

MATEMATIKA

mavzulashtirilgan testlar to'plami



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Ushbu testlar to'plami algebra kursini qamrab olgan bo'lib, 20 ta bo'lim, 72 ta mavzu, 185 ta variant, 3700 ta testdan iborat. Mavzulardagi testlar qiyinchilik darajasiga qarab tartiblangan. Ushbu testlar to'plami maktab o'quvchilari, abituriyentlar, o'qituvchilar, attestatsiya, milliy va xalqaro sertifikatlariga tayyorlanuvchilarga mo'ljallangan.

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2. Ratsional tenglamalar

- 1 $x^4 - 17x^2 + 16 = 0$ tenglama nechta haqiqiy yechimga ega?
A)0 B)2 C)3 D)4
- 2 $x^6 + 7x^3 - 8 = 0$ tenglamani yeching.
A)1; 2 B)-1; 2
C)-2; 1 D)-1; -2
- 3 $9x^4 - 82x^2 + 9 = 0$ tenglamaning manfiy ildizlari ko'paytmasini toping.
A) $\frac{1}{3}$ B)1 C)3 D)9
- 4 $3(x^3 - 1) = 7(x^2 - 1)$ tenglamaning ratsional yechimlari nechta?
A) \emptyset B)1 C)2 D)3
- 5 $x^2 - 4x + \frac{27}{x} - \frac{108}{x^2} = 0$ tenglama ildizlari ko'paytmasini toping.
A)-36 B)-12 C)12 D)36
- 6 $(x - 3)^3 = 2(x - 3)^2$ tenglamaning barcha haqiqiy ildizlari yig'indisini toping.
A)3 B)5 C)8 D)11
- 7 $(x - 5)(x^2 + 6x + 8) = 3x - 15$ tenglamaning ildizlari yig'indisini toping.
A)-11 B)-6 C)-1 D)5
- 8 $2x^3 - 7x^2 + 7x - 2 = 0$ tenglamaning butun bo'lmagan ildizini ko'rsating.
A) $-\frac{1}{2}$ B) $-\frac{1}{4}$ C) $\frac{1}{4}$ D) $\frac{1}{2}$
- 9 $x^2(5x - 4) = 25(5x - 4)$ tenglamaning barcha haqiqiy ildizlari ko'paytmasini toping.
A)-25 B)-20 C)16 D)20
- 10 $\frac{4}{x-1} - \frac{1}{2x-1} = \frac{x+3}{x-1}$ tenglama nechta ildizga ega?
A)0 B)1 C)2 D)3

11 $\frac{3x^2 - 10x + 3}{3x - 1} = 3x^2 - 6x - 1$ tenglamaning barcha haqiqiy ildizlari yig'indisini toping.
A) $1\frac{2}{3}$ B) 2 C) $2\frac{1}{3}$ D) 3

12 $(2x^2 - 3x - 1)^2 = (x^2 - x + 2)^2$ tenglama ildizlari yig'indisini toping.
A) $\frac{2}{3}$ B) $\frac{4}{3}$ C) 2 D) $\frac{10}{3}$

13 $(x^2 + 1)^2 = 13 - x^4$ tenglama nechta haqiqiy ildizga ega?
A) 1 B) 2 C) 3 D) 4

14 $x^3 + 3x^2 + 3x - 7 = 0$ tenglamani yeching.
A) -2 B) -1 C) 1 D) 2

15 $\frac{x^2 - 7x + 12}{x - 3} = x^2 - 7x + 11$ tenglama ildizlari yig'indisini toping.
A) 3 B) 5 C) 8 D) 11

16 $\frac{12}{2x - 3} + \frac{9}{3x + a} = \frac{3}{x - 1}$ tenglamaning ildizlaridan biri 2 ga teng bo'lsa, a ning qiymatini toping.
A) -8 B) -7 C) -6 D) -5

17 $x^2 - 18 - \frac{1}{3 - x} = \frac{1}{x - 3} - 3x$ tenglamani yeching.
A) 6; -3 B) -6; 3 C) 3 D) -6

18 $\frac{x - 2}{x - 1} + \frac{x - 1}{x - 2} = 2\frac{1}{2}$ tenglama ildizlarining kvadratlari yig'indisini toping.
A) 4 B) 9 C) 13 D) 25

19 $x^4 - 9x^2 + 14 = 0$ tenglamaning eng katta va eng kichik ildizlari ko'paytmasini toping.
A) -7 B) $-\sqrt{14}$ C) -2 D) $\sqrt{14}$

20 $\frac{3}{2x - 1} - \frac{1}{x - 3} = \frac{2x^2 - 8x - 4}{2x^2 - 7x + 3}$ tenglamaning barcha haqiqiy ildizlari yig'indisini toping.
A) $3\frac{1}{3}$ B) 4 C) $4\frac{1}{2}$ D) 5

1 $x^3 - 1 = (x^2 - 3x + 2)(3x + 4)$ tenglamaning butun ildizlari yig'indisini toping.
A) -2 B) 0 C) 3 D) 4

2 $\left(\frac{3x-5}{x-4}\right)^2 + \frac{5-3x}{x-4} - 56 = 0$ tenglamaning katta ildizi x_0 bo'lsa, $\{x_0\}$ ning qiymatini toping. ($\{x\} - x$ ning kasr qismi).
A) 0,2 B) 0,4 C) 0,6 D) 0,8

3 $\frac{x^3 - 27}{x^2 - 9} = 3x + 13$ tenglamaning eng katta va eng kichik ildizlari ayirmasini toping.
A) 5,5 B) 7,5 C) 9,5 D) 11,5

4 Quyidagilardan qaysi biri $\left(x - \frac{4}{x}\right)\left(x - \frac{9}{x}\right) = (x+2)(x+3)$ tenglamaning ildizi emas?
A) -3 B) -2 C) $\frac{5}{6}$ D) $\frac{6}{5}$

5 $\left(\frac{x^2+1}{x}\right)^2 - \frac{5(x^2+1)}{x} + 6 = 0$ tenglama nechta haqiqiy ildizga ega?
A) 1 B) 2 C) 3 D) 4

6 $x^4 - 10x^3 + 25x^2 - 36 = 0$ tenglama eng katta ildizining eng kichik ildiziga nisbatini toping.
A) -6 B) -3 C) 2 D) 3

7 $(x+3)^4 - 3(x+3)^2 - 4 = 0$ tenglamaning haqiqiy ildizlari ko'paytmasini toping.
A) -8 B) 5 C) 8 D) 40

8 $2x^2 - 3x + \frac{8}{4+3x-2x^2} = 6$ tenglama ildizlaridan nechitasi irratsional son bo'ladi?
A) 0 B) 1 C) 2 D) 3

9 $\frac{2x+1}{2x} + \frac{4x}{2x+1} = 3$ tenglamaning barcha haqiqiy ildizlari yig'indisini toping.
A) $\frac{2}{3}$ B) $\frac{5}{6}$ C) $\frac{1}{2}$ D) $\frac{4}{3}$

10 $(x^2 - 3x)^2 - 2x^2 + 6x - 8 = 0$ tenglama nechta butun ildizga ega?
A) 1 B) 2 C) 3 D) 4

- 11 $x^2 - 3x + \frac{8}{x^2 - 3x - 2} = 8$ tenglamaning eng kichik ildizini toping.
A) -3 B) $\frac{3 - \sqrt{33}}{2}$
C) -1 D) $\frac{-3 - \sqrt{33}}{2}$
- 12 $(x^2 - 4x + 3)(x^2 - 4x + 7) = 77$ tenglamaning barcha haqiqiy ildizlari ko'paytmasini toping.
A) -56 B) -5 C) -4 D) 4
- 13 $\left(\frac{x-5}{x-4}\right)^3 = \left(\frac{x-5}{x-4}\right)^2$ tenglamaning haqiqiy ildizlari nechta?
A) 0 B) 1 C) 2 D) 3
- 14 $\left(\frac{3x}{x+1}\right)^4 - 3\left(\frac{3x}{x+1}\right)^2 - 4 = 0$ tenglamaning kichik ildizi x_0 bo'lsa, $[x_0]$ ning qiymatini toping. (bu yerda $[x] - x$ ning butun qismi)
A) -2 B) -1 C) 0 D) 2
- 15 $x^{18} = (x+2)^9$ tenglama ildizlari x_1 va x_2 bo'lsa, $x_1^3 + x_2^3$ ning qiymatini toping.
A) -7 B) 5 C) 7 D) 9
- 16 $(4x-3)^{100} = (3x-2)^{100}$ tenglamaning butun bo'lmagan ildizini ko'rsating.
A) $-\frac{5}{7}$ B) $-\frac{1}{7}$ C) $\frac{1}{7}$ D) $\frac{5}{7}$
- 17 $\frac{x+5}{x} - \frac{3x}{2x+10} = -\frac{5}{2}$ tenglama katta ildizining kichik ildiziga nisbatini toping.
A) $-\frac{2}{25}$ B) $\frac{1}{8}$ C) 8 D) 12,5
- 18 a ning $\frac{x^2 - x - 6}{x^2 - a} = 0$ tenglama bitta yechimga ega bo'ladigan qiymatlari yig'indisini toping.
A) 1 B) 5 C) 10 D) 13
- 19 $(x^2 - 6x)^2 - 3(x - 3)^2 - 1 = 0$ tenglamaning butun ildizlari nechta?
A) \emptyset B) 1 C) 2 D) 4
- 20 $27x^3 - 21x^2 - 14x + 8 = 0$ tenglamaning kichik ildizini toping.
A) $-\frac{2}{3}$ B) $-\frac{4}{9}$ C) $\frac{4}{9}$ D) \emptyset

1 $\frac{x-3}{4} + \frac{x-4}{3} = \frac{8}{x-3} + \frac{6}{x-4}$ tenglamaning ildizlari yig'indisini hisoblang.

A)0 B) $\frac{25}{7}$ C)7 D) $\frac{74}{7}$

2 $\left(x^2 + \frac{16}{x^2}\right) + 10\left(x - \frac{4}{x}\right) - 47 = 0$ tenglamaning kichik ildizi qaysi oraliqqa tegishli?

A)(-15; -14) B)(-14; -13)
C)(-13; -12) D)(-12; -11)

3 Tenglama nechta haqiqiy yechimga ega? $\frac{1}{1 - \frac{1}{1 - \frac{1}{1 - x^2}}} = 16x$

A)0 B)1 C)2 D)3

4 $x^3 - 3x^2 - 2x + 8 = 0$ tenglamaning butun bo'lmagan musbat ildizini toping.

A) $\frac{\sqrt{17}+1}{2}$ B) $\frac{\sqrt{17}-1}{2}$
C) $\frac{\sqrt{13}+1}{2}$ D) $\frac{\sqrt{13}-1}{2}$

5 $x^2 + \frac{1-4x}{x^2-2x} = 1$ tenglama nechta haqiqiy ildizga ega?

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

6 $4x^4 - 3x^3 + 2x^2 - 5x + 2 = 0$ tenglama nechta manfiy ildizga ega?
A)0 B)1 C)3 D)4

7 $\frac{x^2}{2x-3} + \frac{2x}{x^2-3} + 2 = 0$ tenglama nechta haqiqiy yechimga ega?
A)0 B)1 C)2 D)4

8 a, b natural sonlar uchun $(x^2 + 7x + 2)^2 + 2x^3 + 4x = 10x^2$ tenglamaning ildizlaridan biri $\frac{-a + \sqrt{b}}{2}$ bo'lsa, $a^2 - b$ ning qiymatini toping.
A)2 B)4 C)6 D)8

9 $(x^2 - x)(x^2 + 3x + 2) = 3$ tenglamaning haqiqiy ildizlari yig'indisini toping.
A)-3 B)-2 C)-1 D)0

10 $\frac{1}{x^2 - 3x + 2} + \frac{2}{x^2 - 4x + 3} + \frac{1}{x^2 - 5x + 4} + \dots + \frac{2}{x^2 - 101x + 100} = \frac{1}{x-1} + \frac{1}{x-2} + \dots + \frac{1}{x-100} + 1$ tenglamani yeching.
A)-101 B)-100
C)-99 D)-98

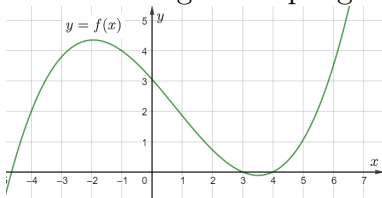
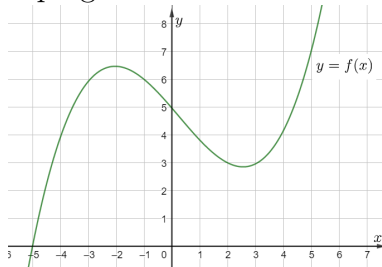
- 11 $(x^2 - 4x + 6)(x^4 - 8x^2 + 20) = 8$ tenglama ildizi x_0 soni bo'lsa, $40x_0$ sonining natural bo'luvchilar sonini toping.
A)8 B)10 C)12 D)15
- 12 $x^4 + (x + 2)^4 = 272$ tenglamaning eng katta va eng kichik ildizlari ayirmasini toping.
A)6 B)7 C)8 D)9
- 13 $x^4 - 8x^3 + 7x^2 + 36x - 36 = 0$ tenglamaning eng katta va eng kichik ildizlari ayirmasini toping.
A)5 B)7 C)8 D)9
- 14 $(x - a)^3 + (a - b)^3 = (x - b)(a - b)^2$ tenglamaning yechimlari yig'indisini toping.
A)a B)3a C)2a - b D)3a - b
- 15 $(x^2 - x - 6)^3 + (2x^2 - x - 1)^3 = (3x^2 - 2x - 7)^3$ tenglamaning barcha haqiqiy ildizlari ko'paytmasini toping.
A)-42 B)-7 C)7 D)42
- 16 $\frac{1}{x-1} + \frac{1}{x-2} + \frac{1}{x-3} + \frac{1}{x-4} = 0$ tenglamaning irratsional ildizlari ko'paytmasini toping.
A)-5 B)5 C)7,5 D)12,5
- 17 $\frac{1}{(x-3)(x+2)} - \frac{1}{(x-2)(x+1)} = \frac{1}{15}$ tenglamaning ildizini toping.
A)-4; -3 B)-4; 3
C)-3; 4 D)3; 4
- 18 $\frac{x^2 + 1}{x} + \frac{x^2 + 6x + 1}{x + 6} = \frac{x^2 + 2x + 1}{x + 2} + \frac{x^2 + 4x + 1}{x + 4}$ tenglamaning ildizi x_0 bo'lsa, $\frac{x_0}{x_0 - 1}$ ning qiymatini toping.
A) $\frac{1}{2}$ B) $\frac{2}{3}$ C) $\frac{3}{4}$ D) $\frac{4}{5}$
- 19 $\left(\frac{x}{x-1}\right)^2 + \left(\frac{x}{x+1}\right)^2 = \frac{45}{16}$ tenglamaning irratsional ildizlarini ko'rsating.
A) $\pm \frac{3}{\sqrt{13}}$ B) $\pm \sqrt{\frac{5}{13}}$
C) $\pm \frac{2}{\sqrt{13}}$ D) $\pm \frac{1}{\sqrt{13}}$
- 20 $\frac{x^2 - 9}{x^2 + ax - 3x - 3a} = 0$ tenglama a ning qanday qiymatida yechimga ega bo'lmaydi?
A) \emptyset B)-3 C)0 D)3

Kvadrat tenglama																				
Test raqami	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1-test	D	D	D	B	B	D	C	B	B	B	C	A	A	C	C	A	D	B	C	C
2-test	D	B	D	D	C	C	B	D	C	D	B	A	A	B	B	B	B	D	A	B
3-test	C	A	D	A	C	A	B	B	D	D	B	B	C	C	B	B	B	D	C	C
Ratsional tenglamalar																				
Test raqami	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1-test	D	C	B	D	B	C	C	D	B	B	B	D	B	C	B	B	D	B	A	B
2-test	D	B	A	C	C	A	B	C	C	D	B	C	B	B	C	D	B	D	C	A
3-test	D	B	B	A	B	A	D	D	C	C	B	A	C	B	B	B	C	C	B	D
Viyet teoremasi																				
Test raqami	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1-test	D	C	C	A	C	A	B	B	C	C	B	D	C	D	B	D	B	A	C	D
2-test	C	A	D	D	C	C	D	A	C	A	A	A	A	A	B	C	C	A	D	B
3-test	D	A	C	B	B	D	C	C	A	D	C	B	C	D	A	D	D	B	C	B
4-test	C	C	A	D	B	D	B	C	C	C	C	A	B	C	A	B	D	D	C	C
Ikkinchi va undan yuqori darajali tenglamalar sistemasi																				
Test raqami	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1-test	D	C	C	B	A	B	C	C	B	C	D	B	C	B	D	B	C	A	C	C
2-test	C	A	C	B	C	A	A	C	C	D	B	B	D	A	B	B	A	C	B	A
3-test	C	B	B	C	C	D	A	C	A	D	B	C	A	D	C	D	B	B	B	C
Ko'phadlar																				
Test raqami	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1-test	D	A	C	A	D	B	D	D	C	A	C	D	C	C	A	C	B	C	B	D
2-test	B	C	C	D	D	C	A	D	C	D	D	A	D	D	D	C	D	B	D	A
3-test	A	A	A	B	B	A	A	B	B	C	A	C	D	D	D	B	C	A	D	C

Funksiyalar

1. Funksiya (1-qism)

- 1 $f(x) = \frac{5x-3}{x+4}$ bo'lsa, $f(-3)$ ning qiymatini toping.
A) -18 B) $\frac{18}{7}$ C) 12 D) 18
- 2 $f(x) = 5x^2 - 4x + 3$ bo'lsa, $f(-1) + f(2)$ ning qiymatini toping.
A) 20 B) 24 C) 27 D) 28
- 3 Juft funksiyani ko'rsating:
A) $y = 2^{x^3} + 2^{x^{-3}}$
B) $y = 5^x + 5^{-x}$
C) $y = |x^2 - 5x + 4|$
D) $y = 5x^4 + x^3$
- 4 $y = (3^x - 9)(x^3 - 8)$ funksiya nollarini toping.
A) (2; 0); (0; 64)
B) (2; 0)
C) (2; 0); (0; 72)
D) (-2; 0); (0; 64)
- 5 Toq funksiyani ko'rsating:
A) $y = x^2 + |x|$ B) $y = x^2 + \frac{1}{x}$
C) $y = x^3 - \frac{1}{\sqrt[3]{x}}$ D) $y = x^{11} + |x|$
- 6 $f(x) = x^2 + x + 6$ funksiya uchun $f(x) = f(1)$ tenglamaning yechimlari ko'paytmasini toping.
A) -2 B) 1 C) 2 D) 6
- 7 Agar $f(x) = 2^{ax} + 4$ funksiya uchun $f(2) = 12$ bo'lsa, a ning qiymatini toping.
A) 0,5 B) 1 C) 1,5 D) 2
- 8 $f(2x - 1) = x^2 + 3x - 1$ bo'lsa, $f(3)$ ning qiymatini toping.
A) 7 B) 9 C) 12 D) 13
- 9 $f(x) = \begin{cases} x^2, & x < 0 \\ x + 2, & x \geq 0 \end{cases}$ bo'lsa, $f(f(3))$ ni toping.
A) 7 B) 1 C) 9 D) 25
- 10 $f\left(\frac{x}{2} - 1\right) = \frac{x^2}{2} - 1$ bo'lsa, $f(2)$ ning qiymatini toping.
A) 1 B) 3 C) 17 D) 35

- 11** Quyidagi nuqtalardan qaysi biri $f(x) = x \left(x - \frac{1}{2}\right)$ funksiya grafigiga tegishli emas?
A) (2; 3) B) (-4; 14)
C) (3; 7, 5) D) (-1; 1, 5)
- 12** k ning qanday qiymatida $y = \frac{k}{x+3} - 2$ funksiya grafigi (-5; 1) nuqtadan o'tadi?
A) -16 B) -6 C) 6 D) 16
- 13** $f(x) = \frac{4x-2}{3x+5}$ bo'lsa, $\frac{f(-2)}{f(4)}$ ning qiymatini toping.
A) $-\frac{2}{3}$ B) $-\frac{4}{7}$ C) $\frac{16}{7}$ D) $\frac{85}{7}$
- 14** Grafikka ko'ra, $f(-4)$ ning qiymati $f(-1)$ ning qiymatidan qanchaga kichik ekanligini aniqlang.
- 
- A) 1 B) 2 C) 3 D) 4
- 15** $f(x) = 2^x + 3ax^2 + 3$ funksiya uchun $f(1) = -1$ bo'lsa, $f(2)$ ning qiymatini toping.
A) -21 B) -17 C) -11 D) 1
- 16** $f(x) = (x^2 - 1)(2^x - 4)$ funksiyaning koordinata o'qlari bilan kesishish nuqtalari koordinatalari yig'indisini toping.
A) -2 B) 1 C) 2 D) 6
- 17** $f(x) = x^2 - 2x + 1$ va $g(x) = x^3 - 5x$ bo'lsa, $g(f(2)) + f(g(2))$ ning qiymatini toping.
A) -9 B) 0 C) 5 D) 10
- 18** $f(x)$ juft funksiya, $f(-3) = 4$ va $f(7) = 2$ bo'lsa, $2f(3) + 4f(-7)$ ning qiymatini toping.
A) 0 B) 12 C) 14 D) 16
- 19** $f\left(\frac{3x-1}{2}\right) = x^2 - 2x - 3$ funksiyadan $f(4)$ ni toping.
A) 0 B) 5 C) 8 D) $\frac{55}{2}$
- 20** Funksiya grafigiga ko'ra, $(f(-1) + f(2)) \cdot f(5)$ ning qiymatini toping.
- 
- A) 48 B) 54 C) 56 D) 63

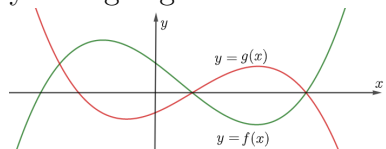
- 1 $f(x) = x^3 + 6x^2 + 12x + 8$ bo'lsa, $f(\sqrt[3]{7} - 2)$ ning qiymatini toping.
A) -7 B) 2 C) 7 D) 9

- 2 Quyidagi berilgan funksiyalardan nechtasi juft funksiya?

- 1) $f(x) = \frac{4x^8 + 3x^2}{x^6}$
 2) $f(x) = |x + 3| + |x - 3|$
 3) $f(x) = |\sqrt{x} + 2| + |\sqrt{x} - 2|$
 4) $f(x) = \frac{x^3}{x^3 - 2}$
 5) $f(x) = |x - 2| \cdot (5x^2 - 4x)$
 6) $f(x) = \sqrt{x + 4} + \sqrt{x - 4}$
 A) 1 B) 2 C) 3 D) 4

- 3 $f(x) = \begin{cases} 5x - 3; & x \geq 2 \\ x^2 - 7x + 5 & x < 2 \end{cases}$ bo'lsa, $f(-5) + f(4)$ ning qiymatini toping.
A) 17 B) 65 C) 72 D) 82

- 4 $f(x) \cdot g(x) = 0$ tenglama nechta yechimga ega?



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

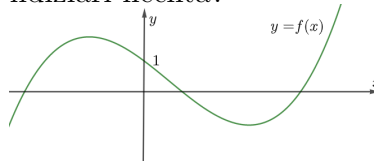
- 5 $f\left(\frac{4x-3}{2}\right) = x^2 - 5x + 1$ bo'lsa, $f\left(\frac{1}{2}\right) + f\left(\frac{5}{2}\right)$ ning qiymatini toping.
A) -8 B) -7
C) -3 D) 1

- 6 $f(x)$ juft funksiya va $5f(x) = 3f(-x) + 8x^6 + 16x^2 + 40$ bo'lsa, $f(x)$ funksiyani toping.
A) $f(x) = x^6 + 2x^2 + 5$
B) $f(x) = 4x^6 + 8x^2 + 20$
C) $f(x) = -x^6 - 2x^2 - 5$
D) $f(x) = x^6 - 2x^2 - 5$

- 7 $f(x+2) = (x+3)(x+1)$ bo'lsa, $f(2+\sqrt{3}) + f(2-\sqrt{3})$ ni hisoblang.
A) 12 B) 14
C) $8\sqrt{3}$ D) $-8\sqrt{3} - 2$

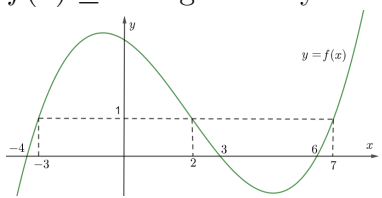
- 8 $f(x)$ funksiyaning grafigi Oy o'qiga nisbatan simmetrik. $f(2) = 5$; $f(-3) = 9$ bo'lsa, $4f(-2) + 3f(3)$ ning qiymatini toping.
A) -47 B) -7 C) 27 D) 47

- 9 $f(x) = 1$ tenglamaning musbat ildizlari nechta?



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

- 10 $f(x) = 5^x$ bo'lsa, $f(x+4) = kf(x-1)$ tenglamadan $\frac{k}{25}$ ning qiymatini toping.
A) $\frac{1}{5}$ B) 5 C) 25 D) 125

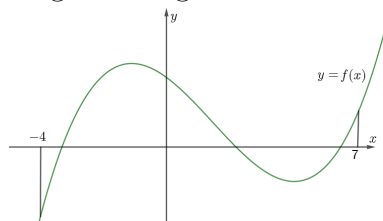
- 11 Agar $f(x+3) = 2f(x) + 5$ va $f(2) = 4$ bo'lsa, $f(8)$ ning qiymatini toping.
A)25 B)26 C)28 D)31
- 12 $f(x) = f(10) \cdot x + 36$ bo'lsa, $f(30)$ ning qiymatini toping.
A)-120 B)-84 C)36 D)126
- 13 Agar $f(x-y) = f(x) - f(y)$ va $f(12) = 18$ bo'lsa, $f(24)$ ning qiymatini toping.
A)6 B)12 C)36 D)72
- 14 $f(x) = 7x^4 + (a-2)x^3 + 4x^2 + (b-1)x + 8$ funksiya juft funksiya bo'lsa, $a+b$ ning qiymatini toping.
A)0 B)1 C)2 D)3
- 15 $f(x) \leq 1$ tengsizlikni yeching.
- 
- A) $(-\infty; -3] \cup [2; 7]$
B) $[-3; 2] \cup [7; \infty)$
C) $(-\infty; -4] \cup [6; \infty)$
D) $[-4; -3] \cup [2; 3] \cup [6; 7]$
- 16 $f(2g(x)) = x^2$ va $g(x) = x + 3$ bo'lsa, $f(8)$ ni toping.
A)1 B)4 C)16 D)25
- 17 Agar $f(x) = \begin{cases} 3x - 5, & x \geq 3 \\ x + 6, & x < 3 \end{cases}$ funksiya berilgan bo'lsa, $f(x) - 7 = 0$ tenglamaning ildizlari yig'indisini toping
A)1 B)3 C)4 D)5
- 18 $f(2x - 1) = \frac{18 - x}{7}$ va $g(3x - 1) = x^2 - 1$ bo'lsa, $f(g(2))$ ni hisoblang.
A) 2,5 B) $\frac{18}{7}$ C) 2 D) 3
- 19 $f(x) = x^2 - 12x - 21$ bo'lsa, $f(5x) = 0$ tenglama ildizlari ko'paytmasini toping.
A) 2,4 B) -2,4
C) 0,84 D) -0,84
- 20 $f(4x) = 2f(x) + 4$ va $f(3) = 5$ bo'lsa, $f(192)$ ning qiymatini toping.
A)32 B)64 C)68 D)192

1 $f\left(x + \frac{1}{x}\right) = 4x^2 + \frac{4}{x^2}$ bo'lsa, $f(3)$ ni hisoblang.
A)24 B)28 C)36 D)44

2 $f\left(\frac{x}{3}\right) = x^2 + x + 1$ bo'lsin. Ushbu $f(3z) = 7$ tenglik o'rinli bo'ladigan barcha z lar yig'indisi nechaga teng?
A) $-\frac{1}{3}$ B) $-\frac{1}{9}$ C) $\frac{5}{9}$ D) $\frac{5}{3}$

3 $f(x) = 2x^2 + 4x^2 + 6x^6 + \dots + 100x^{100}$ bo'lsa, $f(1) + f(-1)$ ning qiymatini toping.
A)2550 B)3000
C)4000 D)5100

4 $f(x)$ funksiyaning grafigi rasmda tasvirlangan. $[-4; 7]$ oraliqda $f(x) = 0$ tenglamaning ildizlari sonini aniqlang.



A)0 B)1 C)2 D)3

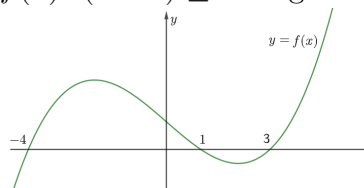
5 $f(x) = \begin{cases} -2x + 5, & x < -5 \\ 4x - 2, & x > -5 \end{cases}$ va $g(x) = x^2 - 7x$ bo'lsa, $g(x) = f(-2, 5)$ tenglamaning ildizlari kvadratlari yig'indisini toping.
A)7 B)9 C)16 D)25

6 $f(x)$ funksiya uchun $f(x+2) = 2f(x)$ munosabat o'rinli bo'lsa, $\frac{f(10)}{f(2)} + \frac{f(20)}{f(8)}$ ni hisoblang.
A) 160 B) 144 C) 96 D) 80

7 $f(x) \begin{cases} x^2 - 2, & |x| > 3 \\ 3x - 2, & |x| \leq 3 \end{cases}$ U holda $f(-5) + f(1)$ ni toping.
A) 24 B) 22 C) -16 D) -18

8 $f(x) = 2^x - 1$ bo'lsa, $f(1) + f(2) + \dots + f(9)$ ning qiymatini toping.
A)1013 B)1014
C)1022 D)1023

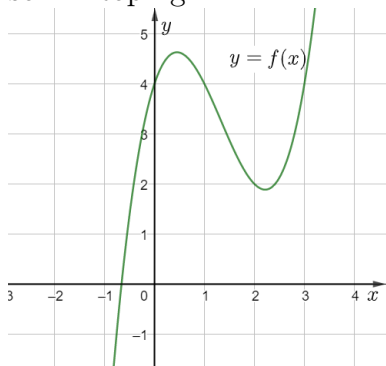
9 $f(x) \cdot (x - 2) \leq 0$ tengsizlikni yeching.



A) $(-\infty; -4] \cup [1; 2]$
B) $[-4; 2]$
C) $[-4; 1] \cup [2; 3]$
D) $[1; 2] \cup \{3; -4\}$

10 $f(x+y) = f(x) \cdot f(y)$ va $f(5) = 7$ bo'lsa, $f(15)$ ning qiymatini toping.
A)14 B)35 C)49 D)343

- 11 Berilgan funksiya grafigiga ko'ra $f(f(x)) = 4$ tenglamaning yechimlari sonini toping.



- A)5 B)7 C)8 D)9

- 12 Agar $f(x) = \begin{cases} 16^x & x \leq 1 \\ x + 2 & 1 < x \leq 2 \\ \frac{1}{x} & x > 2 \end{cases}$ bo'lsa, $f(f(f(\dots(f(2))\dots)))$ ning

80 ta qiymatini toping.

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

- 13 Agar $f(x) = \frac{1}{x^2 + 5x + 6}$ bo'lsa, $f(1) + f(2) + f(3) + \dots + f(97)$ ning qiymatini toping.

- A) $\frac{97}{300}$ B) $\frac{33}{100}$ C) $\frac{197}{300}$ D) $\frac{97}{100}$

- 14 Agar $f(x) = \frac{4^x}{4^x + 2}$ bo'lsa, $f\left(\frac{1}{7}\right) + f\left(\frac{6}{7}\right) + f\left(\frac{1}{9}\right) + f\left(\frac{8}{9}\right)$ ning qiymatini toping.

- A)1 B)2 C)4 D)6

- 15 $f\left(\frac{3x-3}{2x+1}\right) = 1 - x + x^2 - x^3 + \dots + x^{96} - x^{97}$ bo'lsa, $f(6)$ ni toping.

- A) 1 B) 0 C) 97 D) 98

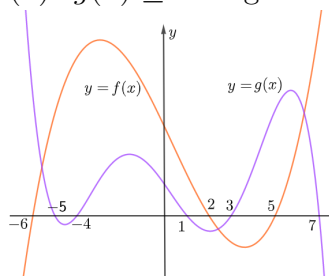
- 16 $f\left(\frac{x}{y}\right) = \frac{5f(x)}{3f(y)}$ va $f(4) = 5$ bo'lsa, $f(16)$ ning qiymatini toping.
A)5 B)15 C)25 D)75

- 17 Agar $f(x+1) = 2f(x) + 1$ va $f(1) = 1$ bo'lsa, $f(105)$ ning qiymatini toping.
A) $2^{104} - 1$ B) $2^{104} + 1$ C) $2^{105} - 1$ D) $2^{105} + 1$

- 18 $f(x)$ juft va $g(x)$ toq funksiya berilgan. Agar $f(2) = 4$, $g(3) = -2$ va $h(x) = \frac{f(g(x))}{g(x) + f(x-1)}$ bo'lsa, $h(3)$ ni hisoblang.
A)-2 B)-1 C)1 D)2

- 19 Agar $f(x) = \frac{1}{e^x + 1}$ funksiya berilgan bo'lsa, u holda $M = \frac{f(1) \cdot f(2) \cdot \dots \cdot f(100)}{f(-1) \cdot f(-2) \cdot \dots \cdot f(-100)}$ ning qiymatini toping.
A) e^{4950} B) e^{-4950} C) e^{5050} D) e^{-5050}

- 20 $f(x) \cdot g(x) \geq 0$ tengsizlikni yeching.



- A) $[-6; -5] \cup [-4; 1] \cup [5; 7]$
B) $[-6; 2] \cup [5; 7]$
C) $[-6; -5] \cup [-4; 1] \cup [2; 3] \cup [5; 7]$
D) \emptyset