ 2) $-2 < x < 0,5$ 3) $-2 < x < \frac{1}{5}$ 4) $0 < x < 0,2$

6. Ifodaning qiymatini toping: $(-3)^{-2} + 0,3^{-1} - (\sqrt{5})^0$.

$$1) \frac{2}{3} \quad 2) 2\frac{1}{3} \quad 3) 1\frac{5}{9} \quad 4) 2\frac{4}{9}$$

7. Ifodani soddalashtiring: $\frac{a^{-5} \cdot a^2}{a^{-1}}$.

$$1) a^{-2} \quad 2) a^{-1} \quad 3) a \quad 4) a^2.$$

8. Ikki sonning yig'indisi 16 ga teng. Bu sonlarning ko'paytmasi qanday eng katta qiymatga ega bo'lishini aniqlang.

$$1) 6 \quad 2) 7 \quad 3) 5 \quad 4) 3$$

9. Doira yuzi $S = \pi r^2$ formula bilan hisoblanadi, bu yerda r - doira radiusi (m), $\pi \approx 3,14$; S - doira yuzi (m^2). Radiusi 8,5 m bo'lgan doiraning yuzini toping.

$$1) \approx 226,87 \quad 2) \approx 222,71 \quad 3) \approx 221,71 \quad 4) \approx 220,87$$

10. Doira yuzi $S = \pi r^2$ formula bilan hisoblanadi, bu yerda r - doira radiusi (m), $\pi \approx 3,14$, S - doira yuzi (m^2). Yuzi 286 m^2 bo'lgan doira radiusini toping.

$$1) \approx 8,52 \quad 2) \approx 9,52 \quad 3) \approx 8,52 \quad 4) \approx 6,72$$

11. Hisoblang: $\sin 33^\circ \cos 63^\circ - \cos 33^\circ \sin 63^\circ$.

$$1) 1 \quad 2) -1 \quad 3) \frac{1}{2} \quad 4) -\frac{1}{2}.$$

12. (a_n) - arifmetik progressiyada $a_1 = -18$ va $d = -0,6$. a_{26} ni toping.

$$1) 44 \quad 2) -44 \quad 3) -33 \quad 4) 33.$$

13. Agar $b_1 = -8$ va $d = 5$ bo'lsa, (b_n) arifmetik progressiyaning dastlabki to'qqizta hadining yig'indisini toping.

$$1) 104 \quad 2) 108 \quad 3) 106 \quad 4) 109.$$

14. Agar $c_6 = 25$ va $c_8 = 9$ bo'lsa, (c_n) geometrik progressiyaning maxrajini toping.

$$1) 0,6 \text{ yoki } -0,6 \quad 2) 0,3 \text{ yoki } -0,3 \quad 3) 0,4 \text{ yoki } -0,4 \quad 4) 6 \text{ yoki } -6.$$

15. Agar $c_1 = 1$ va $q = 2$ bo'lsa, geometrik progressiyaning dastlabki to'qqizta hadining yig'indisini toping.

$$1) 511 \quad 2) 512 \quad 3) 513 \quad 4) 510$$