Matematika 5. 07. 2019

1. 12345...110111 shu sonni hosil qilishda nechta raqam ishtirok etgan?
A) 153 B) 10 C) 9 D) 225

2. 12345...110111112 shu sonni hosil qilishda nechta raqam ishtirok etgan?
A) 156 B) 10 C) 9 D) 228

3. 12345...110111 shu sonni hosil qilishda nechta turli raqam ishtirok etgan?
A) 153 B) 10 C) 9 D) 225

4. 0; 1; 2; 3; 4 raqamlaridan iborat uch xonali sonlar nechta?
A) 100 B) 125 C) 96 D) 120

5. 1; 2; 3; 4; 5 raqamlaridan iborat uch xonali sonlar nechta?
A) 100 B) 125 C) 96 D) 120

6. 0; 1; 2; 3; 4; 5; 6 raqamlaridan iborat uch xonali sonlar nechta?
A) 180 B) 125 C) 96 D) 240

7. Bilimlar bellashuvida hakamlar hay'ati to'rt kishidan iborat bo'lib, ular ishtirokchilarni faqat "1" yoki "0" kabi baholasa, u holda bitta ishtirokchining necha xil usulda baholanishini aniqlang.
A) 16 B) 24 C) 32 D) 4

8. Bilimlar bellashuvida hakamlar hay'ati besh kishidan iborat bo'lib, ular ishtirokchilarni faqat "1" yoki "0" kabi baholasa, u holda bitta ishtirokchining necha xil usulda baholanishini aniqlang.
A) 16 B) 25 C) 32 D) 120

9. $A = \{a, b, c, d, e, f\}$ to'plamda nechta d element qatnashgan qism to'plami mavjud?
A) 16 B) 64 C) 32 D) 8

10. $A = \{a, b, c, d, e, f\}$ elementli to'plamning nechta qism to'plamida b element bo'lib, c element qatnashmaydi?
A) 16 B) 28 C) 32 D) 8

11. $A = \{a, b, c, d, e, f\}$ elementli to'plamning nechta qism to'plamida c va d elementlar qatnashmaydi?
A) 16 B) 4 C) 32 D) 8

12. $A = \{a, b, c, d\}$ elementli to'plamning nechta qism to'plamida b va c elementlar qatnashadi?
A) 2 B) 8 C) 16 D) 4

13. $A = \{0,1,2,5,6,7,9\}$ va $B = \{1,4,8,9\}$ to'plamlar berilgan bo'lsa, $A \cup B$ to'plamning xos qism to'plamlari sonini toping.
A) 128 B) 2 C) 256 D) 254

14. $A = \{x \mid x = 2n, n \in N\}$ va $B = \{x \mid x = 2n + 1, n \in N\}$ bo'lsa, $A \cup B$ ni toping.
A) N B) Z C) $N\backslash\{1\}$ D) $\emptyset$

15. $A = \{x \mid x = 2n, n \in N\}$ va $B = \{x \mid x = 2n + 1, n \in N\}$ bo'lsa, $A \cap B$ ni toping.
A) N B) Z C) $N\backslash\{1\}$ D) $\emptyset$

16. 1 dan 126 gacha sonlar ichidan nechtasi 2 va 7 ga bo'linmaydi?
A) 36 B) 72 C) 63 D) 54

17. 1 dan 135 gacha sonlar ichidan nechtasi 3 va 5 ga bo'linmaydi?
A) 36 B) 72 C) 63 D) 54

18. 1 dan 200 gacha sonlar ichidan nechtasi 5 va 7 ga bo'linmaydi?
A) 137 B) 53 C) 147 D) 154

19. 324; 255 va 71 sonlarining har birini qanday natural songa bo'lganda qoldiqlari bir xil bo'ladi?
A) 31 B) 19 C) 23 D) 43

20. 128^{143} sonini 5 ga bo'lgandagi qoldiqni toping.
A) 1 B) 2 C) 3 D) 4

21. 433^{333} sonini 5 ga bo'lgandagi qoldiqni toping.
A) 1 B) 2 C) 3 D) 4

22. 233^{233} sonini 5 ga bo'lgandagi qoldiqni toping.
A) 1 B) 2 C) 3 D) 4

23. 373^{373} sonini 5 ga bo'lgandagi qoldiqni toping.
A) 1 B) 2 C) 3 D) 4

24. $999^{2^{888^{999}}}$ sonning oxirgi raqamini toping.
A) 1 B) 7 C) 3 D) 9

25. $888^{2^{999^{888}}}$ sonning oxirgi raqamini toping.
A) 2 B) 4 C) 6 D) 8

26. Bir nechta natural sonlarning yig'indisi 44 ga teng. Agar shu sonlarning har biri 2 ga orttirilib, yig'indi hisoblansa 62 ga teng bo'ladi. Dastlab yig'indida nechta son qatnashgan?
A) 9 B) 10 C) 7 D) 8

27. Bir nechta natural sonlarning yig'indisi 52 ga teng. Agar shu sonlarning har biri 2 ga orttirilib, yig'indi hisoblansa 72 ga teng bo'ladi. Dastlab yig'indida nechta son qatnashgan?
A) 9 B) 10 C) 7 D) 8

28. Ikki sonning yig'indisi ularning ayirmasidan 50% ga ortiq bu sonlar kvadratlarining yig'indisi ularning ko'paytmasidan necha foizga ko'p?
A) 420 B) 100 C) 546 D) 740

29. Natural a va b sonlar uchun $a^2 - b^2 = 49$ tenglik o'rinli bo'lsa, $3a - 2b$ ning qiymatini toping.
A) 36 B) 27 C) 18 D) 37

30. Natural a va b sonlar uchun $a^2 - b^2 = 25$ tenglik o'rinli bo'lsa, $2a - b$ ning qiymatini toping.
A) 10 B) 12 C) 14 D) 17

31. Natural a va b sonlar uchun $a^2 - b^2 = 9$ tenglik o'rinli bo'lsa, $2a - 3b$ ning qiymatini toping.
A) 2 B) -7 C) -2 D) 1

32. Natural n va m sonlar uchun $(n-m)(n+m) = 25$ tenglik o'rinli bo'lsa, $n + 2m$ ning qiymatini toping.
A) 36 B) 37 C) 27 D) 38

33. Hisoblang: $NBS\big(EKUB(911;\ 659;\ 647+367)\big)$
A) 1 B) 2 C) 3 D) 4

34. Hisoblang: $EKUK(NBS(144);51))$
A) 510 B) 255 C) 3 D) 85

35. Ifodani soddalashtiring:
$3a - \Big(5a - \big(3a - (2a+b)\big)\Big)$.
A) $a+b$ B) $-a-b$ C) $-a+b$ D) $a-b$

36. Ifodani soddalashtiring:
$5a - \Big(4a - \big(3a - (2a-b)\big)\Big)$.
A) $2a+b$ B) $a+b$
C) $-a+b$ D) $2a-b$

37. Ifodani soddalashtiring:
$\frac{1}{a(a-b)(a-c)} + \frac{1}{b(b-a)(b-c)} + \frac{1}{c(c-a)(c-b)}$.
A) 1 B) $-\frac{1}{abc}$ C) $\frac{1}{abc}$ D) -1

38. Ifodani soddalashtiring:
$\frac{1}{a(a-b)(c-a)} + \frac{1}{b(a-b)(b-c)} + \frac{1}{c(c-a)(b-c)}$.
A) 1 B) $-\frac{1}{abc}$ C) $\frac{1}{abc}$ D) -1

39. Ifodani soddalashtiring:
$\frac{a+b}{a^{\frac{2}{3}} - a^{\frac{1}{3}}b^{\frac{1}{3}} + b^{\frac{2}{3}}} - \frac{a-b}{a^{\frac{2}{3}} + a^{\frac{1}{3}}b^{\frac{1}{3}} + b^{\frac{2}{3}}}$
A) $2\sqrt[3]{b}$ B) $\sqrt[3]{ab}$ C) $2\sqrt[3]{a}$ D) $\sqrt[3]{a} + \sqrt[3]{b}$

40. Ifodani soddalashtiring:
$\frac{\left(\sqrt{a}-\sqrt{b}\right)^3 + 2a^2 : \sqrt{a}+b\sqrt{b}}{a\sqrt{a}+b\sqrt{b}} + \frac{3\sqrt{ab}-3b}{a-b}$.
A) $3\sqrt{ab}$ B) 1 C) 3 D) -3

41. Ifodani soddalashtiring:
$\frac{\left(\sqrt{a}+\sqrt{b}\right)^3 + 2a^2 : \sqrt{a}-b\sqrt{b}}{a\sqrt{a}-b\sqrt{b}} - \frac{3\sqrt{ab}+3b}{a-b}$.
A) $3\sqrt{ab}$ B) 1 C) 3 D) -3

42. $a = 75, p = 4, q = 3$ bo'lsa, a ning $p\%$ i va q‰ ini toping.
A) 3; 0,225 B) 3; 2,25
C) 0,3; 0,225 D) 30; $\frac{9}{40}$

43. Agar $a > 1$ bo'lsa, quyidagilardan qaysi biri ma'noga ega emas?
1) $\log_a \log_a \lg 5$ 2) $\log_a \log_a (a+1)$
3) $\lg \log_a \lg 5$
A) 1; 2 B) 2 C) 1; 3 D) 2; 3

44. Agar $0 < a < 1$ bo'lsa, quyidagilardan qaysi biri ma'noga ega?
A) $\log_2 \log_a \log_2 3$ B) $\log_a \log_a \log_2 3$
C) $\log_a \log_{a+1} a$ D) $\log_a \log_a \log_\pi \frac{\pi}{3}$

45. $y = \frac{2}{x} - 3$ funksiyaning qiymatlar sohasini toping.
A) $(-3;\infty)$ B) $(-\infty;-3) \cup (-3;\infty)$
C) $(-\infty;-3)$ D) $(-\infty;0) \cup (0;\infty)$

46. $y = \frac{3}{x} - 4$ funksiyaning qiymatlar sohasini toping.
A) $(-4;\infty)$ B) $(-\infty;-4) \cup (-4;\infty)$
C) $(-\infty;-4)$ D) $(-\infty;0) \cup (0;\infty)$

47. $y = \frac{4}{x} - 2$ funksiyaning qiymatlar sohasini toping.
A) $(-2;\infty)$ B) $(-\infty;-2) \cup (-2;\infty)$
C) $(-\infty;-2)$ D) $(-\infty;0) \cup (0;\infty)$

48. $y = arccos 2^x$ funksiyaning aniqlanish sohasini toping.
A) $[-1;1]$ B) $(-\infty;2]$
C) $(-\infty;0]$ D) $(-\infty;\infty)$

49. $y = arcsin 3^x$ funksiyaning aniqlanish sohasini toping.
A) $[-1;1]$ B) $(-\infty;3]$
C) $(-\infty;0]$ D) $(-\infty;\infty)$

50. $f(x) = \frac{5}{x} - \sqrt{\frac{x-2}{x(x+3)}}$ funksiyaning aniqlanish sohasini toping.
A) $(-3;0) \cup (0;\infty)$ B) $(-3;0) \cup [2;\infty)$
C) $(-\infty;-3) \cup (0;2]$ D) $(-3;0) \cup (2;\infty)$

51. Agar $f(x)$ funksiya $(-\infty;\infty)$ da aniqlangan bo'lsa, $y = 2f(x-1) - 7$ funksiya qaysi oraliqda aniqlanadi?
A) $(-\infty;\infty)$ B) $x \neq 1$
C) $(1;\infty)$ D) $(-\infty;1)$

52. Agar $f(x)$ funksiya $(-\infty;\infty)$ da aniqlangan va monoton bo'lsa, $y = 2f(x-1) - 7$ funksiya uchun quyidagilardan qaysi biri o'rinli?
A) monoton funksiya
B) kamayuvchi funksiya
C) dastlab kamayadi, so'ng o'zgarmas
D) dastlab o'sadi, so'ng o'zgarmas

53. Agar $f(x) + 2f\left(\frac{1}{x}\right) = x$ bo'lsa, $f(x)$ funksiyani toping. $(x \neq 0)$
A) $f(x) = \frac{x^2-2}{3x}$ B) $f(x) = \frac{2-x^2}{3x}$
C) $f(x) = \frac{x^2-3}{2x}$ D) $f(x) = \frac{3-x^2}{2x}$

54. Agar $f(x)+xf\left(\frac{x}{2x-1}\right)=2$ bo'lsa, $f(x)$ funksiyani toping. $\left(x\neq 1, x\neq \frac{1}{2}\right)$

A) $f(x)=\frac{4x-2}{x-1}$ B) $f(x)=\frac{4-2x}{x-1}$

C) $f(x)=\frac{2-4x}{x-1}$ D) $f(x)=\frac{2x-4}{x-1}$

55. $y=\frac{x^2}{\sqrt{x^2+5}}$ funksiyaning hosilasini toping.

A) $\frac{x^2+10x}{\sqrt{(x^2+5)^3}}$ B) $\frac{x^3+5x}{\sqrt{(x^2+5)^3}}$

C) $\frac{x^2+5x}{\sqrt{(x^2+5)^3}}$ D) $\frac{x^3+10x}{\sqrt{(x^2+5)^3}}$

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

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

57. $f(x)=\frac{x^3-8}{x^2+2x+4}$ bo'lsa, $f(2x-1)$ funksiyaning $x=0$ dagi hosilasini toping.

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

58. $f(x)=\frac{x^3-8}{x^2-2x+4}$ funksiyaning $x=0$ nuqtadagi hosilasini toping.

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

59. $f(x)=\frac{x^3-8}{x^2+2x+4}-2x+1$ funksiyaning $x=2$ nuqtadagi hosilasini toping.

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

60. $y=\frac{x^3-27}{x^2-3x+9}+3x$ funksiyada $y'(1)$ ni toping.

A) $-\frac{5}{49}$ B) $3\frac{44}{49}$ C) $-2\frac{2}{49}$ D) $2\frac{44}{49}$

61. $F'(x)=x-4$ va $F(2)=0$ bo'lsa, $F(x)$ ni toping.

A) x^2-2x B) $\frac{1}{2}x^2-4x+6$

C) $\frac{1}{2}x^2-4x+4$ D) $\frac{1}{2}x^2-4x$

62. $f(x)=2x^2-x$ funksiyaning $x=a$ nuqtadagi orttirmasini toping. Bunda $a=4$, argument orttirmasi esa, $\Delta x=0{,}1$ ga teng.

A) 1,5 B) 1 C) 1,52 D) 2

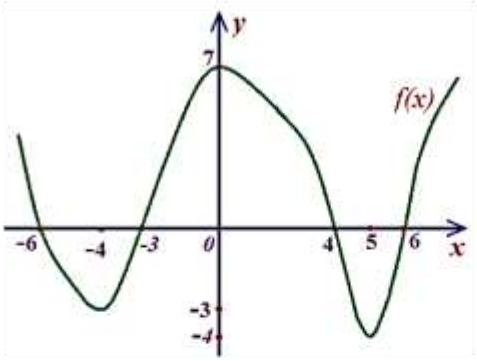
63. $f(x)=x^2-2x$ funksiyaning $x=3$ nuqtadagi orttirmasini toping. Bunda argument orttirmasi esa, $\Delta x=0{,}1$ ga teng.

A) 0,82 B) 0,41 C) 1,52 D) 0,19

64. $f(x)=-x^2+2x$ funksiyaning $x=-2$ nuqtadagi orttirmasini toping. Bunda argument orttirmasi esa, $\Delta x=0{,}1$ ga teng.

A) 0,19 B) 0,41 C) 0,49 D) 0,59

65. Chizmada $y=f(x)$ funksiya grafigi tasvirlangan. $f(x)\cdot f'(x)\geq 0$ tengsizlikni $[-6;6]$ kesmadagi yechimlarini toping.



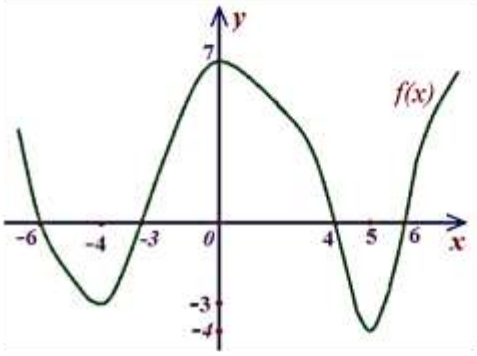
A) $\{-6\}\cup[-4;0]\cup\{4\}\cup[5;6]$

B) $[-6;-4]\cup[-3;0]\cup[4;5]\cup\{6\}$

C) $\{-6\}\cup[-4;-3]\cup[0;4]\cup[5;6]$

D) $[-6;-4]\cup\{-3\}\cup[0;5]\cup\{6\}$

66. Chizmada $y=f(x)$ funksiya grafigi tasvirlangan. $f(x)\cdot f'(x)<0$ tengsizlikni $[-6;6]$ kesmadagi yechimlarini toping.



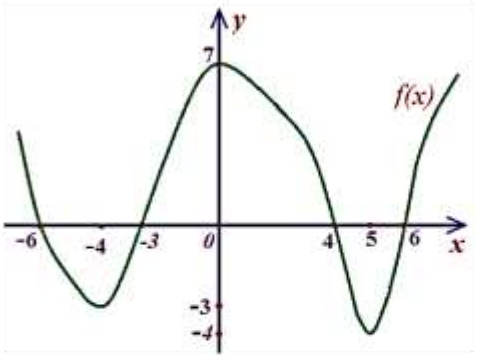
A) $(-4;0)\cup(5;6)$

B) $(-6;-4)\cup(-4;-3)\cup(4;5)\cup(5;6)$

C) $(-4;-3)\cup(0;4)\cup(5;6)$

D) $(-6;-4)\cup(-3;0)\cup(4;5)$

67. Chizmada $y=f(x)$ funksiya grafigi tasvirlangan. $\frac{f'(x)}{f(x)}>0$ tengsizlikni $[-6;6]$ kesmadagi yechimlarini toping.



A) $(-4;0)\cup(5;6)$

B) $(-6;-4)\cup(-4;-3)\cup(4;5)\cup(5;6)$

C) $(-4;-3)\cup(0;4)\cup(5;6)$

D) $(-6;-4)\cup(-3;0)\cup(4;5)$

68. $0{,}25y'=y$ tenglamani yeching.

A) $y=Ce^{4x}$ B) $y=Ce^{0{,}25x}$

C) $y=4e^{x}$ D) $y=Ce^{-4x}$

69. $0{,}5y' = y$ tenglamani yeching.
A) $y = Ce^{2x}$ B) $y = Ce^{0{,}5x}$
C) $y = 2e^{x}$ D) $y = Ce^{-2x}$

70. $v(t) = 2t^3 + 9t + 3$ tezlik tenglamasi bilan harakatlanayotgan metro tezlanishining eng kichik qiymatini toping.
A) 1,5 B) 3 C) 15 D) 9

71. $v(t) = -2t^3 + 9t + 15$ tezlik tenglamasi bilan harakatlanayotgan metro tezlanishining eng katta qiymatini toping.
A) 1,5 B) 3 C) 15 D) 9

72. $y = 9 - x^2$ egri chiziqqa absissasi $x = -3$ bo'lgan nuqtasiga o'tkazilgan urinma tenglamasini toping.
A) $y = -6x - 18$ B) $y = 6x + 18$
C) $y = 6x - 18$ D) $y = 6x + 9$

73. $\int(x^3 - cos4x)dx$ aniqmas integralni hisoblang.
A) $\frac{x^4}{4} + \frac{1}{4}sin4x + C$ B) $\frac{x^4}{4} - \frac{1}{4}sin4x + C$
C) $\frac{x^4}{4} + 4sin4x + C$ D) $\frac{x^4}{4} - 4sin4x + C$

74. $\int x^2 \sin x^3\, dx$ aniqmas integralni hisoblang.
A) $\frac{\cos x^3}{3} + C$ B) $-\frac{\cos x^3}{3} + C$
C) $\frac{\sin x^3}{3} + C$ D) $-\frac{\sin x^3}{3} + C$

75. $\int x^3 \sin x^4\, dx$ aniqmas integralni hisoblang.
A) $\frac{\cos x^4}{4} + C$ B) $-\frac{\cos x^4}{4} + C$
C) $\frac{\sin x^4}{4} + C$ D) $-\frac{\sin x^4}{4} + C$

76. $\int x^3 \cos x^4\, dx$ aniqmas integralni hisoblang.
A) $\frac{\cos x^4}{4} + C$ B) $-\frac{\cos x^4}{4} + C$
C) $\frac{\sin x^4}{4} + C$ D) $-\frac{\sin x^4}{4} + C$

77. $\int arcsinxdx$ aniqmas integralni hisoblang.
A) $x \cdot arcsinx - \sqrt{1-x^2} + C$
B) $x \cdot arcsinx + \sqrt{1-x^2} + C$
C) $x \cdot arcsinx - \frac{1}{\sqrt{1-x^2}} + C$
D) $x \cdot arcsinx + \frac{1}{\sqrt{1-x^2}} + C$

78. $\int x \cdot a^x dx$ aniqmas integralni hisoblang.
A) $\frac{x \cdot a^x}{\ln a} - \frac{a^x}{\ln^2 a} + C$ B) $\frac{x \cdot a^x}{\ln a} + \frac{a^x}{\ln^2 a} + C$
C) $\frac{a^x}{\ln a} - \frac{x \cdot a^x}{\ln^2 a} + C$ D) $\frac{x \cdot a^x}{\ln a} - \frac{x^2 \cdot a^x}{\ln^2 a} + C$

79. $\int x \cdot 3^x dx$ aniqmas integralni hisoblang.
A) $\frac{3^x}{ln3}\left(x - \frac{1}{ln3}\right) + C$ B) $x \cdot \frac{3^x}{ln3}\left(x - \frac{1}{ln3}\right) + C$
C) $\frac{3^x}{ln3}\left(x + \frac{1}{ln3}\right) + C$ D) $x \cdot \frac{3^x}{ln3}\left(x + \frac{1}{ln3}\right) + C$

80. $\int cosx \cdot e^x dx$ aniqmas integralni hisoblang.
A) $\frac{1}{2}e^x(sinx + cosx) + C$
B) $\frac{1}{2}e^x(sinx - cosx) + C$
C) $e^x(sinx + cosx) + C$
D) $e^x(sinx - cosx) + C$

81. $\int \ln(sinx)^{cosx} dx$ aniqmas integralni hisoblang.
A) $sinx \cdot \ln sinx + sinx + C$ B) $\ln sinx + C$
C) $sinx \cdot \ln sinx - sinx + C$ D) $\ln cosx + C$

82. Aniq integralni hisoblang: $\int_{-1}^{1}(tgx + sinx)dx$.
A) π B) 0 C) 2 D) 1

83. Aniq integralni hisoblang: $\int_{-\pi}^{\pi}|sin2x|dx$.
A) π B) 8 C) 2 D) 4

84. Aniq integralni hisoblang: $\int_{-\pi}^{\pi}|cos2x|dx$.
A) π B) 8 C) 2 D) 4

85. Aniq integralni hisoblang: $\int_0^2 xe^{x^2}dx$.
A) $\frac{e^4-1}{4}$ B) $\frac{e^4-1}{2}$ C) $\frac{e^2-1}{2}$ D) $\frac{e^4-2}{2}$

86. Aniq integralni hisoblang: $\int_1^2 e^{-4lnx}dx$.
A) $\frac{5}{24}$ B) $-\frac{7}{24}$ C) $\frac{7}{24}$ D) $\frac{11}{24}$

87. Aniq integralni hisoblang: $\int_1^2 e^{-2lnx}dx$.
A) 0,5 B) 0,25 C) -1 D) 1

88. Aniq integralni hisoblang: $\int_0^1 \sqrt{x\sqrt{x\sqrt{x}}}dx$
A) $\frac{1}{3}$ B) $\frac{3}{15}$ C) $\frac{8}{15}$ D) $\frac{7}{8}$

89. Agar $16 - 3\left(2x - 3\left(2 - 3(1 - 3x)\right)\right) = 82$ tenglama ildizi x_0 bo'lsa, $x_0^2 - 6$ ning qiymatini aniqlang.
A) -5 B) -7 C) 5 D) -1

90. Agar $16 - 3\left(2x + 3\left(2 - 3(1 + 3x)\right)\right) = 100$ tenglama ildizi x_0 bo'lsa, $x_0^2 - 6$ ning qiymatini aniqlang.
A) -5 B) -7 C) 5 D) -1

91. Agar $xy = 9$ va $x + y = 7$ bo'lsa, $(4 - x^2)y + (4 - y^2)x$ ning qiymatini aniqlang.
A) -35 B) -7 C) 35 D) 91

92. Agar $xy = -2$ va $x + y = 3$ bo'lsa, $(5 - 4x^2)y + (5 - 4y^2)x$ ning qiymatini aniqlang.
A) -39 B) -9 C) 9 D) 39

93. Agar $xy = -2$ va $x + y = 3$ bo'lsa, $(5 - 3x)^2y + (5 - 3y)^2x$ ning qiymatini aniqlang.
A) -141 B) 99 C) -99 D) 141

94. Agar $xy = -2$ va $x + y = 3$ bo'lsa, $(5 - 4x)^2y + (5 - 4y)^2x$ ning qiymatini aniqlang.
A) -181 B) 139 C) -139 D) 181

95. Agar $sinxcosx = -0{,}25$ va $1{,}6 < x < 3{,}1$ bo'lsa, $cosx - sinx$ ning qiymatini toping.
A) $\sqrt{1{,}5}$ B) $\sqrt{2}$ C) $-\sqrt{1{,}5}$ D) $-\sqrt{2}$

96. Agar $sinxcosx = -0{,}345$ va $1{,}6 < x < 3{,}1$ bo'lsa, $sinx - cosx$ ning qiymatini toping.
A) 1,3 B) $-1{,}3$ C) $\pm 1{,}3$ D) 0,69

97. $cosx = -\sqrt{0{,}2}$ bo'lsa, $\sin\left(\frac{3\pi}{2} - 2x\right)$ ni hisoblang.
A) 0,6 B) $-0{,}6$ C) 0,8 D) $-0{,}8$

98. $\frac{1+sin2x}{sinx+cosx} - \frac{1-tg^2\frac{x}{2}}{1+tg^2\frac{x}{2}}$ ifodaning $x = 5°$ bo'lgandagi qiymatini toping.
A) $sin10°$ B) $sin20°$ C) $sin5°$ D) $sin15°$

99. Ifodani soddalashtiring:
$sin\,\alpha\, cos^3\,\alpha + cos\,\alpha\, sin^3\,\alpha.$
A) $sin2\alpha$ B) $\frac{1}{2}sin2\alpha$ C) $\frac{1}{4}sin4\alpha$ D) $\frac{1}{2}sin4\alpha$

100. Ifodani soddalashtiring:
$sin\,3\alpha\, cos^3\,\alpha + cos\,3\alpha\, sin^3\,\alpha.$
A) $sin4\alpha$ B) $\frac{3}{4}sin2\alpha$
C) $\frac{3}{4}sin4\alpha$ D) $\frac{3}{2}sin4\alpha$

101. Ifodani soddalashtiring:
$\frac{\sin(2y+x)+\sin(2y-x)}{\sin x-\sin(2y-x)} \cdot \frac{tgy-tgx}{tgy}$
A) -2 B) -1 C) 1 D) 2

102. Ifodani soddalashtiring:
$\frac{\sin(2x+y)+\sin(2x-y)}{\sin(2x+y)+\sin y} \cdot \frac{tgy+tgx}{tgx}$
A) -1 B) 1 C) 2 D) -2

103. Ifodani soddalashtiring:
$\frac{\sin(4x+y)+\sin(4x-y)}{\sin y-\sin(4x-y)} \cdot \frac{tgy-tg2x}{tg2x}$
A) -2 B) -1 C) 1 D) 2

104. Irratsionallikdan qutqaring:
$\frac{\sqrt{13}-4}{\sqrt{\sqrt{13}-3}+1} - \frac{\sqrt{13}-12}{\sqrt{\sqrt{13}-3}-3}.$
A) 4 B) -2 C) 2 D) -4

105. Irratsionallikdan qutqaring:
$\frac{\sqrt{21}-4}{\sqrt{\sqrt{21}-3}-1} - \frac{\sqrt{21}-12}{\sqrt{\sqrt{21}-3}-3}$
A) -4 B) 4 C) -2 D) 2

106. Irratsionallikdan qutqaring:
$\frac{\sqrt{23}-4}{\sqrt{\sqrt{23}-3}+1} - \frac{\sqrt{23}-12}{\sqrt{\sqrt{23}-3}+3}.$
A) -4 B) 4 C) -2 D) 2

107. $\frac{\sqrt[3]{(5+2\sqrt{6})^2}}{\sqrt[3]{5-\sqrt{24}}} - 6 - \sqrt{24}$ ni hisoblang.
A) 1 B) -1 C) 0 D) $-1-4\sqrt{6}$

108. $16sin10° \cdot sin30° \cdot sin50° \cdot sin70° \cdot sin90°$ ni hisoblang.
A) 1 B) 2 C) 8 D) 4

109. $32cos10° \cdot cos30° \cdot cos50° \cdot cos60° \cdot cos70°$ ni hisoblang.
A) 1 B) 3 C) 8 D) 4

110. $\lg tg1° + \lg tg2° + \lg tg3° + \cdots + \lg tg89°$ ni hisoblang.
A) 1 B) -1 C) 0 D) $\frac{1}{2}$

111. $\lg tg1° \cdot \lg tg2° \cdot \lg tg3° \cdot \ldots \cdot \lg tg89°$ ni hisoblang.
A) 1 B) -1 C) 0 D) 2

112. $\lg \sin1° \cdot \lg \sin2° \cdot \lg \sin3° \cdot \ldots \cdot \lg \sin90°$ ni hisoblang.
A) 1 B) 0 C) $\frac{\sqrt{3}}{2}$ D) $\frac{1}{2}$

113. Tengsizlikni yeching: $2^{|x+2|} > 16$.
A) $(-\infty;-6) \cup (2;\infty)$ B) $(-6;2)$
C) $(-\infty;-6)$ D) $(2;\infty)$

114. Tengsizlikni yeching: $x^4 \cdot 2^x + 8 > 8x^4 + 2^x$.
A) $(-1;1) \cup (3;\infty)$ B) $(-1;1)$
C) $(-1;3)$ D) $(-1;\infty)$

115. Tengsizlikni yeching:
$(0{,}3)^{2+4+6+\cdots+2x} > (0{,}3)^{72}$ $x \in N$.
A) $x < 6$ B) $\{1;2;3;4;5\}$
C) $x > 6$ D) $x \le 5$

116. Tengsizlikni yeching: $arccosx < arcsinx$.
A) $\left[-1;\frac{\sqrt{2}}{2}\right)$ B) $\left(\frac{\sqrt{2}}{2};1\right]$
C) $\left[0;\frac{\sqrt{2}}{2}\right) \cup \left(\frac{\sqrt{2}}{2};1\right]$ D) $\left(-\frac{\sqrt{2}}{2};\frac{\sqrt{2}}{2}\right)$

117. Tengsizlikni yeching: $arctgx \ge arcctgx$.
A) $[1;\infty)$ B) $(-\infty;1]$
C) $[-1;0) \cup (0;1]$ D) $(1;\infty)$

118. Tengsizlikni yeching: $\frac{\left(\sqrt{3x-7}\right)^2-2}{x-3} \le \frac{3-\left(\sqrt{x}\right)^2}{x-3}$.
A) $\frac{7}{3} \le x < 3, x > 3$ B) $\emptyset$
C) $\frac{7}{3} \le x < 3$ D) $x > 3$

119. $\frac{36-x^2}{6x^{-2}-x^{-1}} \ge 0$ tengsizlikning $[3;9]$ kesmadagi butun yechimlari o'rta arifmetigini aniqlang.
A) 6 B) 7 C) 5 D) 12

120. $\frac{64-x^2}{8x^{-2}-x^{-1}} \ge 0$ tengsizlikning $[5;13)$ kesmadagi butun yechimlari o'rta arifmetigini aniqlang.
A) $8\frac{5}{7}$ B) $8\frac{1}{2}$ C) $9\frac{1}{8}$ D) $8\frac{4}{7}$

121. $\frac{x^2-49}{-7x^{-2}+x^{-1}} \le 0$ tengsizlikning $[-9;1]$ kesmadagi butun yechimlari o'rta arifmetigini aniqlang.
A) -6 B) -4 C) -8 D) -12

122. $\frac{x^2-121}{-11x^{-2}+x^{-1}} \ge 0$ tengsizlikning $(3;12)$ oraliqdagi butun yechimlari o'rta arifmetigini aniqlang.
A) 6 B) 7 C) 7,5 D) 8

123. Tengsizlikni qanoatlantiruvchi eng kichik butun sonni toping: $\log_{18}(3x+1) > \frac{1}{2}$

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

124. Tengsizlikni qanoatlantiruvchi eng kichik butun sonni toping: $\log_{\frac{1}{\sqrt{3}}}(x-2) - \log_3(x+1) < 0$

A) 5 B) 0 C) 3 D) 4

125. $\left|2 - \left|1 - |x|\right|\right| = 1$ tenglama nechta yechimga ega?

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

126. $|3x-2| = x$ tenglamani yeching.

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

127. $\left||6x| - |6x-3|\right| = 3$ tenglamani yeching.

A) $\left[0;\frac{1}{2}\right]$ B) $(-\infty;0] \cup \left[\frac{1}{2};\infty\right)$

C) 0 D) $0;\frac{1}{2}$

128. $|x+a| - |x-2a| = 3a$ tenglamani yeching. $(a > 0)$

A) $2a$ B) $x \geq 2a$

C) $-a; 2a$ D) $0 < x \leq 2a$

129. $2|x+a| - |x-2a| = 3a$ tenglamani yeching. $(a < 0)$

A) $-a$ B) $-7a; -a; a$

C) $-7a; a$ D) $-7a; -a$

130. $(x^2-x-3)^2 - (x^2-x-3) - 3 = x$ tenglamani yeching.

A) $\sqrt{3}; 1; 3$ B) $\pm\sqrt{3}; -1; 3$

C) $\pm\sqrt{3}; -1; -3$ D) $\pm\sqrt{3}; 1; -3$

131. $(x^2-3x+3)^2 - 3(x^2-3x+3) + 3 = x$ tenglamani yeching.

A) $1; 3$ B) $-1; 3$ C) $1; -3$ D) $-1; -3$

132. $(x^2-8x+18)^2 - 8(x^2-8x+18) + 18 = x$ tenglamani yeching.

A) $3; -6$ B) $-3; 6$ C) $3; 6$ D) $-3; -6$

133. $(x^2-9x+16)^2 - 9(x^2-9x+16) + 16 = x$ tenglamani yeching.

A) $-2; -8$ B) $2; -8$ C) $-2; 8$ D) $2; 8$

134. $x^4 = 68 - 48\sqrt{2}$ bo'lsa, x musbat sonni toping.

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

C) $\sqrt{2} - 1$ D) $2 - \sqrt{2}$

135. $x^4 = 68 + 48\sqrt{2}$ bo'lsa, x manfiy sonni toping.

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

C) $-\sqrt{2} - 1$ D) $-2 - \sqrt{2}$

136. $|a|^2 + |b|^2 + |c|^2 = 0$ bo'lsa, $(a+b+c)^2$ ni toping.

A) 1 B) 0 C) 9 D) 4

137. $\frac{ab}{3} = \frac{ac}{4} = \frac{bc}{5}$ va $a+b+c = 141$ bo'lsa, a ni qiymatini toping.

A) 45 B) 60 C) 36 D) 54

138. $\frac{ab}{2} = \frac{bc}{3} = \frac{ca}{5}$ va $a+b+c = 155$ bo'lsa, b ni qiymatini toping.

A) 75 B) 18 C) 30 D) 50

139. $\begin{cases} \frac{ab}{a+b} = -3 \\ \frac{ac}{a+c} = 2\frac{2}{5} \\ \frac{bc}{b+c} = -4 \end{cases}$ bo'lsa, $-a-b+c$ ifodaning qiymatini toping.

A) 4 B) -4 C) 8 D) 0

140. $\begin{cases} \frac{ab}{a+b} = -3 \\ \frac{ac}{a+c} = 2\frac{2}{5} \\ \frac{bc}{b+c} = -4 \end{cases}$ bo'lsa, $-a+b+c$ ifodaning qiymatini toping.

A) 4 B) -4 C) 8 D) 0

141. $\left(\frac{2}{5}\right)^x + \left(\frac{3}{5}\right)^x = 1$ tenglamani yeching.

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

142. $2^x + 5^x = 7^x$ tenglamani yeching.

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

143. $2^{|x|+1} = 2 - x^2$ tenglamani yeching.

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

144. $\begin{cases} 3^x \cdot 5^y = 75 \\ 3^y \cdot 5^x = 45 \end{cases}$ tenglamalar sistemasini yeching.

A) $(2;1)$ B) $(1;2)$ C) $(-2;-1)$ D) $(-1;-2)$

145. $\begin{cases} 5^x \cdot 7^y = 175 \\ 5^y \cdot 7^x = 245 \end{cases}$ tenglamalar sistemasini yeching.

A) $(2;1)$ B) $(1;2)$ C) $(-2;-1)$ D) $(-1;-2)$

146. $\begin{cases} \lg|x| + \lg|y| = 1 + \lg 4 \\ |x|^{\lg|y|} = 4 \end{cases}$ tenglamalar sistemasi nechta yechimga ega?

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

147. $lgx = 0{,}12$ bo'lsa, x^{50} necha xonali son?

A) 6 B) 7 C) 13 D) 12

148. $lgx = 0{,}52$ bo'lsa, x^{100} necha xonali son?

A) 54 B) 53 C) 52 D) 51

149. $\log_4 125 = a$ bo'lsa, lg64 ni a orqali toping.

A) $\frac{12}{2a+3}$ B) $\frac{18}{2a+3}$ C) $\frac{3}{2a+3}$ D) $\frac{18}{a+3}$

150. $x^{\log_2 x} = 2^4$ tenglamani yeching.

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

151. $x^{lgx} = 1000$ tenglamani yeching.

A) $10^{\sqrt{3}}$ B) 10 C) $10^{\pm\sqrt{3}}$ D) 10^3

152. $4^{lgx} \cdot 2^{lgx} = 64$ tenglamani yeching.

A) $10^{\pm 2}$ B) 100 C) $\frac{1}{100}$ D) 10

153. $8^{2lgx} \cdot 4^{lgx} = 128$ tenglamani yeching.
A) $10^{\frac{7}{8}}$ B) 10^{7} C) $10^{-\frac{7}{8}}$ D) $10^{\frac{1}{8}}$

154. $sin2x + cos2x = 2tgx + 1$ tenglamani yeching.
A) $\pi n, n \in Z$
B) $\pi n,\ \frac{\pi}{4} + \pi n, n \in Z$
C) $-\frac{\pi}{4} + \pi n, n \in Z$
D) $\pi n,\ -\frac{\pi}{4} + \pi n, n \in Z$

155. $\cos(12arctgx) = 1$ tenglama nechta ildizga ega?
A) 6 B) 1 C) 3 D) 5

156. $\sin(12arctgx) = 0$ tenglama nechta ildizga ega?
A) 10 B) 11 C) 12 D) 5

157. $EKUB(x; 4) = 1$ bo'lsa, $\left[\frac{x}{4}\right] + \left[\frac{2x}{4}\right] + \left[\frac{3x}{4}\right] = 9$ tenglama nechta ildizga ega? Bunda $[a] - a$ sonining butun qismi.
A) 0 B) 1 C) 2 D) 3

158. $EKUB(x; 3) = 1$ bo'lsa, $\left[\frac{x}{3}\right] + \left[\frac{2x}{3}\right] = 9$ tenglama nechta ildizga ega? Bunda $[a] - a$ sonining butun qismi.
A) 0 B) 1 C) 2 D) 3

159. $-1 + 2 - 3 + 4 - 5 + \cdots + 198 - 199$ ni hisoblang.
A) -99 B) -100 C) -101 D) 100

160. $-1 + 2 - 3 + 4 - 5 + \cdots + 288 - 289$ ni hisoblang.
A) -146 B) -144 C) -145 D) 145

161. Agar arifmetik progressiyada dastlabki 20 ta hadi yig'indisi 400 ga, dastlabki 30 ta hadi yig'indisi esa 900 ga teng. Shu progressiyaning dastlabki 50 ta hadi yig'indisini toping.
A) 1600 B) 2400 C) 2500 D) 2560

162. Arifmetik progressiyada $a_1 = 1, S_{20} - S_{12} = 380$ bo'lsa, d ni toping.
A) 5 B) 4 C) 2 D) 3

163. Arifmetik progressiyada dastlabki n ta hadi yig'indisi $S_n = n^2 + 9n$ formula bilan aniqlanadi. Shu progressiyaning $20 -$ hadini toping.
A) 48 B) 30
C) 39 D) To'g'ri javob berilmagan

164. Arifmetik progressiyada dastlabki n ta hadi yig'indisi $S_n = n^3 + 2n^2$ formula bilan aniqlanadi. Shu progressiyaning $10 -$ hadini toping.
A) 250 B) 125
C) 309 D) To'g'ri javob berilmagan

165. Masshtabi 1 : 4000000 bo'lgan xaritada ikki shahar orasidagi masofa 1,2 dm ga teng bo'lsa, bu ikki shahar orasidagi masofa masshtabi 1 : 3000000 bo'lgan xaritada necha sm ga teng bo'ladi?
A) 1,6 B) 1,8 C) 18 D) 16

166. Masshtabi 1 : 6000000 bo'lgan xaritada ikki shahar orasidagi masofa 1,8 dm ga teng bo'lsa, bu ikki shahar orasidagi masofa masshtabi 1: 4000000 bo'lgan xaritada necha sm ga teng bo'ladi?
A) 2,7 B) 2,4 C) 24 D) 27

167. Masshtabi 1 : 4000000 bo'lgan xaritada ikki shahar orasidagi masofa 1,2 dm bo'lgan kesmaning haqiqiy uzunligi necha km?
A) 48 B) 240 C) 480 D) 24

168. Masshtabi 1 : 3000000 bo'lgan xaritada ikki shahar orasidagi masofa 24 sm uzunlikdagi kesma 1 : 5000000 masshtabli xaritada qanday dm uzunlikka teng bo'ladi?
A) 10,8 B) 14,4 C) 16 D) 12

169. Agar qo'shni burchaklar 13 : 17 nisbatda bo'lsa, ulardan kichigini toping.
A) 52° B) 85° C) 65° D) 78°

170. Agar qo'shni burchaklar 11 : 19 nisbatda bo'lsa, ulardan kichigini toping.
A) 56° B) 66° C) 36° D) 76°

171. Agar qo'shni burchaklar 11 : 19 nisbatda bo'lsa, ulardan kattasini toping.
A) 124° B) 114° C) 144° D) 104°

172. C nuqta AB kesmani A uchidan boshlab hisoblaganda 4 : 3 kabi, D nuqta esa AC kesmani A uchidan boshlab hisoblaganda 5 : 3 kabi nisbatda bo'ladi. Agar AB kesma uzunligi 56 bo'lsa, DC kesma uzunligini toping.
A) 9 B) 15 C) 12 D) 8

173. C nuqta AB kesmani A uchidan boshlab hisoblaganda 2 : 3 kabi, D nuqta esa AC kesmani A uchidan boshlab hisoblaganda 3 : 5 kabi nisbatda bo'ladi. Agar AB kesma uzunligi 44 bo'lsa, DC kesma uzunligini toping.
A) 6,6 B) 17,6 C) 11 D) 26,4

174. AB kesmada C nuqta shunday tanlanganki, $AC : BC = 3 : 4$. AC kesmada D nuqta shunday tanlanganki, $AD : DC = 5 : 3$ shartlar o'rinli. Agar AB kesma uzunligi 56 bo'lsa, DC kesma uzunligini toping.
A) 9 B) 15 C) 24 D) 8

175. Uchburchakning ikki tomoni mos ravishda 8 va 5 ga teng. Agar uchburchakning uchinchi tomoni butun son bo'lsa, uchburchak

perimetrining eng kichik qiymatini toping.
A) 17 B) 18 C) 25 D) 16

176. To'g'ri burchakli uchburchakning gipotenuzasiga tushirilgan balandligi ...
A) katetlaridan katta
B) katetlarining gipotenuzadagi proyeksiyalari o'rta proporsionalining 0,25 qismiga teng
C) gipotenuzaning yarmiga teng
D) uchburchakni o'ziga o'xshash ikkita uchburchakka ajratadi.

177. To'g'ri burchakli uchburchakning gipotenuzasiga tushirilgan balandligi ...
A) katetlaridan kichik
B) katetlarining gipotenuzadagi proyeksiyalari o'rta proporsionalining 0,25 qismiga teng
C) gipotenuzaning yarmiga teng
D) uchburchakni ikkita o'xshash va tengdosh uchburchaklarga ajratadi.

178. To'g'ri burchakli uchburchakning gipotenuzasiga tushirilgan balandligi ...
A) katetlaridan katta
B) katetlarining gipotenuzadagi proyeksiyalari o'rta proporsionaliga teng
C) gipotenuzaning yarmiga teng
D) uchburchakni ikkita o'xshash va tengdosh uchburchaklarga ajratadi.

179. ABC to'g'ri burchakli uchburchakda C to'g'ri burchak. AN bissektrisa o'tkazilgan. Agar $CN = 4$, $AB + AC = 14$ bo'lsa, ABC uchburchak yuzini toping.
A) 14 B) 18 C) 28 D) 56

180. ABC to'g'ri burchakli uchburchakda C to'g'ri burchak. AN bissektrisa o'tkazilgan. Agar $CN = 2p$, $AB + AC = m$ bo'lsa, ABC uchburchak yuzini toping.
A) $2mp$ B) $\frac{m^2-p^2}{4}$ C) $\frac{1}{2}mp$ D) mp

181. ABC uchburchakda $|BC| = a, |AC| = b,$ $|AB| = c,\ 3 \cdot \angle A + \angle B = 180°, 3a = 2c$ bo'lsa, AC tomon uzunligini a orqali ifodalang.
A) $a\sqrt{2}$ B) $a\sqrt{3}$ C) $\frac{5a}{4}$ D) $\frac{3a}{4}$

182. ABCD teng yonli trapetsiyaning BC kichik asosi 6 sm ga teng. B nuqtadan CD va AD tomonlariga mos ravishda BK va BH perpendikulyarlar tushirilgan. Agar BK=3 sm bo'lsa, $\angle BAH$ ni toping.
A) 30° B) 60° C) 45° D) 75°

183. ABCD teng yonli trapetsiyaning BC kichik asosi 6 sm ga teng. B nuqtadan CD va AD tomonlariga mos ravishda BK va BH perpendikulyarlar tushirilgan. Agar BK=$3\sqrt{3}$ sm bo'lsa, $\angle BAH$ ni toping.
A) 30° B) 60° C) 45° D) 75°

184. Trapetsiyaning bir diagonali 13 ga, ikkinchi diagonali $\sqrt{125}$ ga, balandligi esa 5 ga teng bo'lsa, uning yuzini toping.
A) 55 B) 110 C) $25\sqrt{5}$ D) 45

185. Trapetsiyaning diagonallari 15 va 20 ga, balandligi esa 12 ga teng bo'lsa, uning yuzini toping.
A) 300 B) 150 C) 144 D) 225

186. ABCD trapetsiya asoslari $BC = 8$ va $AD = 32$ ga teng. Agar $\angle ADC = \angle BAC$ bo'lsa, AC diagonalni toping.
A) 17 B) 18 C) 16 D) 20

187. ABCD trapetsiya asoslari $BC = 27$ va $AD = 48$ ga teng. Agar $\angle ADC = \angle BAC$ bo'lsa, AC diagonalni toping.
A) 45 B) 36 C) 18 D) 27

188. ABCD trapetsiya asoslari $BC = b$ va $AD = a$ ga teng. Agar $\angle ADC = \angle BAC$ bo'lsa, AC diagonalni toping.
A) $\frac{1}{2}(a+b)$ B) $\sqrt{a^2+b^2}$
C) $2\sqrt{ab}$ D) $\sqrt{ab}$

189. ABCD to'g'ri burchakli trapetsiyada A va D burchaklar to'g'ri. Tomonlari $DC = 4, AB = BC = 10$ bo'lsa, shu trapetsiya yuzini toping.
A) 48 B) 56 C) 28 D) 63

190. ABCD to'g'ri burchakli trapetsiyada A va D burchaklar to'g'ri. Tomonlari $DC = 8, AB = BC = 13$ bo'lsa, shu trapetsiya yuzini toping.
A) 64 B) 92 C) 126 D) 136

191. $\vec{a}(-1;2), \vec{b}(-2;1), \vec{c}(-3;2)$ hamda $2\vec{a} - k\vec{b}$ va $\vec{c}$ vektorlar perpendikulyar bo'lsa, k ni qiymatini toping.
A) $\frac{4}{7}$ B) $\frac{7}{4}$ C) $-\frac{7}{4}$ D) $-\frac{1}{2}$

192. $\vec{a}(-1;2), \vec{b}(-2;1), \vec{c}(-3;2)$ hamda $\vec{a} - 2k\vec{b}$ va $-2\vec{c}$ vektorlar perpendikulyar bo'lsa, k ni qiymatini toping.
A) $-\frac{16}{7}$ B) $\frac{7}{16}$ C) $-\frac{7}{16}$ D) $-\frac{1}{8}$

193. O'nbirburchakli prizmaning nechta turli diagonal kesimi mavjud?
A) 44 B) 54 C) 35 D) 33

194. Beshburchakli prizmaning nechta turli diagonal kesimi mavjud?
A) 10 B) 3 C) 2 D) 5

195. O'nbirburchakli piramidaning nechta turli diagonal kesimi mavjud?
A) 44 B) 54 C) 35 D) 33

196. Oltiburchakli prizmaning nechta turli diagonal kesimi mavjud?
A) 18 B) 9 C) 6 D) 15

197. Ko'pyoqning yoqlari soni 7 ta, uchlari soni 6 ta bo'lsa, undagi qirralar soni nechta?
A) 10 B) 11 C) 12 D) 14

198. O'q kesimi kvadratdan iborat bo'lgan silindr asosida uzunligi 3 ga teng bo'lgan vatar 60° li yoyni tortib turadi. Silindr hajmini toping.
A) $27\sqrt{3}\pi$ B) 54π C) 48π D) $27\sqrt{2}\pi$

199. O'q kesimi kvadratdan iborat bo'lgan silindr asosida uzunligi 1 dm ga teng bo'lgan vatar 60° li yoyni tortib turadi. Silindr hajmini (dm^3) toping.
A) $\sqrt{3}\pi$ B) $\sqrt{2}\pi$ C) 2π D) $2\sqrt{2}\pi$

200. O'q kesimi kvadratdan iborat bo'lgan silindr asosida uzunligi $2\sqrt{3}$ ga teng bo'lgan vatar 60° li yoyni tortib turadi. Silindr hajmini toping.
A) $48\sqrt{3}\pi$ B) $24\sqrt{3}\pi$ C) 72π D) $48\sqrt{2}\pi$

Informatika

201. $25_6 + 27_8 - 103_4 = x_7$ bo'lsa, x ni toping.
A) 30 B) 21 C) 32 D) 25

202. $12_4 + 21_4 + x_4 = 45_8$ bo'lsa, x ni toping.
A) 10 B) 112 C) 22 D) 211

203. $15_6 + 12_4 - x_5 = 16_{10}$ bo'lsa, x ni toping.
A) 11 B) 1 C) 113 D) 5

204. $103_4 + 210_5 = x_{10}$ bo'lsa, x ni toping.
A) 74 B) 84 C) 54 D) 64

205. Axborotni hajmi 32^{x+2} Kb yoki 256^x Mb bo'lsa, x ni qiymatini toping.
A) 8 B) 0 C) $\frac{10}{3}$ D) 0,(3)

206. $\begin{cases} EKUB(x_9; y_9) = 45_9 \\ \frac{x}{y} = \frac{11_{10}}{7_{10}} \end{cases}$ bo'lsa, xy ko'paytmani qiymatini 9 lik sanoq sistemasida hisoblang.
A) 216478 B) 261488
C) 216488 D) 214688

207. $FFFF_{16} \cdot AAA_{16} = (?)_{16}$
A) $AA9F556$ B) $AB8E466$
C) $AC7D536$ D) $AD6C476$

208. Arifmetik progressiyada hadlari $a_1 = 2_3$, $a_2 = 10_3$ va $a_n = 1002_3$ bo'lsa, uning dastlabki n ta hadi yig'indisini toping.
A) 434 B) 424 C) 361 D) 868

209. $\int_B^F dx$ ni 16 lik sanoq sistemasida hisoblang.
A) 4 B) -4 C) 8 D) 2

210. $\begin{cases} 104_5 + \overline{2x}_5 = \overline{y}_6 + 1 \\ 10_2 + \overline{3y}_5 = \overline{x}_6 + 1 \end{cases}$ sistemadan x va y ni toping.
A) (3; 4) B) (3; 3) C) (2; 3) D) ∅

211. $\begin{cases} 14_5 + \overline{2x}_5 = \overline{y3}_6 + 1 \\ 10_2 + \overline{3y}_5 = \overline{x1}_6 + 1 \end{cases}$ sistemadan x va y ni toping.
A) (3; 4) B) (3; 3) C) (2; 3) D) ∅

212. $A(10; 14)_{15}$; $B(7; 5)_8$; $C(3; 9)_{10}$ uchlarining koordinatalari berilgan uchburchakning yuzini toping.
A) 42 B) 44 C) 45 D) 54

213. $211235_6 : 25_6 = x_{10}$ bo'linmadan qoldiqni toping.
A) 5 B) 1 C) 10 D) 2

214. $\overline{aa2a}_5 + \overline{28a}_9 = \overline{a31a}_6$ tenglamadan a_6 ni toping.
A) 1 B) 4 C) 3 D) 2

215. $\left[\frac{2x-5}{3}\right]_{10} = 1_{10}$ tenglamani yeching.
A) 4 B) 5,5 C) [4; 5] D) [4; 5,5)

Javoblari

1. D
2. D
3. B
4. A
5. B
6. 294
7. A
8. C
9. C
10. A
11. A
12. D
13. D
14. C
15. D
16. D
17. B
18. A
19. C
20. B
21. C
22. C
23. C
24. A
25. C
26. A
27. B
28. A
29. B
30. C
31. C
32. B
33. A
34. B
35. B
36. A
37. C
38. B
39. A
40. C
41. C
42. A
43. C
44. D
45. B
46. B
47. B
48. C
49. C
50. B
51. A
52. B
53. B
54. A
55. D
56. C
57. B
58. D
59. D
60. A
61. B
62. C
63. B
64. D
65. B
66. C
67. D
68. A
69. A
70. D
71. D
72. B
73. B
74. B
75. B
76. C
77. B
78. A
79. A
80. A
81. C
82. B
83. D
84. D
85. B
86. C
87. A
88. C
89. A
90. A
91. A
92. D
93. D
94. B
95. C
96. A
97. A
98. C
99. B
100. C
101. A
102. C
103. D
104. D
105. C
106. D
107. B
108. A
109. B
110. C
111. C
112. B
113. A
114. A
115. {1; 2; 3; 4; 5; 6; 7}
116. B
117. A
118. B
119. A
120. D
121. C
122. B
123. A
124. C
125. B
126. D
127. B
128. B
129. A
130. B
131. A
132. C
133. D
134. D
135. D
136. B
137. C
138. C
139. D
140. B
141. C
142. C
143. D
144. B
145. A
146. D
147. B
148. B
149. B
150. D
151. C
152. B
153. A
154. D
155. D
156. B
157. B
158. B
159. B
160. C
161. C
162. D
163. A
164. D
165. D
166. D
167. C
168. 1, 44
169. D
170. B
171. B
172. C
173. C
174. A
175. A
176. D
177. A
178. B
179. C
180. D
181. C
182. A
183. B
184. A
185. B
186. C
187. B
188. D
189. B
190. C
191. B
192. B
193. A
194. D
195. A
196. B
197. B
198. B
199. C
200. A
201. A
202. B
203. B
204. A
205. B
206. C
207. A
208. A
209. A
210. D
211. B
212. A
213. 6
214. D
215. D