1. Natural bo'luvchilari eng ko'p bo'ladigan uch xonali sonni toping.
A) 480. B) 804. C) 840. D) 908.

2. $25^{64}\cdot 64^{25}$ soni N natural sonning kvadrati bo'lsa, N ning raqamlari yig'indisi qanday bo'ladi? A) 7. B) 14. C) 21. D) 28.

3. x, y, z natural sonlar uchun $28x+30y+31z=365$ munosabat o'rinli. $x+y+z$ ni toping.
A) 0. B) 8. C) 11. D) 12.

4. $20^{2013}=10^{2004}\cdot 40^{9}\cdot 2^{n}$ tenglamadagi n ning qiymatini toping.
A) 1993. B) 1995. C) 2004. D) 2013.

5. $31^2\cdot 33\cdot 37^2\cdot 39$ ko'paytmaning natural bo'luvchilari sonini toping.
A) 54. B) 95. C) 106. D) 108.

6. Nechta natural $n<100$ son uchun $\frac{n^3+23}{24}\in N$ o'rinli bo'ladi? A) 4. B) 5. C) 9. D) 10.

7. Quyidagilardan qaysi biri $n(n\in N)$ ning istalgan qiymatida natural son bo'ladi?
A) $\frac{n^3}{6}+\frac{n^2}{2}+\frac{n}{3}$. B) $\frac{4^n+4^{n+1}+4^{n+2}}{22}$.
C) $\frac{3^n+3^{n+1}+3^{n+2}}{12}$. D) $\frac{2^n+2^{n+1}+2^{n+2}}{21}$.

8. a sonini 5 ga bo'lganda qoldiq 2 ga, 4 ga bo'lganda esa qoldiq 1 ga teng. a ni 20 ga bo'lgandagi qoldiqni toping.
A) 12. B) 17. C) 18. D) 19.

9. 5^{200} sonini 24 ga bo'lganda, qoldiq qanday bo'ladi? A) 1. B) 3. C) 15. D) 23.

10. $\overline{1234ab}$ (olti xonali) son 8 va 9 ga qoldiqsiz bo'linsa, a va b lar ayirmasining moduli qanday bo'ladi? A) 2. B) 4. C) 8. D) 9.

11. $\overline{2013xy}$ ko'rinishdagi olti xonali sonlar ichida 36 ga qoldiqsiz bo'linadiganlari nechta?
A) 1 ta. B) 2 ta. C) 3 ta. D) 5 ta.

12. Ketma-ket to'rtta toq sonning ko'paytmasi quyidagilardan qaysisiga hech qachon bo'linmaydi? A) 17. B) 31. C) 71. D) 126.

13. p qanday tub son bo'lganda $71p+1$ son biror natural sonning kvadratiga teng bo'ladi?
A) 73. B) 79. C) 83. D) 97.

14* Barcha ikki xonali sonlar ko'paytmasi tub sonlar ko'paytmasi shaklida yozilganda, bu ko'paytmada 7 soni necha marta qatnashadi?
A) 13. B) 14. C) 15. D) 16.

15. 54, 90 va 162 sonlarining umumiy bo'luvchilari nechta? A) 4. B) 5. C) 6. D) 7.

16. x va 84 sonlarining eng katta umumiy bo'luvchisi 12 ga, eng kichik umumiy karralisi esa 336 ga teng. x ni toping.
A) 16. B) 24. C) 48. D) 60.

17*. m va n sonlari $(m>n)$ bir-biriga bo'linmaydi. EKUB$(m; n)=72$ va EKUK$(m; n)=432$. m va n sonlarni toping. A) (288; 72).
B) (216; 144). C) (432; 72). D) (432; 144).

18. $9999^{4444^{5555}}$ sonining oxirgi raqamini toping. A) 1. B) 6. C) 7. D) 9.

19. $2012^{2011^{2010}}$ sonining oxirgi raqamini toping. A) 2. B) 4. C) 6. D) 8.

20. a, b, c – noldan farqli raqamlar, $\overline{ab}$, $\overline{bc}$, $\overline{ca}$ – ikki xonali sonlar, $\overline{ab}+\overline{bc}+\overline{ca}=88$ bo'lsa, $a+b+c$ qanday bo'ladi?
A) 6. B) 8. C) 11. D) 16.

21. Nechta butun a va b sonlar jufti $a^2-b^2=-17$ tenglikni qanoatlantiradi?
A) 1. B) 2. C) 4. D) $\varnothing$.

22. $a=15/32$, $b=21/24$; va $c=33/38$ sonlarni o'sish tartibida joylashtiring.
A) $a<c<b$. B) $b<a<c$. C) $c<a<b$. D) $c<b<a$.

23. 1/4 va 2/3 sonlar orasidagi mahraji 24 bo'lgan qisqarmas kasrlar yig'indisini toping.
A) 1. B) $\frac{17}{24}$. C) $1\frac{5}{24}$. D) $1\frac{7}{24}$.

24. $n\in N$ va $\frac{1}{2}+\frac{1}{3}+\frac{1}{7}+\frac{1}{n}$ yig'indi butun son bo'lsa, quyidagilardan qaysi biri noto'g'ri?
A) $n>84$. B) n 2 ga bo'linadi.
C) n 3 ga bo'linadi. D) n 6 ga bo'linadi.

25. $4:\frac{4}{7}+\frac{1}{3}:6+\frac{3}{4}:\frac{15}{16}$ ni hisoblang.
A) $7\frac{77}{90}$. B) $9\frac{4}{5}$. C) 10. D) $15\frac{7}{8}$.

26. $\left(1+\frac{2}{3}\right)\left(1+\frac{2}{4}\right)\left(1+\frac{2}{5}\right)\ldots\left(1+\frac{2}{98}\right)$ ko'paytmani hisoblang. A) 1. B) 625. C) 825. D) 980.

27. $\frac{442^2-529}{465}$ ni hisoblang.
A) 407. B) 415. C) 419. D) 465.

28. $\frac{10^{2011}+10^{2013}}{10^{2012}+10^{2012}}$ nisbat quyidagi sonlardan qaysi biriga eng yaqin?
A) 1/10. B) 1/5. C) 5. D) 10.

29. $\frac{2^{19}\cdot 27^3+15\cdot 4^9\cdot 9^4}{6^9\cdot 2^{10}+12^{10}}$ ni hisoblang.
A) 1/3. B) 1/2. C) 1. D) 2.

30. $\dfrac{\frac{1}{\frac{1}{10}-\frac{1}{12}}}{\frac{1}{\frac{1}{8}-\frac{1}{6}}+\frac{1}{\frac{1}{5}-\frac{1}{6}}}$ ni hisoblang.
A) 0,5. B) 1. C) 10. D) 12.

31. $1+\dfrac{20}{1+\frac{20}{1+\frac{20}{\ddots}}}$ ni hisoblang.
A) 5. B) 6. C) 8. D) 10.

32. $1+\dfrac{1+\frac{\ddots}{5}}{5}$ ni hisoblang.
A) 4/5. B) 7/5. C) 5/4. D) 11/6.

33. $25+\left(12\frac{1}{2}+28\frac{6}{7}\right)-\left(\frac{19}{21}+34\frac{5}{21}\right)-\left(103\frac{4}{9}-72\frac{5}{18}\right)$ ni hisoblang. A) $\frac{3}{63}$. B) $\frac{3}{36}$. C) $\frac{2}{12}$. D) $\frac{5}{13}$.

34. $\frac{12\frac{4}{5}\cdot 3\frac{3}{4}-4\frac{4}{11}\cdot 4\frac{1}{8}}{11\frac{2}{3}:4\frac{4}{7}}$ ifodaning qiymatini toping.

A) $9\frac{29}{49}$. B) $10\frac{37}{49}$. C) $11\frac{35}{49}$. D) $11\frac{37}{49}$.

35. $\frac{31{,}2\cdot 58{,}4-27{,}2}{31{,}2+58{,}4\cdot 30{,}2}$ ni hisoblang.
A) 1/4. B) 1/2. C) 1. D) 2.

36. $\frac{0{,}625\cdot 6{,}75^2-3{,}25^2\cdot 0{,}625}{\sqrt{3{,}5^2+7\cdot 2{,}75+2{,}75^2}}$ ni hisoblang.
A) 3,5. B) 35. C) 53. D) 350.

37. $\frac{0{,}725+0{,}6+\frac{7}{40}+\frac{11}{20}}{0{,}128\cdot 6\frac{1}{4}-0{,}0345:\frac{3}{25}}\cdot 0{,}25$ ni hisoblang.
A) 1/2. B) 1. C) 2. D) 4.

38. $\frac{2{,}5^2-3{,}2^2}{\frac{1}{\frac{1}{3}-\frac{3}{19}}}-\frac{1{,}31^2+2{,}62\cdot 2{,}69+2{,}69^2}{((13-9):2)^2}$ ni hisoblang. A) −4,7. B) −4. C) 3,3. D) 4,7.

39. 2,(1)+2,0(9) ni hisoblang.
A) 4,2. B) 4,2(1). C) 4,(21). D) 4,2(9).

40. 1,1(6)+0,12(3) ni hisoblang.
A) 19. B) $2\frac{7}{90}$. C) $1\frac{29}{100}$. D) $\frac{7}{30}$.

41. $\frac{0{,}8333\ldots-0{,}4(6)}{11/6}\cdot\frac{1{,}125+1{,}75-0{,}41(6)}{0{,}59}$ ni hisoblang. A) 4/5. B) 5/6. C) 7/6. D) 6/5.

42. $f(x)=x^3-2x^2+3x-2$ funksiya berilgan. $f(2)$ ni toping. A) 2. B) 4. C) 5. D) 6.

43. $(a+b)^3+(a+b)(a^2-ab+b^2)$ ifoda soddalashtirilganidan so'ng necha haddan iborat bo'ladi? A) 2. B) 3. C) 4. D) 5.

44. Agar $xy+yz+zx=16$ bo'lsa, $(x+y+z)^2$ ifodaning eng kichik qiymati qanday bo'ladi?
A) 48. B) 64. C) 72. D) 96.

45. Agar $xy+yz+zx=16$ bo'lsa, $x^2+y^2+z^2$ ifodaning eng kichik qiymati qanday bo'ladi?
A) 16. B) 18. C) 24. D) 32.

46. $(x+y+z)(xy+yz+xz)-xyz$ ifodani ko'paytma shaklida yozing.
A) $(x+y)(y+z)(x-z)$. B) $(x+y)(y-z)(x+z)$.
C) $(x-y)(y+z)(x+z)$. D) $(x+y)(y+z)(x+z)$.

47. $(a+b+c+2)(a+b+c)-(1-a-b-c)^2+1$ ni ko'paytuvchilarga ajrating. A) $4(a+b+c)^2$.
B) $4(a+b+c)$. C) $(a+b+c+1)(a-b+c-1)$.
D) $(a+b+c+1)(a+b+c-1)$.

48. $(a+b+2)(a+b)-(a-b)^2+1$ ifodani ko'paytuvchilarga ajrating. A) $2b(a+1)$. B) $(a+b)(2a+1)$.
C) $(2b+1)(2a+1)$. D) $(a+b)(2a-1)$.

49. $(a^2+a+1)(a^2-a-1)-a^4$ ifodani ko'paytuvchilarga ajrating. A) $(a+1)^2$. B) $-(a+1)^2$.
C) $(a-1)(a+1)(a^2+1)(a^4+1)$. D) $(a-1)(a+1)$.

50. ax^2-a-x^2+x ni ko'paytuvchilarga ajrating.
A) $(x-1)((a-1)x+a)$. B) $(x-1)((a+1)x+a)$.
C) $(x-1)((a-1)x-a)$. D) $(x+1)((a-1)x+a)$.

51. $x^3+6x^2+11x+6$ ko'phad quyidagilardan qaysi biriga bo'linmaydi?
A) $x+1$. B) $x+2$. C) $x+3$. D) $x+6$.

52. Quyidagilardan qaysi biri x^5+x^3+x ko'phadning ko'paytuvchisi emas?
A) x^2+x+1. B) x^2-x+1. C) $x+2$. D) x.

53. m ning qanday butun qiymatida $\frac{x^2+mx+36}{x^2+8x+7}$ ifodani qisqartirish mumkin?
A) −37. B) −35. C) 35. D) 37.

54. m ning $\frac{x^3-x^2-4x+4}{x^2+mx+6}$ kasr qisqarishi mumkin bo'lan eng katta va eng kichik qiymatlari ayirmasini toping. A) 12. B) 15. C) 17. D) 18.

55. $\frac{x^3+5x^2+3x-9}{x^3+x^2-5x+3}$ kasrni qisqartiring.
A) $\frac{x+3}{x-1}$. B) $\frac{x-3}{x+1}$. C) $\frac{x+3}{x+1}$. D) $\frac{x-3}{x-1}$.

56. $x(y^2-z^2)+y(z^2-x^2)+z(x^2-y^2)$ ni ko'paytuvchilarga ajrating. A) $(y-x-z)(x+y+z)(xy-z)$.
B) $(x-y)(y-z)(z-x)$. C) $(2x-y)(3z-2x)$.
D) $(x-1)(y-2)(z-3)(xyz-5)$.

57. $\frac{(x^2-y^2)^3-(z^2-y^2)^3+(z^2-x^2)^3}{(x-y)^3+(y-z)^3-(x-z)^3}$ ifodani soddalashtiring. A) $-(x-y)(y-z)(x-z)$. B) $(x-y)(y-z)(x-z)$.
C) $(y-x)(y+z)(x+z)$. D) $(x+y)(y+z)(x+z)$.

58. Agar a va b noldan farqli haqiqiy sonlar bo'lib, $ab=a-b$ bo'lsa, $\frac{a}{b}+\frac{b}{a}-ab$ qanday bo'ladi? A) −2. B) −0,5. C) 0,5. D) 2.

59. $\frac{3x}{2y+3}+\frac{x^2+3x}{4xy-3-2y+6x}$ amallarni bajaring.
A) $\frac{x^2}{2y+3}$. B) $\frac{7x^2}{(2x-1)(2y+3)}$.
C) $\frac{x^2}{(2x-1)(2y+3)}$. D) $\frac{3x^2}{(2x-1)(2y+3)}$.

60. $\frac{x-12a}{x^2-16a^2}+\frac{4x}{4ax-x^2}$ amallarni bajaring.
A) $\frac{3x^2-28a}{x^2-16a^2}$. B) $\frac{-3x-28a}{x^2-16a^2}$.
C) $\frac{3x^2+28ax}{x-16a}$. D) $\frac{x-4a}{x+4a}$.

61. $\frac{a-2}{a^2+2a}:\left(\frac{a}{a^2-2a}-\frac{a^2+4}{a^3-4a}-\frac{1}{a^2+2a}\right)$ ifodani soddalashtiring. A) 2. B) a. C) $a-2$. D) $a+2$.

62. $(a+1)\left(\frac{1}{a+1}+\frac{4}{a^2-4a}-\frac{5}{a^2-3a-4}\right):\left(1-\frac{1}{a}\right)$ ifodani soddalashtiring.
A) 1. B) $a-1$. C) $a+1$. D) $\frac{a+1}{a-1}$.

63. $\left(\frac{a}{a+1}+1\right):\left(1-\frac{3a^2}{1-a^2}\right)$ ni soddalashtiring.
A) $-\frac{1-a}{1-2a}$. B) $\frac{1-a}{1-2a}$. C) $\frac{1-a}{1+2a}$. D) $\frac{1+a}{1-2a}$.

64. Ratsional ifodani kononik ko'rinishga keltiring. $\dfrac{1-\frac{1-\frac{1-x}{1+2x}}{1+2\cdot\frac{1-x}{1+2x}}}{1+2\cdot\frac{1-\frac{1-x}{1+2x}}{1+2\cdot\frac{1-x}{1+2x}}}$.
A) $\frac{1}{2}$. B) $\frac{1-x}{1+2x}$. C) $-\frac{1+x}{1+2x}$. D) $\frac{1+2x}{1-x}$.

65. $\left[\frac{x^3+y^3}{xy^3}:\left(\frac{x-y}{y^2}+\frac{1}{x}\right)\right]:\frac{x(x-y)^2+4x^2y}{x+y}$ ni soddalashtiring. A) xy. B) $\frac{1}{x}$. C) $\frac{1}{xy}$. D) $\frac{1}{x+y}$.

66. k, m va n ning qanday qiymatida $\frac{\cos 2\pi}{(x+1)^2(x+2)}=\frac{k}{x+1}+\frac{m}{(x+1)^2}+\frac{n}{x+2}$ tenglik ayniyat bo'ladi? A) 0; 1; 2. B) −1; 1; 1. C) 1; −1; 0,5. D) 2; −2; 0,5.

67. $\frac{1}{(x+1)^2(x+2)}=\frac{a}{x+1}+\frac{b}{(x+1)^2}+\frac{c}{x+2}$ tenglikni qanoatlantiradigan a, b, c larni toping. A) $a=1$; $b=1$; $c=1$. B) $a=-1$; $b=1$; $c=1$. C) $a=-1$; $-b=1$; $c=1$. D) $a=1$; $b=-1$; $c=1$.

68. $\frac{a^4-a^2-2a-1}{a^3-2a^2+1}:\frac{a^4+2a^3-a-2}{1+\frac{4}{a}+\frac{4}{a^2}}$ ni soddalashtiring. A) $\frac{a+2}{a^2}$. B) $\frac{a+2}{a^2(a-2)^2}$. C) $\frac{a+2}{a^2(a-1)^2}$. D) $\frac{a+2}{a^2(a+1)^2}$.

69. $\left(p-q+\frac{4q^2-p^2}{p+q}\right):\left(\frac{p}{p^2-q^2}+\frac{2}{q-p}+\frac{1}{p+q}\right)$ ifodani soddalashtiring. A) $pq-1$. B) q^2-p. C) p^2-pq. D) q^2-pq.

70. $\frac{(a-b)^2+ab}{(a+b)^2-ab}:\frac{a^5+b^5+a^2b^3+a^3b^2}{a^3+b^3+ab^2+a^2b}\,(a^3-b^3)$ ifodani soddalashtiring. A) $a-b$. B) $a+b$. C) ab. D) $\frac{1}{a-b}$.

71. $\frac{a^2-5ab+6b^2}{a^2-2ab-8b^2}:\frac{a^2-2ab-3b^2}{a^2-3ab-4b^2}$ ifodani soddalashtiring. A) 1. B) $\frac{a-2b}{a+3b}$. C) $\frac{a-2b}{a+2b}$. D) $\frac{a-3b}{a+2b}$.

72. $\frac{x^2+ax-3x-3a}{x^2-ax-3x+3a}\cdot\frac{x^2+4x-ax-4a}{x^2+4x+ax+4a}$ ifodani soddalashtiring. A) −1. B) 0. C) 1. D) $\frac{a-x}{a+x}$.

73. $\frac{a-b}{ab}+\frac{b-c}{bc}+\frac{c-d}{cd}+\frac{d-a}{ad}$ ifodani soddalashtiring. A) 0. B) 1. C) $abcd$. D) $(abcd)^{-1}$.

74. $\left(\frac{b^2}{a^2}+\frac{a^2}{b^2}-2\right)\left(\frac{a+b}{b-a}+\frac{b-a}{a+b}\right)\left(\frac{\frac{1}{a^2}+\frac{1}{b^2}}{\frac{1}{b^2}-\frac{1}{a^2}}-\frac{\frac{1}{b^2}-\frac{1}{a^2}}{\frac{1}{a^2}+\frac{1}{b^2}}\right)$ ifodani soddalashtiring. A) −8. B) 1. C) ab. D) $2ab$.

75. $\left(2x+1-\frac{1}{1-2x}\right):\left(2x-\frac{4x^2}{2x-1}\right)$ ifodani soddalashtiring. A) $-2x$. B) $2x$. C) x^2. D) $2x^2$.

76. $\left(\frac{2xy}{x^2-9y^2}-\frac{y}{x-3y}\right):\frac{y^2}{x^2+3xy}$ ifodani soddalashtiring. A) $\frac{x}{y}$. B) $\frac{y}{x}$. C) $\frac{x-3y}{y}$. D) $\frac{x}{x-3y}$.

77. $\frac{1}{1+\sqrt{2}}+\frac{1}{\sqrt{2}+\sqrt{3}}+\frac{1}{\sqrt{3}+\sqrt{4}}+\ldots+\frac{1}{\sqrt{2010}+\sqrt{2011}}$ ni hisoblang. A) $\sqrt{2011}$. B) $\sqrt{2011}-1$. C) $\sqrt{2012}$. D) 2012.

78. $\frac{1}{1+\sqrt{7-\sqrt{24}}}-\frac{1}{\sqrt{7+\sqrt{24}}-1}$ ni hisoblang. A) $-2/\sqrt{6}$. B) 0. C) 1. D) $\sqrt{6}$.

79. $a>0$, $b>0$ va $a\neq b$. $\frac{(\sqrt{a}+\sqrt{b})^2-4b}{(a-b):\left(\frac{1}{\sqrt{b}}+\frac{3}{\sqrt{a}}\right)}:\frac{a+9b+6\sqrt{ab}}{\frac{1}{\sqrt{a}}+\frac{1}{\sqrt{b}}}$ ni soddalashtiring. A) ab. B) $\sqrt{ab}$. C) $1/a$. D) $1/(ab)$.

80. $\left(\frac{a-4b}{a+(ab)^{1/2}-6b}-\frac{a-9b}{a+6(ab)^{1/2}+9b}\right)\frac{b^{-1/2}}{a^{1/2}-3b^{1/2}}$ ifodani soddalashtiring. $a>0$, $b>0$, $a\neq 9b$. A) 1. B) $\frac{5}{a+9b}$. C) $-\frac{5}{a-9b}$. D) $-\frac{5}{9b-a}$.

81. $\left(\frac{a-4b}{a+(ab)^{0,5}-6b}-\frac{a-9b}{a+6(ab)^{0,5}+9b}\right)\frac{b^{-0,5}}{a^{0,5}-3b^{0,5}}$ ifodani soddalashtiring. A) 1. B) $-\frac{5}{9b-a}$. C) $-\frac{5}{a-9b}$. D) $\frac{5}{a+9b}$.

82. $\frac{x-1}{x+x^{0,5}+1}:\frac{x^{0,5}+1}{x^{1,5}-1}+\frac{2}{x^{-0,5}}$ ifodani soddalashtiring $(0<x\neq 1)$. A) 0. B) 1. C) x. D) $x+1$.

83. $\left(\frac{x+\sqrt{x^2-y^2}}{x-\sqrt{x^2-y^2}}-\frac{x-\sqrt{x^2-y^2}}{x+\sqrt{x^2-y^2}}\right):\frac{x\sqrt{x^2-y^2}}{0,25y^2}$ ni soddalashtiring $(x>y)$. A) −1. B) 0. C) 1. D) 2.

84. $\frac{2}{\sqrt{10}+\sqrt{15}+\sqrt{14}+\sqrt{21}}$ kasrning maxrajini irratsionallikdan qutqaring. A) $\sqrt{10}-\sqrt{15}+\sqrt{21}+\sqrt{14}$. B) $\sqrt{10}+\sqrt{15}-\sqrt{21}+\sqrt{14}$. C) $\sqrt{10}-\sqrt{15}-\sqrt{21}+\sqrt{14}$. D) $\sqrt{10}-\sqrt{15}+\sqrt{21}-\sqrt{14}$.

85*. $\frac{1}{\sqrt{1-b^2}}-\frac{1}{1+\frac{b^2}{1-b^2}}\,\frac{\sqrt{1-b^2}+\frac{b^2}{\sqrt{1-b^2}}}{1-b^2}$ ni soddalashtiring. A) −1. B) 0. C) 1. D) $\frac{1}{\sqrt{1-b^2}}-1$.

86. $\left(\frac{1}{a-\sqrt{ab}}+\frac{1}{a+\sqrt{ab}}\right)\frac{a^3-b^3}{a^2+ab+b^2}$ ni soddalashtiring $(a\neq b,\ ab\geq 0)$. A) 1. B) 2. C) a. D) $\frac{1}{a+b}$.

87. $\left(\frac{\sqrt{a-b}}{\sqrt{a+b}+\sqrt{a-b}}+\frac{a-b}{\sqrt{a^2-b^2}-a+b}\right):\sqrt{\frac{a^2}{b^2}-1}$ ifodani soddalashtiring $(a>b>0)$. A) 0. B) 1. C) $\frac{1}{\sqrt{a-b}}$. D) $\frac{1}{\sqrt{a+b}}$.

88. $\frac{\sqrt{2b+2\sqrt{b^2-4}}}{\sqrt{b^2-4}+b+2}$ ifodani soddalashtiring $(b\geq 2)$. A) $-\frac{1}{\sqrt{b-2}}$. B) $\frac{1}{\sqrt{b-2}}$. C) $-\frac{1}{\sqrt{b+2}}$. D) $\frac{1}{\sqrt{b+2}}$.

89. $\left(\frac{3x^{-1/3}}{x^{2/3}-2x^{-1/3}}-\frac{x^{1/3}}{x^{4/3}-x^{1/3}}\right)^{-1}-\left(\frac{1-2x}{3x-2}\right)^{-1}$ ni soddalashtiring. A) 1. B) $-\frac{x^2}{1-2x}$. C) $\frac{x^2}{1-2x}$. D) $\frac{x}{2x-1}$.

90. $(x^{1/4}+y^{1/4}):\left(\left(\frac{\sqrt[3]{y}}{y\sqrt{x}}\right)^{3/2}+\left(\frac{x^{-0,5}}{\sqrt[8]{y^3}}\right)^2\right)$ ifodani soddalashtiring. A) 1. B) $x+y$. C) xy. D) $1/(xy)$.

91. $x\neq y$, $x>0$, $y>0$. $\frac{\sqrt{x^3}+\sqrt{xy^2}-\sqrt{x^2y}-\sqrt{y^3}}{\sqrt[4]{y^5}+\sqrt[4]{x^4y}-\sqrt[4]{xy^4}-\sqrt[4]{x^5}}$ ifodani soddalashtiring. A) 0. B) 1. C) $-(\sqrt[4]{x}+\sqrt[4]{y})$. D) $-(\sqrt{x}+\sqrt{y})$.

92. $\frac{(\sqrt[4]{m}+\sqrt[4]{n})^2+(\sqrt[4]{m}-\sqrt[4]{n})^2}{2(m-n)}:\frac{1}{\sqrt{m^3}-\sqrt{n^3}}-3\sqrt{mn}$ ifodani soddalashtiring $(m\neq n,\ m>0,\ n>0)$. A) 0. B) $m-n$. C) $\sqrt{m}-\sqrt{n}$. D) $(\sqrt{m}-\sqrt{n})^2$.

93. $ab\sqrt[n]{a^{1-n}b^{-n}-a^{-n}b^{1-n}}\cdot\sqrt[n]{(a-b)^{-1}}$ ifodani soddalashtiring $(a>b>0)$.
A) 1. B) ab. C) $(ab)^n$. D) $a^{-1}b^{-1}$.

94. $\sqrt[n]{3^8+9^4+81^2}$ ifodaning qiymati natural bo'ladigan n ning eng katta qiymatini toping.
A) 6. B) 8. C) 9. D) 12.

95. $\left(\frac{\left(a+\sqrt[3]{a^2x}\right)\cdot\left(x+\sqrt[3]{ax^2}\right)}{a^{1/3}-x^{1/3}}-x^{-1/3}\right)^3$ ifodani soddalashtiring. A) 1. B) ax. C) ax^{-2}. D) a^2x.

96. $\frac{a+x}{\sqrt[3]{a^2}-\sqrt[3]{x^2}}+\frac{\sqrt[3]{ax^2}-\sqrt[3]{a^2x}}{\sqrt[3]{a^2}-2\sqrt[3]{ax}+\sqrt[3]{x^2}}-\sqrt[6]{x}$ ni soddalashtiring. A) 1. B) $\sqrt[6]{a}$. C) $-\sqrt[6]{x}$. D) $(\sqrt[3]{a}+\sqrt[3]{x})$.

97. $\sqrt[4]{4-\sqrt{12}}\cdot\sqrt[6]{(1+\sqrt{3})^5}\cdot\sqrt[3]{\sqrt{3}-1}$ ni hisoblang.
A) 4. B) $2^{5/6}$. C) $3^{2/3}$. D) $1+\sqrt{3}$.

98. $\frac{5\sqrt[3]{4\sqrt[3]{192}}+7\sqrt[3]{18\sqrt[3]{81}}}{\sqrt[3]{12\sqrt[3]{24}+6\sqrt[3]{375}}}$ ni hisoblang.
A) 2/3. B) 5/3. C) 13/3. D) 31/3.

99. $\sqrt[3]{\frac{8z^3+24z^2+18z}{2z-3}}-\sqrt[3]{\frac{8z^3-24z^2+18z}{2z+3}}-\left(\frac{1}{2}\sqrt[3]{\frac{2z}{27}-\frac{1}{6z}}\right)^{-1}$ ni hisoblang. A) 0. B) z. C) $\sqrt{2z}$. D) $2\sqrt{z}$.

100. $\left(\frac{t\sqrt{t+2}}{\sqrt{t-2}}-\frac{t\sqrt{t-2}}{\sqrt{t+2}}-\frac{4t}{\sqrt{t^2-4}}\right)^{1/2}:\sqrt[4]{t^2-4}$ ifodani soddalashtiring $(t>2)$.
A) 0. B) 1. C) $\frac{\sqrt{t-2}}{\sqrt{t+2}}$. D) $\frac{\sqrt{t+2}}{\sqrt{t-2}}$.

101. $y=f(x)$ funksiyaning aniqlanish sohasi $[0; 2]$ va qiymatlar sohasi $[0; 1]$ bo'lsa, $g(x)=1-f(x+1)$ funksiyaning aniqlanish va qiymatlar sohasi qanday bo'ladi?
A) $[-1; 1]$, $[0; 1]$. B) $[1; 3]$, $[0; 1]$.
C) $[-1; 1]$, $[-1; 0]$. D) $[0; 2]$, $[-1; 0]$.

102. $h(x)=|x|$, $g(x)=\frac{2x+3}{3x-1}$, $f(x)=\sqrt{x+1}$ bo'lsa, quyidagilardan qaysi biri to'g'ri?
A) $f(h(x))=\sqrt{|x|+1}$. B) $h(f(x))=\sqrt{|x+1|}$.
C) $f(g(x))=\frac{\sqrt{5x+4}}{\sqrt{3x-1}}$. D) $g(h(x))=\frac{2|x|+3}{3|x|+1}$.

103. $f\left(\frac{3x-1}{x+2}\right)=\frac{x+1}{x-1}$ bo'lsa, $f(x)$ qanday bo'ladi?
A) $\frac{x+1}{x-1}$. B) $\frac{2x+1}{3-x}$. C) $\frac{3x-1}{x+2}$. D) $\frac{x+4}{3x-2}$.

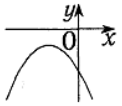
104. $f(x-2)=\frac{2x+1}{x+2}$ bo'lsa, $f(f(3))$ qanday bo'ladi?
A) 13/17. B) 13/15. C) 17/13. D) 19/13.

105. Juft funksiyani ko'rsating. A) $y=\mathrm{tg}x$.
B) $y=\frac{x^2+x^4}{2}$. C) $y=\frac{x-1}{x^2}$. D) $y=\sin x$.

106*. $f(x)=2x+3$, $g(x+2)=f(f(x-1)\cdot f(x+1)+f(x))$. $g(8)$ ni toping.
A) 259. B) 328. C) 475. D) 521.

107. $y=x^2+10x+23$ parabolaning simmetriya o'qi tenglamasini ko'rsating.
A) $x=-5$. B) $x=5$. C) $x=-23$. D) $y=5$.

108. $y=2x^2-4x+m+1$ funksiyaning eng kichik qiymati -3 bo'lsa, m nechaga teng?
A) -3. B) -2. C) -1. D) 0.

109. Grafigi chizmada keltirilgan $y=ax^2+bx+c$ funksiya uchun to'g'ri tasdiqni ko'rsating ($D=b^2-4ac$).


A) $ab>0$. B) $bc<0$.
C) $aD<0$. D) $bD<0$.

110. $f(x)=x^2-5$ funksiya berilgan. $f(a-1)-f(a+1)+2f(1-a^2)-2a^4+4a^2$ nimaga teng?
A) $4a+8$. B) $4a-8$. C) $-4a+8$. D) $-4a-8$.

111. Qanday $f(x)$ ko'phad uchun $f(x+2)+f(x-1)=2(x^2+7)$ tenglik o'rinli bo'ladi?
A) $f(x)=2x^2+1$. B) $f(x)=x^2+3x+7$.
C) $f(x)=x^2-4$. D) $f(x)=x^2-x+5$.

112. $y=\frac{1}{\sqrt{16-x^2}}$ funksiyaning aniqlanish sohasini toping. A) $(-4; 4)$. B) $(0; 4)$.
C) $(-2; 2)$. D) $(0; 5)$.

113. $y=\sqrt{\frac{-x^2+13x-22}{x-2}}$ funksiyaning aniqlanish sohasini toping. A) $x<22$. B) $2<x<11$.
C) $x<2$, $2<x\le 11$. D) $-2\le x\le 11$.

114. $y=\sqrt{x^2-|x|-2}$ funksiyaning aniqlanish sohasini toping.
A) $(-\infty; -1]\cup[1; \infty)$. B) $(-\infty; -2]\cup[1; \infty)$.
C) $(-\infty; -1]\cup[2; \infty)$. D) $(-\infty; -2]\cup[2; \infty)$.

115. $y=\sqrt{\log_{0{,}2}\frac{x+2}{x-1}-1}$ funksiyaning aniqlanish sohasini toping. A) $(-\infty; -2]$.
B) $[-11/4; -2)$. C) $[-2; 1)$. D) $\varnothing$.

116. $y=3x+4\sqrt{x-1}$ funksiyaning qiymatlar sohasini toping. A) $[2; 3]$. B) $[3; \infty)$.
C) $(-\infty; 3]$. D) $(3; \infty)$.

117. $y=\sqrt{x^2-6x+9}+\sqrt{x^2+8x+16}$ funksiyaning qiymatlar sohasini toping. A) $(-\infty; \infty)$.
B) $[0; \infty)$. C) $[1; \infty)$. D) $[7; \infty)$.

118. $y=\{x\}$ funksiyaning qiymatlari sohasini toping. A) N. B) 0; 1. C) $[0; 1)$. D) $[0; 1]$.

119. $0{,}2(x-1)+0{,}5(3x-9)=0{,}(3)x-2$ tenglamani yeching. A) $\frac{1}{3}$. B) $\frac{80}{41}$. C) $\frac{81}{41}$. D) $\frac{85}{41}$.

120. $\frac{2}{7}\left(4\frac{2}{3}x+3\frac{1}{2}\right)+\frac{2}{3}\left(x-\frac{1}{2}\right)=3$ tenglamani yeching. A) $\frac{2}{7}$. B) $\frac{2}{3}$. C) $1\frac{1}{6}$. D) 3.

121. $\left(1-\frac{1}{5^2}\right)\left(1-\frac{1}{6^2}\right)\cdot\ldots\cdot\left(1-\frac{1}{14^2}\right)(x-1)=\frac{3}{7}$ tenglamani yeching. A) 0,5. B) 1. C) 1,5. D) 2.

122. $\frac{1}{\frac{1}{\frac{1}{x+1}+\frac{1}{2}}+\frac{1}{\frac{1}{x+1}+\frac{1}{2}}}=\frac{x}{36}$ tenglamani yeching. A) 1. B) 36. C) 60. D) 70.

123. $\frac{x-1}{n-1}+\frac{2n^2(1-x)}{(n^2-1)(n^2+1)}=\frac{2x-1}{1-n^4}-\frac{1-x}{1+n}$ tenglamani yeching. A) 1/4. B) 1/2. C) 5/8. D) 6/8.

124. $\frac{3ab+1}{a}x=\frac{3ab}{a+1}+\frac{2a+1}{a(a+1)^2}x+\frac{a^2}{(a+1)^3}$ tenglamani yeching. A) 1. B) $\frac{a}{a+1}$. C) $\frac{a}{a-1}$. D) $\frac{a}{a^2+1}$.

125. $x:2{,}06(6)=0{,}(27):0{,}4(09)$ tenglamani yeching. A) 1,3. B) 1,37. C) 1,(37). D) 1,3(7).

126. Agar $\frac{a}{b}=\frac{c}{a}$ bo'lsa, a^2-bc qanday bo'ladi?
A) 0. B) 1. C) $2a^2$. D) bc.

127. $z^2-\frac{\sqrt{85}}{4}z+1\frac{5}{16}=0$ tenglamaning katta va kichik ildizlari kublarining ayirmasini toping.
A) −2. B) −1. C) 1. D) 2.

128. a va b $x^2+mx+m^2+c=0$ tenglamaning ildizlari. a^2+ab+b^2+c ifodaning qiymatini toping. A) 0. B) mc. C) $m+c$. D) $-m^2-c$.

129. x_1 va x_2 sonlar $2x^2-11x+13=0$ tenglamaning ildizlari. $\frac{x_1}{x_2}+\frac{x_2}{x_1}$ ni hisoblang.
A) −26/69. B) 26/69. C) 69/26. D) 84/29.

130. x_1 va x_2 sonlar $x^2+3x+1=0$ tenglamaning ildizlari. $\left(\frac{x_1}{x_2+1}\right)^2+\left(\frac{x_2}{x_1+1}\right)^2$ ifodaning qiymatini toping. A) 9. B) 18. C) 27. D) 36.

131. $9+\sqrt{11}$ soni x^2+mx+n ko'phadning noli. m va n butun sonlar yig'indisini toping.
A) 52. B) 54. C) 56. D) 58.

132*. $a^2>|a|>a$ va $x^2+2x-a=0$ bo'lsa, javoblardan qaysi biri to'g'ri?
A) tenglama bitta yechimga ega.
B) tenglama ikkita musbat yechimga ega.
C) tenglama ikkita manfiy yechimga ega.
D) tenglama yechimga ega emas.

133. a ning qanday qiymatlarida $ax^2+(a+1)x+4=0$ tenglama ikkita musbat ildizga ega bo'ladi? A) $(-\infty;-1)\cup(0;\infty)$. B) $\varnothing$.
C) $(-\infty;-1)\cup(7+4\sqrt{3};\infty)$.
D) $(-\infty;-7-4\sqrt{3})\cup(7+4\sqrt{3};\infty)$.

134. $x^2-(14+m)x+m^2=0$ $(m>0)$ tenglamaning ildizlari orasida $x_1=9x_2$ munosabat o'rinli. Tenglamaning kichik ildizini toping.
A) 2. B) 9. C) 18. D) 24.

135. $\frac{x-4}{x-5}+\frac{6x-30}{x-4}=5$ tenglamani yeching.
A) −5,5; 6. B) 5,5; 6. C) −5,5; −6. D) 6,5; 6.

136. $\cfrac{1}{x+\cfrac{1}{1+\cfrac{x+2}{x-2}}}=\frac{12}{12x-7}$ tenglamani yeching.
A) −12/13. B) −1/13. C) 1/13. D) 12/13.

137. $\frac{a+x}{a^2+ax+x^2}-\frac{a-x}{ax-x^2-a^2}=\frac{3a}{x(a^4+a^2x^2+x^4)}$ tenglamani yeching. A) 1. B) $\frac{a^3}{3}$. C) $\frac{3}{2a^2}$. D) $\frac{5}{2a^2}$.

138. $\frac{a^2+x}{b^2-x}-\frac{a^2-x}{b^2+x}=\frac{4abx+2a^2-2b^2}{b^4-x^2}$ tenglamani yeching. A) 1. B) $a+b$. C) $\frac{a+b}{a-b}$. D) $\frac{a-b}{a+b}$.

139. $u+\cfrac{1}{w+\cfrac{1}{x+\cfrac{1}{y+\cfrac{1}{z}}}}=\frac{222}{155}$ tenglamada u, w, x, y, z, lar natural sonlar bo'lsa, $10^4u+10^3w+10^2x+10y+z$ qanday bo'ladi?
A) 12345. B) 12354. C) 21345. D) 21435.

140*. Agar $a>1$ va $\frac{20a}{a^2+1}=\sqrt{2}$ bo'lsa, $\frac{14a}{a^2-1}$ qanday bo'ladi? A) $\sqrt{2}/2$. B) 1. C) 2. D) 14.

141. $x^4-4x^2+3=0$ tenglamani yeching.
A) ±1. B) $\pm1;\pm\sqrt{3}$. C) $\pm\sqrt{2}$. D) ±2.

142. $(x^2+2x)^2-(x+1)^2=55$ tenglamani yeching.
A) −4; −2. B) −4; 2. C) −2; 4. D) 4; 2.

143. $(x-4)(x-5)(x-6)(x-7)=1680$ tenglamani yeching. A) $x_1=x_2=1$. B) $x_1=5$; $x_2=6$.
C) $x_1=-1$; $x_2=12$. D) $x_1=4$; $x_2=7$.

144. $x^2-\frac{27}{x^2}+x-\frac{27}{x}=0$ tenglamaning ildizlari ko'paytmasini toping.
A) −3. B) −2. C) 0. D) 1.

145. $x^3-a(x^2+1)+x+10=0$ tenglama ildizlaridan biri −1 ga teng. a ni toping.
A) −4. B) 0. C) 2. D) 4.

146. $\begin{cases}x+y=2,\\x-z=-1,\\y-z=-5\end{cases}$ tenglamalar sistemasini qanoatlantiruvchi x, y va z sonlarning o'rta arifmetik qiymatini toping.
A) 0. B) 1,5. C) 2. D) −2.

147. $\begin{cases}7x-3y+5z=32,\\5x+2y+z=11,\\2x-y+3z=14\end{cases}$ tenglamalar sistemasini yeching. A) (2; −1; 3). B) (−2; 1; 3).
C) (3; −2; 1). D) (4; 2; 1).

148. $(x;\ y)$ sonlar jufti $\begin{cases}\frac{6x+7y}{2}-\frac{4x-3y}{4}=2,\\\frac{5y-2x}{3}+\frac{4x-3y}{6}=0\end{cases}$ sistemaning yechimi bo'lsa, x^2-y^2 qanday bo'ladi? A) −1. B) 0. C) 1. D) 2.

149. a, b, c haqiqiy sonlar uchun $a-7b+8c=4$ va $8a+4b-c=7$ tengliklar o'rinli bo'lsa, $a^2-b^2+c^2$ qanday bo'ladi?
A) 0. B) 1. C) 4. D) 7.

150. $\begin{cases}\frac{2}{a}+\frac{3}{b}=\frac{4}{5},\\\frac{1}{a}+\frac{4}{b}=\frac{1}{2}\end{cases}$ bo'lsa, b qanday bo'ladi?
A) 17. B) 25. C) 50. D) 134.

151. $\begin{cases}\frac{a-b}{b}=\frac{3}{2},\\1-\frac{b}{a}=c\end{cases}$ bo'lsa, c qanday bo'ladi?
A) 2/5. B) 3/5. C) 4/5. D) 8.

152. $ax=by=cz=6$ va $x+y+z=36$ ekani ma'lum. $\frac{1}{a}+\frac{1}{b}+\frac{1}{c}$ ni toping. A) 5. B) 6. C) 9. D) 12.

153. Agar $am+bn=0$ va $a^2+b^2=m^2+n^2=1$ bo'lsa, $ab+mn$ ning qiymati qanday bo'ladi?
A) 0. B) 1. C) 2. D) 4.

154. $\begin{cases}x-y=2,\\xy=15\end{cases}$ tenglamalar sistemasini yeching.
A) (5; 3), (−3; −5). B) (−5; 3), (3; −5).
C) (5; 3), (−5; −3). D) (−5;−3), (3; −5).

155. $\begin{cases}x^2+y^2=2(xy+2),\\x+y=6\end{cases}$ sistemani yeching.
A) (3; 2), (2; 3). B) (−3; −2), (−2; −3).
C) (4; 2), (2; 4). D) (−4; −2), (−2; −4).

156. $\begin{cases}x^2-y=23,\\x^2y=50\end{cases}$ tenglamalar sistemasini yeching.
A) (5; 4), (−5; 4). B) (5; 2), (−5; 2).
C) (−2; 5), (−5; −2). D) (4; 5), (−4; 5).

157. $\begin{cases}x^2+xy=4,\\y^2+xy=12\end{cases}$ tenglamalar sistemasini yeching. A) (1; 3). B) (1; 3) va (3; 1).
C) (−1; −3). D) (−1; −3) va (1; 3).

158. a ning qanday qiymatida $\begin{cases}2x+3y=5,\\x+4y=a,\\x-y=2\end{cases}$ tenglamalar sistemasi yechimga ega bo'ladi?
A) 0. B) 1. C) 2. D) 3.

159. $\begin{cases}7+3x\ge5(x+1)+6,\\(x-2)^2-8<x(x-2)+10\end{cases}$ tengsizliklar sistemasini yeching. A) [2; 11). B) (−11; 2].
C) [−2; 7). D) (−7; −2].

160. $(x-4)(x-7)(x-9)>0$ tengsizlikni yeching.
A) $x\in(4;7)$. B) $x\in(4;7)\cup(9;\infty)$.
C) $x\in(7;9)$. D) $x\in(-\infty;4)\cup(7;9)$.

161. $23-2x\le(x+2)(x-2)-2(x-1)$ tengsizlikni yeching. A) (0; 25]. B) $[-\sqrt{21};\sqrt{21}]$.
C) [−5; +5]. D) $(-\infty;-5]\cup[5;\infty)$.

162. $x^4+3x^3+4x^2+3x+1\ge0$ tengsizlikni yeching.
A) $\varnothing$. B) $x\in R$. C) $(-1;\infty)$. D) $[-1;\infty)$.

163. $1-\frac{7}{x}<-\frac{12}{x^2}$ tengsizlikni yeching.
A) (2; 5). B) (3; 4). C) (3; 5). D) (3; 6).

164. $\frac{x^2-5x-6}{x^2-4x+10}\le0$ tengsizlikni yeching.
A) (0; 3). B) [−1; 6]. C) [0; 5]. D) (1/2; 6).

165. $\frac{(x+5)^2(x-1)}{x^2-1}\ge0$ tengsizlikni yeching.
A) $[-1;\infty)$. B) $\{-5\}\cup(-1;1)\cup(1;\infty)$.
C) $[-1;1)\cup(1;\infty)$. D) $\{-5\}\cup[-1;\infty)$.

166. $\frac{(x^2+x+1)x^2}{x^2-5x+6}<0$ tengsizlikni yeching.
A) $(-\infty;2]\cup[3;\infty)$.
B) $(-\infty;2]$. C) [2; 3]. D) (2; 3).

167. $\frac{(x+2)^2(x-5)^3(x+7)}{x-5}>0$ tengsizlikni yeching.
A) $(-7;-2)\cup(-2;-3)\cup(3;5)$.
B) $(-7;-2)\cup(-2;3)\cup(5;\infty)$.
C) $(-7;-2)\cup(5;\infty)$. D) $(-\infty;-7)\cup(3;5)$.

168. $1+8x\le358-2x\le6x+94$ qo'sh tengsizlikning barcha butun yechimlari yig'indisini toping.
A) 102. B) 196. C) 201. D) 350.

169. $(x^2-x-1)(7+x-x^2)\ge5$ tengsizlikning eng katta butun va eng kichik butun yechimlari ayirmasini toping. A) 5. B) 6. C) 7. D) 8.

170. $\frac{x^4-5x^2-36}{\sqrt{x}(2x-x^2-8)}\ge0$ tengsizlikning butun yechimlari yig'indisini toping.
A) 0. B) 3. C) 4. D) 6.

171. Nechta tub son $1<\frac{1+2n}{3(n-4)}<3$ tengsizlikning yechimi bo'ladi? A) 1. B) 2. C) 5. D) 7.

172. Nechta tub son $2<\frac{7+n}{2n-19}<4$ tengsizlikning yechimi bo'ladi? A) 1. B) 2. C) 3. D) 4.

173. $0{,}25<\frac{y^2-0{,}25y+1}{1+y^2}<\frac{15}{16}$ tengsizlikning tub sonlardan iborat yechimlari nechta?
A) 2. B) 3. C) 4. D) 5.

174. Umumiy hadi $b_n=\frac{6n-2}{1+3n}$ $(n\in N)$ bo'lgan ketma-ketlikning nechta hadi (1,7; 2,2) oraliqqa kirmaydi? A) 4. B) 5. C) 6. D) 8.

175. $\begin{cases}2x-1>x,\\x^2-7x+6>0,\\2^x<128\end{cases}$ tengsizliklar sistemasini yeching. A) $(-\infty;6)$. B) $(7;\infty)$.
C) $(-\infty;6)\cup(7;\infty)$. D) (6; 7).

176. k ning qanday qiymatida $\frac{3-2x}{x-1}=1+k$ tenglamaning ildizi −1 dan katta bo'ladi?
A) $(-\infty;-3,5)\cup(-3;\infty)$. B) $[-3;\infty)$.
C) $(-\infty;-3,5)$. D) $(-3;\infty)$.

177. $\begin{cases}3^2-ax+3a\ge0,\\3+ax-7a\ge0\end{cases}$ tengsizliklar sistemasi a ning qanday qiymatlarida yechimga ega bo'lmaydi? A) $(-\infty;0)\cup(1{,}5;\infty)$.
B) $(3;\infty)$. C) $(-\infty;0)$. D) $[1{,}5;\infty)$.

178. Agar $4\le x\le y\le z\le t\le25$ bo'lsa, $\frac{x}{y}+\frac{z}{t}$ ifodaning eng kichik qiymati qanday bo'ladi?
A) 0,2. B) 0,4. C) 0,8. D) 1,6.

179. Agar $25\le x\le y\le z\le t\le64$ bo'lsa, $\frac{x}{y}+\frac{z}{t}$ ifodaning eng kichik qiymati qanday bo'ladi?
A) 0,2. B) 1,25. C) 1,6. D) 25/32.

180. $a>b>0$ va $c=\frac{a+b}{b}$ berilgan. To'g'ri tasdiqni toping. A) $c=2$. B) $a<c<2$. C) $c>2$. D) $c=1$.

181. $|x|-|x-2|=2$ tenglamani yeching.
A) {−2}. B) {2}. C) $(2;\infty)$. D) $[2;\infty)$.

182. $|6x-7|=|8x-7|$ tenglamani yeching.
A) {0; 1}. B) {0; 2}. C) {2; 1}. D) {2; 3}.

183. $|x-4|+|x+3|+|x-1|=6$ tenglamaning ildizlari yig'indisini toping.
A) ildizi yo'q. B) −4. C) 0. D) 1.

184. $|x+4|+|x-2|+|x-3|=7$ tenglamaning ildizlari yig'indisini toping.
A) ildizi yo'q. B) −2. C) 0. D) 2.

185. $(4-x^2)\cdot|x|=1$ tenglama nechta ildizga ega?
A) 1. B) 2. C) 3. D) 4.

186. $|6x-x^2-8|^{x-6}=|x^2-6x+8|$ tenglamaning nechta ildizi bor? A) 2. B) 4. C) 5. D) 6.

187. $|x^2-x-(x+1)|^{x-7}=|x^2-2x-1|$ tenglamaning nechta ildizi bor? A) 2. B) 3. C) 5. D) 6.

188. m ning qanday qiymatida $|2-x^2-3x|=5m$ tenglama uchta turli haqiqiy ildizga ega bo'ladi? A) 0,17. B) 0,56. C) 0,75. D) 0,85.

189. $|2x^2-26x+44|=-(26x-44-2x^2)$ tenglik x ning qanday qiymalarida o'rinli bo'ladi?
A) $(2; 11)$. B) $(-\infty; 2]\cup[11; \infty)$.
C) $(-2; 0)\cup(0; 11)$. D) $(-\infty; -2)\cup(11; \infty)$.

190. $|x^2+2x+5|+|x-3|=|x^2+3x+2|$ tenglamani yeching. A) 3; 5. B) 4; 6. C) [0; 3]. D) [3; ∞).

191. $x^2-|\sin x|=0$ tenglamaning nechta yechimi bor? A) 2. B) 3. C) 4. D) 5.

192. $\left|\frac{2x^5}{|x^4-16|}\right| = \frac{2x^5}{16-x^4}$ tenglamaning barcha natural yechimlari yig'indisidan eng katta manfiy butun yechimi ayirmasini toping.
A) 1. B) 2. C) 3. D) 4.

193. $-3x^2+2x+|x+2|$ funksiyaning eng katta qiymatini toping.
A) $2\frac{3}{4}$. B) $2\frac{4}{5}$. C) $3\frac{11}{12}$. D) 10.

194. $|7-2x|=|5-3x|+|x+2|$ tenglamani qanoatlantiradigan oraliqni toping. A) $[2; \frac{1}{3}]$.
B) $(2; 2\frac{1}{3})$. C) $[-2; 1\frac{2}{3}]$. D) $[\frac{1}{3}; -2]$.

195. $3x+|2-x|\le 5$ tengsizlikni yeching.
A) $x\le -1$. B) $x\le 1{,}5$. C) $x\ge 2$. D) $x\ge 3$.

196. $\left|\frac{x+4}{x+2}\right|\le 1$ tengsizlikni yeching. A) $\{-3\}$.
B) $(-\infty; -3)$. C) $(-3; \infty)$. D) $(-\infty; -3]$.

197. $\frac{|3x-2|-7}{x+1}\ge -1$ tengsizlikni yeching.
A) $[2; \infty)$. B) $[-2; -1]\cup[2; \infty)$.
C) $[-2; -1]$. D) $[-2; -1)\cup[2; \infty)$.

198. $|(x+3)(x+1)+1|\le 0$ tengsizlikni yeching.
A) −2. B) 0. C) 2. D) ∅.

199. $|x^2-2x-3|+2|x-2|<5$ tengsizlikni yeching.
A) $(2; 3)$. B) $(-\infty; \infty)$.
C) $(\sqrt{2}; 3)$. D) $(\sqrt{2}; 2\sqrt{3})$.

200. $|x+1|+\frac{1}{|x-1|}>7x$ tengsizlikni yeching.
A) $(2/3; 1)\cup(1; 7/6)$.
B) $(-\infty; 1/2)\cup(2/3; 1)\cup(1; 7/6)$.
C) $(-\infty; 1/2)\cup(1; \infty)$. D) $(-\infty; 1/2)\cup(1; 7/6)$.

201. Idish to'g'ri burchakli parallelepiped shaklida bo'lib, uning uzunligi 60 cm, eni 45 cm va balandligi 47 cm. Agar undagi suv sathi 40 cm balandlikda bo'lsa, idishda necha litr suv bor? A) 106. B) 108. C) 115. D) 135.

202. 8-a sinfda juma kuni 4 soat dars: rus tili, algebra, fizika, kimyo darslari bo'ladi. Bu darslarni dars jadvaliga necha xil usul bilan joylashtirish mumkin?
A) 4. B) 12. C) 20. D) 24.

204. Agar uch xonali sondan 6 ni ayirsak, ayirma 7 ga bo'linadi, 7 ni ayirsak, ayirma 8 ga bo'linadi, 8 ni ayirsak, ayirma 9 ga bo'linadi. Bu sonni toping.
A) 143. B) 167. C) 503. D) 936.

204. Ikkita natural sonni 3 ga bo'lganda qoldiqda 1 va 2 qoldi. Bu sonlar kvadratlarining musbat ayirmasini 3 ga bo'lganda qanday qoldiq qoladi? A) 0. B) 1. C) 1 yoki 2. D) 2.

205. Bir odamning hamyonida 1, 5 va 10 so'mlik pullarning har biridan kamida bitta, ko'pi bilan ikkita bo'lsa, pul miqdori quyidagi sonlarning qaysi biriga teng bo'lolmaydi?
A) 18. B) 21. C) 31. D) 32.

206. Ruchka qalamdan 2 marta qimmat, o'chirg'ich esa qalamdan 3 marta arzon. Agar ruchka, qalam va o'chirg'ich birgalikda 2000 so'm tursa, qalam necha so'm turadi?
A) 400. B) 500. C) 550. D) 600.

207. 174 gektar yerdan 4556 sentner bug'doy hosili olindi, bunda qo'riq yerlarda gektaridan 30 sentnerdan, qolgan yerlarda esa 22 sentnerdan hosil olindi. Necha gektar qo'riq yerlar o'zlashtirilgan?
A) 80. B) 90. C) 91. D) 91,5.

218. Ikki sonning ayirmasi 30 ga, nisbati esa 3 ga teng. Shu sonlarni toping. A) 42 va 12.
B) 45 va 15. C) 46 va 16. D) 55 va 25.

219. Qanday ikki xonali son o'z raqamlari yig'indisidan 4 marta, ko'paytmasidan 3 marta katta? A) 24. B) 27. C) 36. D) 48.

210. Xo'jayin bir kishini bir yilga yollab, unga 12 so'm pul va bir chakmon bermoqchi bo'libdi. Lekin ishchi 7 oy ishlaganidan keyin xo'jayin unga 5 so'm pul va bir chakmon beribdi. Chakmon necha so'm turgan?
A) 4,8. B) 5. C) 5,2. D) 5,5.

211. Umumiy bahosi 225 dinor bo'lgan ikki mo'yna xalqaro bozorda 40% foydasi bilan sotildi. Agar 1-mo'ynadan 25%, 2-sidan 50% foyda qilingan bo'lsa, har bir mo'ynaning bahosi necha dinor bo'lgan? A) 80; 145.
B) 100; 125. C) 90; 135. D) 200; 25.

212. 4 yil oldin otaning yoshi ikki farzandi yoshlari yig'indisidan 8 marta katta edi. 24 yildan so'ng otaning yoshi bu farzandlari yoshlari yig'indisiga teng bo'ladi. Ota hozir necha yoshda? A) 24. B) 32. C) 36. D) 48.

213. Ota 41 yoshda, katta o'g'li 13 yoshda, qizi 10 yoshda, kichik o'g'li 6 yoshda. Necha yildan so'ng otaning yoshi hamma farzandlari yoshlarining yig'indisiga teng bo'ladi?
A) 4. B) 5. C) 6. D) 7.

214. Anvar aka bozorga tuxum olib keldi va birinchi xaridorga tuxumlarning yarmini va yana bitta, ikkinchi xaridorga qolganining yarmini va yana bitta, uchinchi xaridorga qolgan tuxumlarning yarmini va yana bitta

tuxum sotdi. Shunda o'zida 14 ta tuxum qoldi. U bozorga nechta tuxum olib kelgan?
A) 50. B) 96. C) 100. D) 126.

215. Akrom bog'dan bir necha olma uzib chiqdi. Olmalarning 1/3 qismini va yana bir donasini ukasiga, qolgan olmalarning 1/3 qismini va yana bir donasini singlisiga berdi. Shunda o'zida 5 dona olma qoldi. Akrom bog'dan nechta olma uzib chiqqan?
A) 12. B) 15. C) 16. D) 20.

216. Bir odam avval maoshining yarmini, keyin oltidan bir qismini, keyinroq esa qolganining yarmini oldi. Agar olgan pulining beshdan bir qismi 350 so'm bo'lsa, u odam yana qancha (so'm) pul olishi kerak?
A) 35. B) 70. C) 175. D) 350.

217. m dan katta bo'lmagan juft natural sonlarning yig'indisi x, m dan katta bo'lmagan, lekin 10 dan katta bo'lgan juft natural sonlarning yig'indisi y hamda $x+y=810$ bo'lsa, m ning barcha qiymatlari yig'indisi qanday bo'ladi? A) 81. B) 83. C) 210. D) 420.

218. Zavodning 3 ta sexida 2740 nafar ishchi ishlaydi. Ikkinchi sexda birinchisiga nisbatan 140 ta ko'p ishchi, uchinchi sexda esa ikkinchisiga nisbatan 1,2 marta ko'p ishchi ishlaydi. Har bir sexda qanchadan ishchi ishlaydi?
A) 750; 900; 1090. B) 760; 980; 1000.
C) 790; 900; 1050. D) 760; 900; 1080.

219. 2, 6, 10, ..., 102 sonlarning o'rta arifmetik qiymatini toping.
A) 42. B) 52. C) 60. D) 62.

220. Uzunligi 19,8 m bo'lgan arqon ikki bo'lakka bo'lindi. Bo'laklardan biri ikkinchisidan 20% uzun. Har bir bo'lakning uzunligini toping (m). A) 6,8 va 13. B) 8 va 11,8.
2) 7,8 va 12. D) 9 va 10,8.

221. Teploxod ikki pristan orasidagi masofani daryo oqimi bo'ylab 7 soatda, oqimga qarshi 9 soatda o'tadi. Oqimning tezligi 2 km/soat. Pristanlar orasidagi masofani aniqlang (km).
A) 120. B) 126. C) 128. D) 130.

222. Poezd ma'lum masofani 2,25 sutkada o'tishi kerak edi. U har soatda mo'ljaldagidan 25 km ortiq yo'l o'tganligi uchun bu masofani 2 sutkada o'tdi. Poezd qanday masofa o'tgan (km)? A) 1080. B) 10000. C) 10080. D) 10800.

223. Yo'lovchi harakatsiz eskalatorda 3 minutda, harakatlanayotgan eskalatorda 45 sekundda ko'tariladi. Eskalator tinch turgan yo'lovchini necha minutda ko'taradi?
A) 1. B) 1,5. C) 2. D) 2,5.

224. Bir ishchi ishning 10% ini t vaqtda, ikkinchi ishchi ishning 20% ini $t+1$ vaqtda bajaradi. Agar ikkalasi birga ishlasa, ish qancha vaqtda bajariladi?
A) $15t+5$. B) $\frac{5t(2t+1)}{3t+1}$. 2) $\frac{5t(t+1)}{2t+1}$. D) $\frac{10t(t+1)}{3t+1}$.

225. Ishchi birinchi kuni o'ziga topshirilgan ishning yarmini, ikkinchi kuni qolgan ishning yarmini, uchinchi kuni qolgan ishning yarmini bajardi. Ishni tugatishi uchun u to'rtinchi kuni ishning qanday qismini bajarishi kerak? A) 1/2. B) 1/4. C) 1/8. D) 1/16.

226. Bir ishchi ma'lum ishni 24 kunda bajaradi, ikkinchi ishchi shu ishni 48 kunda bajara oladi. Agar ikkala ishchi birgalikda ishlasa, bu ish necha kunda bajariladi?
A) 15. B) 16. C) 18. D) 20.

227. Ikki ishchi birgalikda ishlab, ma'lum ishni 12 kunda tamomlaydi. Agar ularning biri shu ishning yarmini bajarganidan keyin, ikkinchisi qolgan yarmini bajarsa, ish 25 kunda tamomlanishi mumkin. Ishchilardan biri boshqasidan necha marta tez ishlaydi?
A) 1,2. B) 1,5. C) 1,6. D) 1,8.

228. Ikki quvur birgalikda basseynni 7,5 soatda to'ldiradi. Birinchi quvur basseynni ikkinchi quvurga nisbatan 8 soat tezroq to'ldirsa, u basseynni necha soatda to'ldiradi?
A) 12. B) 15. C) 15,5. D) 16.

229. $\sqrt{x-2}+|x-5|=3$ tenglamaning butun yechimlarini toping. A) 2, 3, 6.
B) 2, 5, 6. C) 4, 5, 6. D) 5, 7, 11.

230. $\sqrt{x+1}=8-\sqrt{3x+1}$ tenglamani yeching.
A) 3. B) 8. C) 15. D) 24.

231. $\sqrt{x-1}+\sqrt{2x+6}=6$ tenglamani yeching.
A) 5. B) 6. C) 10. D) 197.

232. $\sqrt{5-\sqrt{2x-7}}=2$ tenglamaning ildizlari qaysi oraliqqa tegishli? A) $(-1; 1)$.
B) $[1; 3)$. C) $[3; 4)$. D) $[4; 6)$.

233. $\sqrt{x-\sqrt{x-4}}=4$ tenglamani yeching $(x\in R)$.
A) 4. B) 5. C) 16. D) 20.

234. $\sqrt{x}+\sqrt{x-\sqrt{1-x}}=1$ tenglamani yeching.
A) yechimi yo'q. B) 0. C) 16/25. D) 16/25 va 0.

235. $\sqrt{x^2+9}-\sqrt{x^2-7}=2$ tenglamani yeching.
A) ± 2. B) ± 3. C) ± 4. D) ± 6.

236. $\sqrt{4-x}-\sqrt{5-2x}=0$ tenglamaning ildizi qaysi oraliqqa tegishli? A) $(-2; 1)$.
B) $(1; 4)$. C) $(2; 5]$. D) $(-1; 2]$.

237. $\sqrt{2x-1}+\sqrt{8x-4}=9$ tenglamaning ildizi qaysi oraliqqa tegishli?
A) $(-2; 2)$. B) $[0{,}5; 5)$. C) $[2; 5)$. D) $[5; 9]$.

238. $\sqrt[10]{2x^2-14{,}5x}=1/8$ tenglama yechimlari ayirmasi modulining 1/5 qismini toping.
A) 1,6. B) 1,9. C) 2. D) 2,5.

239. $x^2-4x+6=\sqrt{2x^2-8x+12}$ tenglamaning haqiqiy ildiziga qarama-qarshi sonning teskarisini toping. A) $-0{,}5$. B) 0,5. C) -2. D) 2.

240. $\frac{\sqrt{x-3}+\sqrt{x+3}}{\sqrt{x-3}-\sqrt{x+3}}=-\frac{x+1}{2}$ tenglamaning yechimlari to'plamini toping.
A) $\{5\}$. B) $\{3; 10\}$. C) $\{5; 10\}$. D) $\{5; -3\}$.

241. $\sqrt{x^2-x-12}+\sqrt{5x-x^2-4}+\operatorname{tg}\frac{\pi}{2x-4}=1$ tenglamani yeching. A) 1. B) 3. C) 4. D) 1; 3.

242. $\sqrt{2x^2+x-1}-\sqrt{4x^2+9x+5}+\sqrt{x^2-1}=0$ tenglamani yeching.

A) 1; 5. B) −1; 5. C) 1; 0. D) $-1\frac{2}{7}$; −1; 5.

243. $\sqrt{x^2-4x+5}+\sqrt{2x^2-8x+17}=4$ tenglama nechta ildizga ega? A) 1. B) 3. C) 3. D) 4.

244. $\sqrt[3]{76-\sqrt{x}}+\sqrt[3]{76+\sqrt{x}}=8$ tenglamani yeching. A) 2209. B) 2304. C) 2401. D) ∅.

245. $\sqrt[3]{3x+2}-\sqrt[3]{3x-5}=1$ tenglama ildizlarining yig'indisini toping.

A) −3. B) −2. C) −1. D) 1.

246. $\sqrt{5+4\sqrt{x+1}+x}+\sqrt{18+6\sqrt{9-x}-x}=9$ tenglama ildizlari ko'paytmasini toping.

A) −4. B) 0. C) 4. D) ∅.

247. $\sqrt{x+2\sqrt{x-1}}-\sqrt{x-2\sqrt{x-1}}=2$ tenglamani yeching. A) 1. B) 2. C) [1; ∞). D) [2; ∞).

248. Tenglamani yeching: $\sqrt[3]{x^4\sqrt[3]{x^4\sqrt[3]{x^4}...}}=49$.

A) ±7. B) 39. C) ±49. D) 50.

249. $x^2-3x-2\sqrt{2x}+6=0$ tenglamaning katta ildizi m va ildizlarining soni n bo'lsa, mn qanday bo'ladi? A) −4. B) −2. C) 2. D) 3.

250. $\sqrt[3]{x+1}-\sqrt[3]{x-1}=\sqrt[6]{x^2-1}$ tenglamani yeching.

A) $\sqrt{3}$. B) $\sqrt{5}$. C) $\pm\sqrt{5}/2$. D) $\sqrt{5}/2$.

251. Agar $\begin{cases}\sqrt{\frac{x+y}{2}}+\sqrt{\frac{x-y}{3}}=14,\\ \sqrt{\frac{x+y}{8}}-\sqrt{\frac{x-y}{12}}=3\end{cases}$ bo'lsa, $x+y$ qanday bo'ladi? A) 180. B) 200. C) 220. D) 225.

252. $\begin{cases}\sqrt[3]{x-1}+\sqrt[3]{y+1}=3,\\ \sqrt[3]{(x-1)^2}-\sqrt[3]{(x-1)(y+1)}+\sqrt[3]{(y+1)^2}=3\end{cases}$ tenglamalar sistemasini yeching.

A) (2; 3). B) (7; 2), (28; −1).
C) (9; 0), (2; 7). D) (9; 0), (28; −1).

253. $\frac{\sqrt{3x-2}}{x-4}<-1$ tengsizlikni yeching.

A) $x>9$. B) $2/3\le x<4$.
C) $2/3\le x<4$, $x>9$. D) $2<x<4$.

254. $\sqrt{x-1}+\sqrt{x+4}<5$ tengsizlikni yeching.

A) $x\ge-1$. B) $x\ge1$. C) $x<5$. D) $1\le x<5$.

255. $x\sqrt{3-2x-x^2}\ge0$ tengsizlikni yeching.

A) [0; ∞). B) [0; 1].
C) {−3}∪[0; 1]. D) [1; ∞).

256. $(x+2)\sqrt{3-2x-x^2}\le0$ tengsizlikni yeching.

A) [−3; −2]. B) (−∞; −3].
C) [−3; −2]∪{1}. D) (−∞; −2].

257. $(x+3)\sqrt{10-3x-x^2}\le0$ tengsizlikni yeching.

A) [−5; −3]. B) (−∞; −3].
C) [−5; −3]∪{2}. D) (−∞; −5].

258. $(3-x)\sqrt{2x+8-x^2}\ge0$ tengsizlikni yeching.

A) [−2; 3]. B) (−∞; −2].
C) (−∞; 3]. D) [−2; 3]∪{4}.

259. $(x-2)\sqrt{\sqrt{9}+2x-x^2}\ge0$ tengsizlikni yeching. A) [2; ∞). B) {−1}∪[2; 3].
C) [3; ∞). D) {−1}∪[2; ∞].

260*. $\frac{\sqrt{x^2-3x+2}}{4x-x^2-3}\ge0$ tengsizlikni yeching.

A) (0; 1). B) [0; 2). C) [2; 3). D) (0; ∞).

261. $\sqrt{x^2+3x+2}>x-2$ tengsizlikni yeching ($x\in R$). A) (−2; −1). B) (−∞; −2)∪(−1; ∞).
C) [−2; −1]. D) (−∞; −2]∪[−1; ∞).

262. $3y+\sqrt{8+2y-y^2}-6>0$ tengsizlikning butun sonlardan iborat yechimlari nechta?

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

263. $21-y^2-(2\sqrt{4-y})^2\ge0$ tengsizlikning butun sonlardan iborat yechimlaridan eng katta va eng kichigining yig'indisini toping.

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

264. $(x^3+4x^2+4x)\sqrt{25-x^2}\ge0$ tengsizlikning butun sonlardan iborat yechimlari yig'indisini toping. A) 6. B) 8. C) 10. D) 12.

265. $a=0,(3)\sqrt{3}$, $b=0,(3)-\sqrt{2}$; $c=3^{-2}$ sonlarni o'sish tartibida joylashtiring.

A) $a<b<c$. B) $b<c<a$. C) $c<a<b$. D) $c<b<a$.

266. $2^{x+1}+2^{1-x}=1-2x-x^2$ tenglamani yeching.

A) ∅. B) 1. C) 3. D) $\sqrt{2}-1$.

267. $\frac{10^x+10^{-x}}{10^x-10^{-x}}=5$ tenglamani yeching.

A) 1. B) lg6. C) $\lg\frac{3}{2}$. D) $\frac{1}{2}\lg\frac{3}{2}$.

268. $2^{(x-1)^2}=(1-x)^2+12$ tenglamaning yechimi nechta? A) 0. B) 1. C) 2. D) 3.

269. $3^{x^2+2x-0,5}=9\sqrt{3}$ tenglamani yeching.

A) −3; 1. B) −2; 3. C) 0; 1. D) 2; 3.

270. $2^{x^2+1}=1-x^8$ tenglamani yeching.

A) −1. B) 1. C) 2. D) yechimi yo'q.

271. $7^{5x-1}=49$ tenglamani yeching.

A) −0,6. B) 0,5. C) 0,6. D) 2/3.

272. $x^{\sqrt{x}}=\sqrt[x]{x^8}$ tenglamani yeching. A) −1; 4.
B) 1; 4. C) 1; 2. D) yechimga ega emas.

273. $y=3^x$ va $y=1/3$ funksiyalarning grafiklari kesishadigan nuqtaning koordinatalarini toping. A) (1; 1/3). B) (1/3; −1).
C) (1/3; 1/5). D) (−1; 1/3).

274. $7^x\cdot(\sqrt{2})^{2x^2-6}-\frac{7^x}{2^{2x}}=0$ tenglamaning kichik ildizini toping. A) −4. B) −3. C) 0. D) 1.

275. $3^{x-5}+3^{x-7}+3^{x-9}=45,5+22,75+11,375+...$ tenglamaning [0; 10] oraliqdagi ildizlarini toping. A) yechimga ega emas.
B) 2; 8. C) 1; 9. D) 9.

276. $\begin{cases}x\sqrt{y}=y,\\ y\sqrt{y}=x^4\end{cases}$ sistema ildizlarini ifodalovchi nuqtalar orasidagi masofani toping ($x>0$).

A) $\sqrt{7}$. B) $2\sqrt{2}$. C) 3. D) $\sqrt{10}$.

277. Agar $4^x=125$ va $8^y=5$ bo'lsa, $\frac{2x-y}{y}$ qanday bo'ladi? A) -6. B) 3,5. C) 4. D) 8.

278. $\begin{cases}9^{x+y}=729,\\3^{x-y-2}=1\end{cases}$ tenglamalar sistemasini yeching. A) (1,5; 1,5). B) (1; 2). C) (2; 1). D) (2; 2).

279. $\begin{cases}3^{\sqrt{x}+\sqrt{y}}=27^3,\\\lg\sqrt{xy}=1+\lg 2\end{cases}$ tenglamalar sistemasini yeching. A) (4; 9), (9; 4). B) (0; 9). C) (16; 25), (25; 16). D) (0; 1).

280. $0{,}(3)^{12-5x}\le 27$ tengsizlikning nechta natural yechimi bor? A) 0. B) 1. C) 2. D) 3.

281. $2^{5x-1}+2^{5x-2}+2^{5x-3}-896<0$ tengsizlikni yeching. A) $(-\infty; 2)$. B) $(-\infty; -2)$. C) $(-\infty; 0{,}2)$. D) $(-\infty; 10)$.

282. $4^x<2^{x+1}+3$ tengsizlikni yeching. A) $0<x<1$. B) $x<\log_2 3$. C) $x>\log_2\sqrt{3}$. D) $x>\log_2 3$.

283. $2^{x+4}+3\cdot 2^{x-2}\ge 67$ tengsizlikni yeching. A) $(-\infty; 2)$. B) $[2; \infty)$. C) $[3; \infty)$. D) $[4; \infty)$.

284. $a^{x^2-x}<a^2$ $(0<a<1)$ tengsizlikni yeching. A) $(-\infty; -1)\cup(2; \infty)$. B) $(-1; 1)$. C) $(-1; 2)$. D) $[-1; 2]$.

285. $2^{x^2-16}\le 1$ tengsizlikni yeching. A) $[-4; 4]$. B) $(-2; 2)$. C) $(0; 2)$. D) $[0; 4)$.

286. $9^{0{,}5/x}+3^{1/x+3}>84$ tengsizlikni yeching. A) $(0; 1)\cup(1; \infty)$. B) $(0; 1)$. C) $(-\infty; 0)$. D) $(1; \infty)$.

287. $(\pi-e)^{\ln(1-2\cos^2 x)}\ge 1$ tengsizlikning $[0; \pi]$ oraliqqa tegishli barcha yechimlarini toping. A) $[0; \pi/2)$. B) $[\pi/4; \pi/2)$. C) $[0; \pi/2]$. D) $(\pi/4; 3\pi/4)$.

288. $26^x+27\ge 9(6-\sqrt{10})^x+3(6+\sqrt{10})^x$ tengsizlikni yeching. A) $[\log_{6+\sqrt{10}} 9; \log_{6-\sqrt{10}} 3]$. B) $(\log_{6+\sqrt{10}} 9; \log_{6-\sqrt{10}} 3)$. C) $(-\infty; \log_{6+\sqrt{10}} 9]\cup[\log_{6-\sqrt{10}} 3; \infty)$. D) $(-\infty; \log_{6+\sqrt{10}} 9)\cup(\log_{6-\sqrt{10}} 3; \infty)$.

289. $y=\log_3(x+6)+\log_{1/3}(6-x)$ funksiyaning aniqlanish sohasini toping. A) $[-6; 6)$. B) $(-6; 6)$. C) $(-\infty; -6)\cup(6; \infty)$. D) $[6; \infty)$.

290. $y=\log_{0,5}\log_2|x+1|$ funksiyaning aniqlanish sohasini toping. A) $(-\infty; -1)\cup(-1; \infty)$. B) $(-\infty; \infty)$. C) $(-\infty; -2)\cup(0; \infty)$. D) $(-\infty; -2)\cup(-2; -1)\cup(-1; 0)\cup(0; \infty)$.

291. $y=\log_{0,5}x$ funksiyaga teskari funksiyani toping. A) $x=\log_{0,5}y$. B) $x=\log_2 y$. C) $x=(0{,}5)^y$. D) $y=(0{,}5)^x$.

292. $n=\log_2 10$ va $m=\log_7 2$ bo'lsa, $\log_4 39{,}2$ m va n orqali qanday ifodalanadi? A) $\frac{1}{m}+\frac{2}{3}-\frac{n}{2}$. B) $\frac{1}{m}-\frac{2}{3}+\frac{n}{2}$. C) $\frac{1}{m}+\frac{3}{2}-\frac{n}{2}$. D) $\frac{1}{m}-\frac{3}{2}+\frac{n}{2}$.

293. $a=\log_7 2$ va $b=\log_2 10$ bo'lsa, $\log_4 78{,}4$ a va b orqali qanday ifodalanadi? A) $2+\frac{1}{a}-\frac{b}{2}$. B) $2-\frac{1}{a}+\frac{b}{2}$. C) $2+\frac{1}{a}+\frac{b}{2}$. D) $2-\frac{1}{a}-\frac{b}{2}$.

294. Agar $\log_a b=2$ bo'lsa, $\log_{a\sqrt{b}}\frac{\sqrt{b}}{a^2}+\log_{b\sqrt{a}}a\sqrt{b}+3\log_{\sqrt{b}}a$ ifodaning qiymati qanday bo'ladi? A) 3. B) 3,3. C) 1/3. D) 10/33.

295. $(\sqrt{2}+1)^{\frac{\log_7\log_7(\sqrt{2}+1)}{\log_7(\sqrt{2}+1)}}$ ifodani soddalashtiring. A) $\frac{1}{\sqrt{2}-1}$. B) $\log_7(\sqrt{2}-1)$. C) $(\sqrt{2}+1)$. D) $\log_7(\sqrt{2}+1)$.

296. $\frac{1}{\log_{1/2}\frac{1}{3}}+\frac{1}{\log_{1/5}\frac{1}{3}}$ son qaysi oraliqda yotadi? A) $(-3; -2)$. B) $(1; 2)$. C) $(-2; -1)$. D) $(2; 3)$.

297. $\lg x=4-3\lg 5$ tenglamani yeching. A) 10. B) 20. C) 40. D) 80.

298. $\log_2\log_2\log_2\log_2\log_2 x=0$ tenglamani yeching. A) 2^8. B) 8^32. C) 2^{16}. D) 2^{64}.

299. $\lg(x-3)+\lg(x-2)=1-\lg 5$ tenglamani yeching. A) $\{2; 3\}$. B) $\{4\}$. C) $\{2; 6\}$. D) $\{1; 4\}$.

300. $\frac{1}{\log_2(x^2-x+2)}+\log_2(x^2-x+2)=1$ $(x\ge 1)$ tenglamani yeching. A) 1. B) 2. C) 3. D) $\varnothing$.

301. $2\lg 2x=\lg(x^2+75)$ tenglamaning barcha ildizlari ko'paytmasini toping. A) 2. B) 3. C) 4. D) 5.

302. $10^{\lg^2 x}+9x^{\lg x}=10$ tenglama ildizlari ko'paytmasini toping. A) 0. B) 1. C) 2. D) $\sqrt{2}$.

303. $x^{\lg 25}+25^{\lg x}=50$ tenglamani yeching. A) $\sqrt{10}$. B) 5. C) 10. D) 50.

304. $\frac{\log_2 x}{\log_4 2x}=\frac{\log_8 4x}{\log_{16} 8x}$ tenglama necha ildizga ega? A) 1. B) 2. C) 3. D) 4.

305. $y=\sqrt{x^4+\sin\pi x-2x^3-3x^2-8x-48}+\log_2^2(x^2-2x-7)$ funksiyaning nollarini toping. A) 1; 0. B) 2. C) 4. D) 4; -2.

306. $\log_2^2 x+3=2\log_2 x^2$ tenglama ildizlari o'rta geometrigini toping. A) 4. B) $4\sqrt{2}$. C) 8. D) 16.

307. $(\sin^2 x+\cos^2 x)\log_x 2\cdot\log_{2x}2=\log_{4x}2$ tenglamaning yechimlari ko'paytmasini aniqlang. A) 1. B) $\frac{1}{2}$. C) $-\frac{1}{\sqrt{2}}$. D) $\frac{1}{\sqrt{2}}$.

308. $\frac{\lg(1-\sin^2 x)}{\lg(196-x^2)}=0$ tenglama nechta ildizga ega? A) 3. B) 4. C) 5. D) 9.

309. $\log_2(\log_4 x)=\log_4(\log_2 x)$ tenglamani yeching. A) 2. B) 4. C) 8. D) 16.

310. $\log_3(\log_9 x)=\log_9(\log_3 x)$ tenglamani yeching. A) 3. B) 9. C) 27. D) 81.

311. $2\cdot4^{\log_7 x}+3x^{\log_7 4}=20$ tenglamani yeching.
A) 7. B) 8. C) 9. D) 49.

312. $8^{1/3\cdot\log_2(\sqrt{3}\cos x)}+5^{\log_{25}6}=7^{\log_7(3\sin x)}$ tenglamani yeching.
A) $5\pi/12+\pi n,\ n\in Z$. B) $7\pi/12+2\pi n,\ n\in Z$.
C) $\pi/4+2\pi n,\ n\in Z$. D) $5\pi/12+2\pi n,\ n\in Z$.

313. $\begin{cases}\log_{\sqrt{x}} xy=8,\\ \log_3\log_{1/9} x/y=0\end{cases}$ tenglamalar sistemasini yeching. A) (3; 9). B) (3; 27).
C) (3; 1/3). D) (9; 27).

314. $\frac{\sqrt{x-0{,}5}}{\log_3 x^2}\ge 0$ tengsizlikni yeching.
A) $(-\infty; -1)\cup(1; \infty)$. B) $(-\infty; -1)$.
C) $(0{,}5; 1)\cup(1; \infty)$. D) $(1; \infty)$.

315. $\frac{2\log_3(1-2x)}{\log_2(x^2+2x+2)}>0$ tengsizlikni yeching.
A) $(-\infty; 0)$. B) $(0; 0{,}5)$.
C) $(-\infty; -1)\cup(-1; 0)$. D) $(0{,}5; 1)$.

316. $\log_{0,5}(2x+1)>\log_2(2-3x)$ tengsizlikni yeching. A) $(-1/3; 1/2)$. B) $(-\infty; -1/3)$.
C) $(-1/2; -1/3)\cup(1/2; 2/3)$. D) $(-1; -1/3)$.

317. $\log_{x-1}(x+1)>2$ tengsizlikni yeching.
A) (2; 3). B) $(0; 1)\cup(2; 3)$.
C) $(-\infty; 0)\cup(3; \infty)$. D) $(2; 3)\cup(3; \infty)$.

318. $-3+\log_2 x^6<\sqrt{7+\log_2 x^2}$ tengsizlikni yeching. A) $-2<x\le-\frac{\sqrt{2}}{16}$. B) $\frac{\sqrt{2}}{16}\le x<2$.
C) $-2<x\le-\frac{\sqrt{2}}{16}$; $\frac{\sqrt{2}}{16}\le x<2$. D) $(-\infty; \infty)$.

319. $(x+2)^{\log_2(x^2+1)}<(x+2)^{\log_2(2x+9)}$ tengsizlik x ning qanday qiymatlarida o'rinli? A) $(4; \infty)$.
B) $(-1; 4)$. C) $(-4{,}5; \infty)$. D) $(-2; 4)$.

320. $(x-2)^{\log_{1/2}(x^2-5x+5)}<(x-2)^{\log_{1/2}(x-3)}$ tengsizlik x ning qanday qiymatlarida o'rinli?
A) $((5+\sqrt{5})/2; 4)$.
B) (2; 4). C) $(4; \infty)$. D) $(-\infty; 2)\cup(4; \infty)$.

321. $\sqrt{\log_2 x-1}+0{,}5\log_{0,5}x^3+2>0$ tengsizlikni yeching. A) [2; 3). B) (2; 3]. C) [2; 4). D) (2; 4].

322. $(x^2-8x+7)\sqrt{\log_5(x^2-3)}\le 0$ tengsizlikni yeching. A) [1; 7]. B) $\{-3\}\cup[3; 7]$.
C) [2; 7]. D) $\{-2\}\cup[2; 7]$.

323. $\log_{x^2}(3-2x)>1$ tengsizlikning butun yechimiga qarama-qarshi sonni toping.
A) −4. B) −2. C) 0,5. D) 2.

324. $\log_2(2-\sqrt{x+3})<2\cos\frac{5\pi}{3}$ tengsizlikning butun sonlardan iborat nechta yechimi bor?
A) 3. B) 4. C) 5. D) 6.

325. $|\log_4 x|-\log_4 x-4>0$ tengsizlikni yeching.
A) $[1; \infty)$. B) $[1/16; \infty)$.
C) $(1; \infty)$. D) $(0; 1/16)$.

326. $\log_2(x^2+2x+4)+\log_2(x-2)<\log_2(x^3-x^2+4x-3)$ tengsizlikni yeching.
A) (−1; 2). B) (−1; 5). C) (1; 5). D) (2; 5).

327. $\log_2(x+8x^2-x^3)<\log_2 x^2+\log_2 x+3$ tengsizlikni yeching. A) (0; 1). B) $(0; 4+\sqrt{17})$.
C) (1; 4). D) $(1; 4+\sqrt{17})$.

328. Arifmetik progressiyaning oltinchi hadi 10 ga, dastlabki 16 ta hadining yig'indisi 200 ga teng. Shu progressiyaning to'qqizinchi hadini toping. A) 11. B) 13. C) 14. D) 16.

329. Arifmetik progressiyada $a_1+a_4=26$, ikkinchi hadi esa beshinchi hadidan 6 ga katta. Shu progressiyaning to'rtinchi va sakkizinchi hadlari yig'indisini toping.
A) 7. B) 10. C) 12. D) 15.

330. Arifmetik progressiyaning hadlari 60 ta. Uning juft o'rinda turgan hadlari yig'indisi toq o'rinda turgan hadlari yig'indisidan 10 ga katta. To'rtinchi hadi 4,5 ga teng. Birinchi hadini toping. A) 2,5. B) 3. C) 3,2. D) 3,5.

331. Natural sonlar qatori har biri natural sonning kvadrati bilan tugaydigan quyidagicha qismlarga ajratilgan: {1}, {2,3,4}, {5,6,7,8,9}, {10,11,12,13,14,15,16}, ... 9-qismdagi sonlar yig'indisini toping.
A) 1221. B) 1241. C) 1421. D) 1729.

332. Agar $S_{10}=100$ va $S_{30}=900$ bo'lsa, arifmetik progressiyaning dastlabki qirqta hadining yig'indisi qanday bo'ladi?
A) 1000. B) 1500. C) 1600. D) 1800.

333. 1+2−3+4+5−6+7+8−9+...+208+209−210 ni hisoblang.
A) 7245. B) 7275. C) 7425. D) 7445.

334. $(x+2)+(x+5)+(x+8)+...+(x+29)=255$ tenglamani yeching. A) 5. B) 10. C) 14. D) 20.

335. Arifmetik progressiyaning hadlari yig'indisi 490 ga, dastlabki to'rtta hadi yig'indisi 124 ga, oxirgi to'rttasiniki 156 ga teng. Progressiyaning nechta hadi bor?
A) 10. B) 11. C) 12. D) 14.

336. Arifmetik progressiyaning dastlabki sakkizta hadlari yig'indisi 32 ga, dastlabki yigirmata hadlari yig'indisi 200 ga teng. Uning dastlabki 26 ta hadlari yig'indisini toping.
A) 238. B) 260. C) 338. D) 342.

337. Ayirmasi manfiy bo'lgan arifmetik progressiyada ketma-ket kelgan to'rtta hadning yig'indisi 24 ga, ko'paytmasi 945 ga teng. Shu hadlarni toping. A) 3; 5; 7; 9.
B) 9; 5; 7; 3. C) 3; 7; 5; 9. D) 9; 7; 5; 3.

338. 5; 9; ... arifmetik progressiyada juft nomerli hadlar ularga qarama-qarshi sonlar bilan almashtirildi. Hosil bo'lgan ketma-ketlikning 40 ta hadi yig'indisini toping.
A) −56. B) −69. C) −80. D) −84.

339. 3; 5; 9; 17; 33; 65; ... ketma-ketlikning dastlabki n ta hadi yig'indisini toping. A) $2n$.
B) $2^{n+1}+n-2$. C) 2^n+n-2. D) $(2+2^{n-1})n$.

340. a_n arifmetik progressiyada $S_{50}-S_{49}=101$, $a_1=3$. Shu progressiyaning ayirmasini to-

ping. A) 1,5. B) 1,75. C) 2. D) 3.

341. b, $2b+2$, $3b+4$ ketma-ketlikning dastlabki 12 ta hadi yig'indisi 288 ga teng. b ni toping.
A) 2. B) 3. C) 5. D) 7.

342. x, $3x+5$, $5x+10$, ... arifmetik progressiyaning dastlabki 10 ta hadi yig'indisi 425 ga teng bo'lsa, x qanday? A) 1. B) 2. C) 3. D) 4.

343. 2; $\sqrt{2}$; 1; ... geometrik progressiyaning 11-hadini toping. A) 0,0625.
B) $\sqrt{2}/16$. C) 0,625. D) $0{,}625\sqrt{2}$.

344. 2; b_2 va b_3 sonlar o'suvchi geometrik progressiyaning dastlabki uchta hadidan iborat. 2; b_2+25 va b_3 sonlar arifmetik progressiyaning dastlabki uchta hadini tashkil etadi. b_2 ni toping. A) 6. B) 8. C) 10. D) 12.

345. Yig'indisi 15 ga teng bo'lgan uchta son arifmetik progressiyaning dastlabki uchta hadidir. Agar shu sonlarga mos ravishda 1; 3 va 9 sonlari qo'shilsa, hosil bo'lgan sonlar o'suvchi geometrik progressiyaning ketmaket hadlari bo'ladi. Geometrik progressiyaning dastlabki oltita hadi yig'indisini toping.
A) 248. B) 252. C) 254. D) 256.

346. O'suvchi geometrik progressiyaning dastlabki uchta hadi yig'indisi 35 ga teng. Agar ulardan mos ravishda 2; 2 va 7 ni ayirsak, hosil bo'lgan sonlar arifmetik progressiyaning dastlabki uchta hadini tashkil etadi. Shu arifmetik progressiyaning uchinchi hadini toping. A) 3. B) 8. C) 13. D) 20.

347. Hadlari haqiqiy sonlar bo'lgan o'suvchi geometrik progressiyaning birinchi uchta hadi yig'indisi 7 ga, ko'paytmasi 8 ga teng bo'lsa, shu progressiyaning beshinchi hadi qanday? A) 6. B) 12. C) 16. D) 32.

348. Geometrik progressiyaning oltinchi va birinchi hadlari ayirmasi 1210 ga, mahraji 3 ga teng bo'lsa, shu progressiyaning dastlabki olti hadi yig'indisi qanday bo'ladi?
A) 1520. B) 1720. C) 1820. D) 3640.

349*. 0,25; −0,5; ... geometrik progressiyaning hadlari 10 ta. Shu progressiyaning oxirgi 7 ta hadi yig'indisini toping.
A) −86. B) −43. C) 43. D) 83.

350. Agar geometrik progressiyada $b_1=2$, $b_n=1/8$ va $S_n=3\frac{7}{8}$ bo'lsa, uning to'rtinchi hadi qanday bo'ladi?
A) 0,125. B) 0,25. C) 0,5. D) 1.

351. $\frac{1}{2}\cdot\frac{1}{3}+\frac{1}{4}\cdot\frac{1}{9}+\frac{1}{8}\cdot\frac{1}{27}+\cdots$ yig'indini hisoblang. A) 0,2. B) 1. C) 2. D) 5.

352. Cheksiz kamayuvchi geometrik progressiyaning birinchi hadi 4 ga teng, hadlari yig'indisi esa uning dastlabki ikki hadi yig'indisidan 2 ga katta. Shu progressiyaning uchinchi hadini toping. A) 0,5. B) 1. C) 2. D) 8.

353. Hadlarining yig'indisi 1,6 ga, ikkinchi hadi 3/8 ga teng bo'lgan cheksiz kamayuvchi geometrik progressiyaning mahrajini toping.
A) 3/5. B) 3/5; 3/8. C) 3/8; 5/8. D) 1/8.

354. Cheksiz kamayuvchi ishorasi almashinuvchi geometrik progressiyaning ketma-ket kelgan uchta hadi yig'indisi −21 ga, ko'paytmasi 729 ga teng. Shu hadlarni toping.
A) 27, −9, 3. B) −28, 14, −7.
C) −3, 9, −27. D) −27, 9, −3.

355. Barcha hadlari musbat bo'lgan cheksiz kamayuvchi geometrik progressiyaning hadlari yig'indisi 8 ga, dastlabki to'rt hadi yig'indisi 7,5 ga teng. Progressiyaning ikkinchi hadini toping. A) 1. B) 2. C) 3. D) 4.

356. Yig'indisi 6 ga teng, birinchi 5 ta hadining yig'indisi esa $5\frac{13}{16}$ ga teng bo'lgan cheksiz kamayuvchi geometrik progressiyaning uchinchi hadini toping.
A) 0,5. B) 0,75. C) 1,5. D) 3.

357. $x=\cos\frac{2\pi}{5}$, $y=\operatorname{tg}\frac{-\pi}{8}$, $z=\operatorname{tg}(-\frac{\pi}{6})$ sonlarni kamayish tartibida joylashtiring.
A) $x>y>z$. B) $x>z>y$. C) $y>x>z$. D) $y>z>x$.

358. $x=\operatorname{tg}\frac{5\pi}{7}$, $y=\sin\frac{\pi}{6}$, $z=\operatorname{tg}\frac{3\pi}{7}$ sonlar uchun quyidagi munosabatlardan qaysi biri o'rinli?
A) $x>y>z$. B) $x>z>y$. C) $y>x>z$. D) $z>y>x$.

359. $x=\cos\frac{10\pi}{7}$, $y=\cos\frac{6\pi}{7}$, $z=\sin\frac{5\pi}{7}$ sonlar uchun quyidagi munosabatlardan qaysi biri o'rinli?
A) $y<z<x$. B) $y<x<z$. C) $z<x<y$. D) $z<y<x$.

360. $\frac{\sin1^\circ\cdot\sin2^\circ\cdot\sin3^\circ\cdot\ldots\cdot\sin90^\circ}{\sin91^\circ\cdot\sin92^\circ\cdot\sin93^\circ\cdot\ldots\cdot\sin179^\circ}$ ni hisoblang.
A) 1. B) 2. C) $\sqrt{2}/2$. D) $\pi/2$.

361*. $\lg\operatorname{tg}1^\circ+\lg\operatorname{tg}2^\circ+\lg\operatorname{tg}3^\circ+\ldots+\lg\operatorname{tg}89^\circ$ yig'indining qiymatini toping.
A) 0. B) 5. C) 20. D) 90.

362. $\sin40^\circ\cdot\cos70^\circ+\sin^210^\circ$ ni hisoblang.
A) 1/8. B) 1/4. C) 1/2. D) 1.

363. $\sin40^\circ\cdot\sin20^\circ\cdot\sin80^\circ$ ni hisoblang.
A) $\frac{\sqrt{3}}{2}$. B) $\frac{\sqrt{3}}{4}$. C) $\frac{\sqrt{3}}{8}$. D) $\frac{\sqrt{3}}{16}$.

364. $1-\sqrt{3}\operatorname{ctg}40^\circ+\frac{1}{\cos20^\circ}$ ning qiymatini toping. A) 0. B) 1/2. C) $-\sqrt{3}/2$. D) $-\sin20^\circ$.

365. $(\sin\alpha+\frac{1}{\sin\alpha})^2+(\cos\alpha+\frac{1}{\cos\alpha})^2-(\operatorname{tg}\alpha+\frac{1}{\operatorname{tg}\alpha})^2$ ifodani soddalashtiring.
A) 1. B) 3. C) 5. D) $\sin\alpha\cos^2\alpha$.

366. Agar $\alpha\in(\pi/4;\ \pi/2)$ bo'lsa, quyidagi munosabatlardan qaysi biri to'g'ri?
A) $(\cos\alpha)^{\sin\alpha}<(\cos\alpha)^{\cos\alpha}<(\sin\alpha)^{\cos\alpha}$.
B) $(\cos\alpha)^{\cos\alpha}<(\cos\alpha)^{\sin\alpha}<(\sin\alpha)^{\cos\alpha}$.
C) $(\sin\alpha)^{\cos\alpha}<(\cos\alpha)^{\sin\alpha}<(\cos\alpha)^{\cos\alpha}$.
D) $(\cos\alpha)^{\cos\alpha}<(\sin\alpha)^{\cos\alpha}<(\cos\alpha)^{\sin\alpha}$.

367. Agar uchburchakning α, β, γ burchaklari uchun $\operatorname{tg}\alpha+\operatorname{tg}\beta+\operatorname{tg}\gamma=3+2\sqrt{3}$ tenglik o'rinli bo'lsa, $\operatorname{tg}\alpha\cdot\operatorname{tg}\beta\cdot\operatorname{tg}\gamma$ ning qiymati qanday bo'ladi? A) $3-2\sqrt{3}$. B) $3-\sqrt{3}$.
C) $3+2\sqrt{3}$. D) $\frac{1}{3-2\sqrt{3}}$.

368. $\begin{cases}\sin x\cdot\cos y=-1/3,\\ \cos x\cdot\sin y=2/3.\end{cases}$ $\operatorname{ctg}(x-y)$ ni toping.
A) -1. B) 0. C) 1. D) 2.

369. $x\cos50°+\sin50°+x=0$ tenglamani yeching.
A) $-\cos25°$. B) $\sin25°$. C) $-\operatorname{tg}25°$. D) $\operatorname{ctg}25°$.

370. $\operatorname{tg}(\arcsin\frac{\sqrt{3}}{2})$ ni hisoblang.
A) 2. B) $\sqrt{3}$. C) $\frac{1}{\sqrt{3}}$. D) $\frac{\sqrt{3}}{2}$.

371. $\operatorname{arcctg}\sqrt{3}+\operatorname{arcctg}(2+\sqrt{3})$ ni hisoblang.
A) $\pi/4$. B) $\pi/6$. C) $\pi/8$. D) $\pi/12$.

372. $\sin(\arcsin\frac{3}{5}+\arccos\frac{4}{5})$ ni hisoblang.
A) $-24/25$. B) $7/25$. C) $12/25$. D) $24/25$.

373. $\sin(2\arccos\frac{1}{3})$ ni hisoblang.
A) $\frac{2}{9}$. B) $\frac{4\sqrt{2}}{9}$. C) $\frac{4\sqrt{2}}{3}$. D) $\frac{2\sqrt{2}}{2}$.

374. $y=\sqrt{\cos(\sin x)}$ funksiyaning aniqlanish sohasini toping. A) $x\in R$. B) $x\neq0$.
C) $x\neq\pi k/4;\ k\in Z$. D) $x\neq\pi k/2;\ k\in Z$.

375. $y=\arcsin\frac{x-3}{2}-\lg(4-x)$ funksiyaning aniqlanish sohasini toping.
A) $(1;\ 4)$. B) $[1;\ 4)$. C) $[1;\ 4]$. D) $[1;\ 5]$.

376. $y=\frac{\arcsin x}{\ln(x+0{,}5)}$ funksiyaning aniqlanish sohasini toping. A) $(-0{,}5;\ 0{,}5)\cup(0{,}5;\ 1]$.
B) $[-1;\ 1)$. C) $[1;\ 1]$. D) $(-0{,}5;\ 1]$.

377. $y=\arccos5^{2x^2+5x+2}+\lg\frac{x^2+5x+6}{x+2}$ funksiyaning aniqlanish sohasini toping.
A) $(-3;\ \infty)$. B) $[-2;\ -0{,}5]$.
C) $[-2;\ \infty)$. D) $(-2;\ -0{,}5]$.

378*. $y=\arccos(2\sin x)$ funksiyaning aniqlanish sohasiga tegishli bo'lgan x ning $[-\sqrt{\pi^2};\sqrt{\pi^2}]$ kesmadagi barcha qiymatlarini aniqlang.
A) $[-\pi/6;\ \pi/6]$. B) $[-\pi/4;\ \pi/4]$. C) $[-\pi/3;\ \pi/3]$.
D) $[-\pi;\ -5\pi/6]\cup[-\pi/6;\ \pi/6]\cup[5\pi/6;\ \pi]$.

379. $y=\arcsin\sqrt[4]{3-2x-x^2}$ funksiyaning aniqlanish sohasiga tegishli butun sonlar nechta?
A) 0. B) 1. C) 2. D) 3.

380. $y=-2+3\sin(4x-8)$ funksiyaning qiymatlar sohasini toping.
A) $[-5;\ 1]$. B) $[-3;\ 2]$. C) $[-1;\ 1]$. D) $[0;\ 2)$.

381. $y=\operatorname{ctg}x\cdot\operatorname{ctg}(\frac{\pi}{2}+x)+\frac{\operatorname{tg}x(1+\cos2x)}{2\cos x}+1$ funksiyaning qiymatlar sohasini toping.
A) $(-2;\ 0)$. B) $(-1;\ 0)\cup(0;\ 1)$.
C) $[-2;\ 0]$. D) $(-2;\ -1)\cup(-1;\ 0)$.

382. $y=2\cos^2\frac{x}{2}-\operatorname{tg}x\cdot\operatorname{ctg}x$ funksiyaning qiymatlari to'plamini toping. A) $(1;\ 2)\cup(2;\ 3)$.
B) $[0;\ 3]$. C) $[1;\ 3]$. D) $(-1;\ 0)\cup(0;\ 1)$.

383*. $f(x)=\frac{1}{\sin^6x+\cos^6x}$ funksiyaning qiymatlar sohasini toping.
A) $[0;\ 1]$. B) $[0;\ 4]$. C) $[1;\ 2]$. D) $[1;\ 4]$.

384. $y=7\cos\sqrt{x}$ funksiyaning davrini toping.
A) 2π. B) $2\pi^2$. C) $4\pi^2$. D) davriy emas.

385. $y=\frac{1}{2}\sin\frac{x}{2}\cos\frac{x}{2}$ funksiyaning eng kichik musbat davrini toping.
A) $\pi/4$. B) π. C) 2π. D) 4π.

386. $y=\sin2x\cos2x\cos4x$ funksiyaning eng kichik musbat davrini toping.
A) $\pi/8$. B) $\pi/4$. C) $\pi/2$. D) 2π.

387. $y=2\sin\frac{\pi x}{3}+3\cos\frac{\pi x}{4}-\operatorname{tg}\frac{\pi x}{2}=0$ funksiyaning eng kichik musbat davrini toping.
A) 12. B) 24. C) 12π. D) 24π.

388. $\operatorname{tg}\alpha+\operatorname{ctg}\alpha=4$ bo'lsa, $\operatorname{tg}^3\alpha+\operatorname{ctg}^3\alpha$ qanday bo'ladi? A) 16. B) 52. C) 64. D) 128.

389. Agar $\frac{\sin(\alpha-\beta)}{\cos\alpha\cdot\cos\beta}=\frac{2\sqrt{3}}{3}$ bo'lsa, $\operatorname{tg}\alpha-\operatorname{tg}\beta$ qanday bo'ladi? A) $\frac{\sqrt{3}}{3}$. B) $\frac{2\sqrt{3}}{3}$. C) $\frac{4\sqrt{3}}{3}$. D) $\sqrt{3}$.

390. Agar $\frac{\sin(\alpha+\beta)}{\cos\alpha\cdot\cos\beta}=\frac{4\sqrt{3}}{3}$ bo'lsa, $\operatorname{tg}\alpha+\operatorname{tg}\beta$ qanday bo'ladi? A) 6. B) $\sqrt{\frac{13}{3}}$. C) $\frac{4\sqrt{3}}{5}$. D) $\frac{4\sqrt{3}}{3}$.

391. Agar $\frac{1}{\sin x\cdot\cos x}+2\operatorname{ctg}2x=\frac{1}{2}$ va $x\in(0;\ \frac{\pi}{2})$ bo'lsa, $\frac{1}{\sin x\cdot\cos x}-2\operatorname{ctg}2x$ qanday bo'ladi?
A) 0. B) 2. C) 8. D) 10.

392. Agar $\operatorname{tg}\alpha=-2$ bo'lsa, $1+5\sin2\alpha-3\cos^{-1}2\alpha$ ning qiymati qanday bo'ladi?
A) -2. B) $-1{,}2$. C) 1. D) 2.

393. Agar $0<x<\frac{\pi}{2}$ va $0{,}5\operatorname{tg}(x+\frac{\pi}{4})-\operatorname{tg}x=1$ bo'lsa, $\sin^2x$ qanday bo'ladi?
A) 0,1. B) 0,2. C) 0,4. D) 0,5.

394. Agar $x\in[0;\ \frac{\pi}{2}]$ va $\log_{24\sin x}(24\cos x)=\frac{3}{2}$ bo'lsa, $24\operatorname{ctg}^2x$ ning qiymati qanday bo'ladi?
A) 192. B) 208. C) 1/192. D) 64/81.

395. $\sin x=\cos2x$ tenglamani yeching.
A) $\pi/6+\pi k/3,\ k\in Z$. B) $\pi/3+2\pi k/3,\ k\in Z$.
C) $2\pi/3+\pi k/3,\ k\in Z$. D) $\pi/6+2\pi k/3,\ k\in Z$.

396. $\sin x+\cos4x=2$ tenglama ildizini toping.
A) $\varnothing$. B) $\pi/2+\pi k,\ k\in Z$.
C) $\pi k/2,\ k\in Z$. D) $\pi/2+2\pi k,\ k\in Z$.

397. $\sin2\alpha+\sqrt{3}\cos2\alpha=2$ tenglamani yeching.
A) $\pi/2+\pi k,\ k\in Z$. B) $\pi/3+\pi k,\ k\in Z$.
C) $\pi/3+2\pi k,\ k\in Z$. D) $\pi/12+\pi k,\ k\in Z$.

398. $\sin^4x+\cos^4x=0{,}5\sin2x$ tenglamaning $(0°;\ 180°)$ oraliqqa tegishli ildizlarini toping.
A) 45°. B) 90°. C) 120°. D) 45° va 135°.

399. Agar $|b|=1$ bo'lsa, $b\cdot\operatorname{ctg}x=2\cos^2x$ tenglama $[0;\ 2\pi]$ kesmada nechta ildizga ega bo'ladi?
A) 2. B) 4. C) 6. D) 8.

400. $\cos^2x+1=\sin^3x+\cos^3x$ tenglama $[-\pi;\ \pi]$ kesmada nechta ildizga ega?
A) 1. B) 2. C) 3. D) 4.

401. $\sin^6x+\cos^6x=14\sin^2x\cos^2x$ tenglamani

yeching.

A) $\pm\arcsin\frac{\sqrt{2}}{\sqrt{17}}+k\pi,\ k\in Z.$

B) $\pm\arcsin\frac{3}{\sqrt{17}}+2k\pi,\ k\in Z.$

C) $\pm\arcsin\frac{2}{\sqrt{17}}+k\pi,\ k\in Z.$

D) $\pm\frac{1}{2}\arcsin\frac{2}{\sqrt{17}}+\frac{k\pi}{2},\ k\in Z.$

402. $\sin^4x+\cos^4x=1$ tenglamani yeching.
A) $(-1)^k\pi/6+\pi k,\ k\in Z.$ B) $2\pi k,\ k\in Z.$
C) $\pi k,\ k\in Z.$ D) $\pi k/2,\ k\in Z.$

403. $\operatorname{tg}\left(\frac{\pi}{2}-\frac{\pi\sqrt{2}}{4}\sin 2x\right)=-1$ tenglamani yeching.
A) $\pm\frac{3\pi}{4}+2\pi n,\ n\in Z.$ B) $(-1)^{n+1}\frac{\pi}{4}+\pi n,\ n\in Z.$
C) $\pm\frac{3\pi}{8}+\pi n,\ n\in Z.$ D) $(-1)^{n+1}\frac{\pi}{8}+\frac{\pi n}{2},\ n\in Z.$

404. $\sqrt{2}+\sqrt{2}\sin 2\left(x-\frac{\pi}{4}\right)=\sin\left(x-\frac{\pi}{4}\right)+\cos\left(x-\frac{\pi}{4}\right)$ tenglamaning $(0;\ \pi/2)$ oraliqdagi yechimlari yig'indisini toping.
A) 0. B) $\pi/6$. C) $\pi/3$. D) $\pi/2$.

405. $\frac{\operatorname{tg}\frac{x}{2}-1}{\operatorname{ctg}\frac{x}{2}-1}=2\sin\frac{x}{2}$ tenglamaning $(180°;\ 540°)$ oraliqdagi ildizlari ayirmasining modulini toping. A) 120°. B) 135°. C) 180°. D) 240°.

406. $1-\sin^4(\pi/2-x)=\sin^3x$ tenglamaning $[-1,5;\ 2\pi]$ kesmada nechta ildizi bor?
A) 4. B) 6. C) 7. D) 8.

407. $\operatorname{tg}x-\sin x=1-\operatorname{tg}x\sin x$ tenglamani yeching.
A) $\pi/4+2k\pi,\ k\in Z.$ B) $\pi/4+\pi k/4,\ k\in Z.$
C) $\pi/4+k\pi,\ k\in Z.$ D) $\pi/4+\pi k/2,\ k\in Z.$

408. $\begin{cases}\sin(x-y)=2\sin x\sin y,\\ x+y=\pi/2\end{cases}$ sistemani yeching.
A) $(\pi/8+\pi k;\ 5\pi/8+\pi k),\ k\in Z.$
B) $(-\pi/8+\pi k;\ 5\pi/8-\pi k),\ k\in Z.$
C) $(\pi/8+\pi k/2;\ 5\pi/8+\pi k/2),\ k\in Z.$
D) $(-\pi/8+\pi k/2;\ 5\pi/8-\pi k/2),\ k\in Z.$

409. $\arccos\frac{1}{x}=\frac{\pi}{2}\left(1-\sqrt[3]{x}\right)$ tenglamani yeching.
A) ±1. B) 2. C) ±8. D) $\varnothing$.

410. $\operatorname{tg}\left(\frac{\pi}{3}\cos 2\pi x\right)=\frac{1}{\sqrt{3}}$ tenglamani yeching.
A) $2\pi n$. B) $1/6+n$. C) $\pm1/6+n$. D) $\pm\pi/6+\pi n$.

411. $\arccos(x+1)=\frac{2\pi}{3}$ tenglamani yeching.
A) -2. B) -1. C) $-1/2$. D) $-3/2$.

412. $\sin x=[x]$ tenglamani yeching. ($[x]-x$ sonining butun qismi.) A) $\varnothing$. B) 0 va $\pi/2$.
C) 0; $\pi/2$; π. D) $\pi k;\ \pi/2+\pi k,\ k\in Z.$

413. $\operatorname{tg}\alpha+\operatorname{ctg}\alpha\geq 2$ tengsizlik α ning qanday qiymatlarida o'rinli?
A) $\pi n<\alpha<\pi+\pi n,\ n\in Z.$
B) $-\pi/2+\pi n<\alpha<\pi/2+\pi n,\ n\in Z.$
C) $\pi n<\alpha<\pi/2+\pi n,\ n\in Z.$
D) $-\pi+\pi n<\alpha<\pi n,\ n\in Z.$

414. $\cos(7x-\pi/8)+\sin(7x-\pi/8)\geq\sqrt{2}$ tengsizlikning $[0;\ \pi]$ kesmada nechta ildizi bor?
A) 1. B) 3. C) 4. D) 5.

415. $\arccos\frac{x}{2}>\arccos x$ tengsizlikni yeching.
A) $[-1;\ 0)$. B) $[-1;\ 1]$. C) $(0;\ 1)$. D) $(0;\ 1]$.

416. $1\leq\frac{\operatorname{tg}x+\operatorname{tg}3x}{1-\operatorname{tg}x\operatorname{tg}3x}\leq\sqrt{3}\ \left(\frac{\pi}{12}\leq x\leq\frac{13\pi}{16}\right)$ tengsizlikning eng katta va eng kichik yechimlari yig'indisini toping.
A) $\frac{8\pi}{7}$. B) $\frac{11\pi}{12}$. C) $\frac{47\pi}{48}$. D) $\frac{43\pi}{48}$.

417. $f(x)=4^x+8x^2$. $f'(x)-?$ A) $x\cdot4^{x-1}+16x$.
B) $4^x\ln4+16x$. C) $4^{x-1}+16x$. D) $4^{x-1}+8x$.

418. $f(x)=3^x-\log_3x$. $f'(x)-?$ A) $3^x\ln3-\frac{1}{x\ln3}$.
B) $3^x-\frac{1}{x\ln3}$. C) $3^{x-1}\ln3-\frac{1}{x}$. D) $3^x\ln x-\frac{1}{3^x}$.

419. $f(x)=\operatorname{tg}x+x^2$. $f'(x)-?$ A) $\frac{1}{\sin^2x}+2x$.
B) $\frac{1}{\cos^2x}+2x$. C) $\frac{\cos x}{\sin x}+2x$. D) $\frac{\sin x}{\cos x}+2x$.

420. $f(x)=\sqrt[5]{x}-\sqrt[3]{x}$ funksiyaning hosilasini toping. A) $\frac{5}{x^4}-\frac{3}{x^2}$. B) $\frac{1}{5}\sqrt[5]{x}+\sqrt[3]{x^2}$.
C) $\frac{1}{\sqrt[5]{x^4}}+\frac{1}{\sqrt[3]{x^2}}$. D) $\frac{1}{5\sqrt[5]{x^4}}-\frac{1}{3\sqrt[3]{x^2}}$.

421. $f(x)=x-\cos x$ funksiya hosilasi x ning qanday qiymatlarida nolga teng bo'ladi?
A) $x=\pi+2\pi n;\ n\in Z.$ B) $x=-\pi/2-2\pi n;\ n\in Z.$
C) $x=\pi/2+2\pi n;\ n\in Z.$ D) $x=-\pi/2+\pi n;\ n\in Z.$

422. $f(x)=\sin x-x$ funksiya hosilasi x ning qanday qiymatlarida nolga teng bo'ladi?
A) $x=\pi+\pi n;\ n\in Z.$ B) $x=2\pi n;\ n\in Z.$
C) $x=\pi/2+\pi n;\ n\in Z.$ D) $x=\pi n;\ n\in Z.$

423. $f(x)=x^2+x-1$ funksiya hosilasi x ning qanday qiymatida nolga teng bo'ladi?
A) $-3/4$. B) $-2/3$. C) $-1/2$. D) $1/3$.

424. $f(x)=3x^2$ funksiya qaysi x larda o'zining hosilasi qiymatining yarmidan katta bo'ladi.
A) $(-\infty;\ 0)$. B) $(-\infty;\ 0)\cup(3;\ \infty)$.
C) $(1;\ \infty)$. D) $(-\infty;\ 0)\cup(1;\ \infty)$.

425. $f(x)=x^2+2x+1$ funksiyaning hosilasi qaysi oraliqda shu funksiyaning o'zidan kichik bo'lmaydi. A) $(-1;\ 1)$. B) $[-1;\ 1]$.
C) $(-\infty;\ -1)\cup(1;\ \infty)$. D) $(-\infty;\ -1]\cup[1;\ \infty)$.

426. $f(x)=\frac{1}{x^2}+\frac{1}{x^3}$ funksiyaning hosilasini toping. A) $2x^3+\frac{1}{x^4}$. B) $\frac{2}{x^3}+\frac{3}{x^4}$.
C) $\frac{2}{x^2}-\frac{2}{x^3}$. D) $-\frac{2}{x^3}-\frac{3}{x^4}$.

427. $f(x)=e^{2x}+\log_4x$. $f'(x)-?$ A) $2e^{2x}+\frac{1}{x\ln4}$.
B) $e^{2x}+\frac{1}{x}$. C) $e^{2x}+\frac{1}{4}$. D) $e^{2x-1}+\frac{1}{x\ln4}$.

429. $f(x)=e^{-3x+1}-4^x$. $f'(x)-?$
A) $3e^x+4\ln4$. B) $3e-4x\ln x$.
C) $-3e^{-3x+1}-4^x\ln4$. D) $-3e^{3x+1}-4x$.

429. $y=e^{x^2-5x}$. $y'(x)-?$ B) $(2x+5)e^{x^2-5x}$.
A) e^{x^2-5x}. C) $(x^2-5x)e^{x^2-5x}$. D) $(2x-5)e^{x^2-5x}$.

430. $f(x)=\sin(3x+1)-e^x$. $f'(x)$ – ?
A) $\cos(3x+1)-e^x$. B) $\cos 3x+e^x$.
C) $3\cos(3x+1)-e^x$. D) $-3\cos x-e^x$.

431. $f(x)=\log_4 x-2e^{x/2}+4x^2$. $f'(x)$ – ?
A) $1/x-2e^x+8x$. B) $x\ln 4-e^x+8x$.
C) $\frac{1}{x\ln 4}-e^{x/2}+8x$. D) $\frac{1}{\ln 4}-2e^{x/2}+8x$.

432. $f(x)=\cos(2x+1)+e^{2x}$. $f'(x)$ – ?
A) $\sin 2x+e^{2x}$. B) $\sin(2x+1)+e^{2x}$.
C) $-2\sin(2x+1)+2e^{2x}$. D) $-2\sin 2x+2e^{2x}$.

433. $y=|x|$ berilgan. y' ni toping ($x\neq 0$).
A) -1. B) 0. C) 1. D) $|x|/x$.

434. $f(x)=e^{2x-4}+2\ln x$. $f'(2)$ – ?
A) 2. B) 3. C) 4. D) 5.

435. $y=\sin(\sin 2x)+\operatorname{tg}(\sin 2x)$. $y'(\pi/4)$ ni hisoblang. A) 0. B) 1. C) $\frac{\sqrt{2}}{2}$. D) $\frac{2+\sqrt{2}}{2}$.

436. $f(x)=e^{\cos 2x}$ funksiya hosilasining $x=\pi/4$ dagi qiymatini toping.
A) -2. B) -1. C) 0. D) 2.

437. $f(x)=\sin e^{-x}$ bo'lsa, $f'\left(\ln\frac{3}{\pi}\right)$ qanday bo'ladi? A) 1/2. B) $3/\pi$. C) $\pi/3$. D) $-\pi/6$.

438*. $y=|2x+4|$ funksiyaning hosilasini toping.
A) 2. B) 4. C) $\begin{cases}2, \text{ agar } x\geq -2,\\ -1, \text{ agar } x<-2.\end{cases}$
D) $\begin{cases}2, \text{ agar } x>-2,\\ x=-2 \text{ da hosila mavjud emas},\\ -2, \text{ agar } x<-2.\end{cases}$

439*. $y=x^5-5x^4+5x^3-1$ funksiya minimal qiymatining abssissasi qaysi oraliqqa tegishli.
A) $(-2; 2)$. B) $(0; 2)$. C) $(1; 5)$. D) $(5; 9)$.

440*. $y=-x^3/3+3x^2-5x-4$ funksiya maksimal qiymatining abssissasi qaysi oraliqda yotadi?
A) $(-2; 0)$. B) $(-1; 1)$. C) $(1; 3)$. D) $(3; 7)$.

441. $(2x-3)(x+2)$ ko'paytma x ($x\in R$) ning qanday qiymatida eng kichik bo'ladi?
A) -4. B) $-1/4$. C) 0. D) 1/2.

442. $f(x)=6x^2-2x+5$. $F(x)$ – ?
A) $4x^3-2x^2+5x+C$. B) $3x^3+x^2-5x+C$.
C) $3x^3-x^2+5x+C$. D) $2x^3-x^2+5x+C$.

443. $f(x)=5x^4-3x^2$. $F(x)$ – ? A) x^5+x^3+C.
B) $\frac{x^5}{5}+x^3+C$. C) $\frac{x^4}{5}+\frac{x^3}{4}+C$. D) x^5-x^3+C.

444. $f(x)=\frac{2}{x-1}$. $F(x)$ – ? A) $\frac{2}{x-1}+C$.
B) $\ln x+C$. C) $\ln(x-1)+C$. D) $\ln(x-1)^2+C$.

445. $f(x)=\cos 2x+1/x$. $F(x)$ – ?
A) $1/2\sin 2x+\ln x$. B) $-\sin 2x+x/2+C$.
C) $2\sin 2x+x+C$. D) $-\sin x+x^2/2+C$.

446. $f(x)=2\sin^2 2x$ funksiya boshlang'ich funksiyasining umumiy ko'rinishini ko'rsating.
A) $x-1/4\sin 4x+C$. B) $-1/2\cos^2 2x+C$.
C) $x+1/2\cos 4x+C$. D) $1/3\sin^3 2x+C$.

447. $f(x)=\frac{1}{\cos^2 x}+\frac{1}{x}$. $F(x)$ – ?
A) $2\operatorname{tg}x+0{,}5/x^2+C$. B) $-\operatorname{tg}x+1/x^2+C$.
C) $\operatorname{tg}x+\ln|x|+C$. D) $-\operatorname{tg}x+\ln|x|+C$.

448. $f(x)=-\frac{1}{\sin^2 x}+\frac{1}{x}$. $F(x)$ – ?
A) $-\operatorname{ctg}x+e^x+C$. B) $-\operatorname{ctg}x+x^2/2+C$.
C) $\operatorname{ctg}x+\ln|x|+C$. D) $\operatorname{ctg}x+2e^{0,5x}+C$.

449. $f(x)=e^x-\frac{1}{x+1}$. $F(x)$ – ?
A) $e^x-\ln x+C$. B) $e^{x-1}-(x+1)+C$.
C) $e^{x-1}-\ln(x+1)+C$. D) $e^x-\ln|x+1|+C$.

450. $f(x)=\frac{1}{x}-e^{3/4x}$. $F(x)$ – ?
A) $\ln x-4/3e^{3/4x}+C$. B) $\ln x-e^{3/4x}+C$.
C) $x^{-2}/2-3/4e^{3/4x}+C$. D) $1/x^2-3/4e^x+C$.

451. $F(0)=1$ va $f(x)=\frac{1}{\cos^2 x}$. $F(x)$ ni toping.
A) $\operatorname{tg}x+1$. B) $-\operatorname{tg}x+1$. C) $\operatorname{tg}x+2$. D) $\operatorname{ctg}x+1$.

455. $f(x)=1/x$ funksiyaning grafigi $M(e; 3)$ nuqtadan o'tuvchi boshlang'ich funksiyasini toping. A) $\ln x+1$. B) $\ln x+2$.
C) $\ln x+3$. D) $\ln x+4$.

453. $f(x)=2/x$ funksiyaning grafigi $M(e; 4)$ nuqtadan o'tuvchi boshlang'ich funksiyasini toping. A) $\ln x+2$. B) $\ln x+3$.
C) $\ln x^2+2$. D) $\ln x+5$.

454. $f(x)=x^2+3$ funksiyaning grafigi $M(0; 1)$ nuqtadan o'tuvchi boshlang'ich funksiyasini toping. A) x^3+3x-1. B) $x^3/3+3x-1$.
C) $x^3/4+3x-1$. D) $x^3/3+3x+1$.

455. $f(x)=\frac{1}{\sqrt[3]{x^2}}+\frac{1}{\sqrt[5]{x^4}}$ funksiyaning grafigi $M(32; 2)$ nuqtadan o'tuvchi boshlang'ich funksiyasini toping.
A) $\sqrt[3]{x}+\sqrt[5]{x}-2\sqrt[3]{4}$. B) $\sqrt[3]{x}-\sqrt[5]{x}+2\sqrt[3]{4}$.
C) $\sqrt[3]{x}+\sqrt[5]{x}+2\sqrt[3]{4}$. D) $\sqrt[3]{x}-\sqrt[5]{x}-\sqrt[3]{4}$.

456*. $\int x\,3^x dx$ ni hisoblang.
A) $\frac{3^x}{\ln^2 3}(x\ln 3+1)+C$. B) $\frac{3x}{\ln^2 3}(x\ln 3+1)+C$.
C) $\frac{3^x}{\ln^2 3}(x\ln 3-1)+C$. D) $\frac{3^x}{\ln 3}(x\ln 3+1)+C$.

457. $\int x\sin 2x\,dx$ aniqmas integralni hisoblang.
A) $4\sin x+x\cos x+C$. B) $4\sin 2x-2x\cos 2x+C$.
C) $1/4\sin 2x-1/2x\cos 2x+C$.
D) $1/4\sin 2x+1/2x\cos 2x+C$.

458. $\int\frac{\sin x}{\cos^4 x}dx$ ni hisoblang. A) $-\frac{1}{3\cos^3 x}+C$.
B) $\frac{1}{\cos^3 x}+C$. C) $\frac{3}{\cos^3 x}+C$. D) $\frac{1}{3\cos^3 x}+C$.

459. $\int\frac{3\sin x}{\cos^4 x}dx$ ni hisoblang.
A) $\frac{1}{\sin x}$. B) $\frac{3}{\sin x}$. C) $\cos^5 x$. D) $\frac{1}{\cos^3 x}$.

460. $\int_2^3 (x-2)dx$ ni hisoblang.
A) -1. B) 1. C) $-1/2$. D) 1/2

461. $\int_2^4 (x+1)dx$ ni hisoblang.

A) 4. B) 6. C) 8. D) 12.

462. $\int_{-1}^{2} (x+1)dx$ ni hisoblang.

A) 3. B) 3,5. C) 4. D) 4,5.

463. $\int_0^3 \frac{x}{x^2+1}dx$ ni hisoblang.

A) 6. B) $\sqrt{10}$. C) $\ln\sqrt{2}$. D) $\ln\sqrt{10}$.

464. $\int_1^{a+3} \frac{3}{x}dx = \ln 125$ bo'lishi uchun a qanday bo'lishi kerak? A) 2. B) 3. C) 4. D) 5.

465. $\int_2^5 \frac{1}{2x-3}dx$ ni hisoblang.

A) 7. B) $\sqrt{7}$. C) $\ln 7$. D) $\ln\sqrt{7}$.

466. $\int_0^{\pi/2} (\cos^2(\sin x)+\sin^2(\sin x))dx$ ni hisoblang.

A) π. B) $\pi/4$. C) $\pi/2$. D) $3\pi/2$.

467. $\int_0^{2\pi} \sin^4 7x dx$ ni hisoblang.

A) $3\pi/4$. B) $6\pi/7$. C) $7\pi/8$. D) $7\pi/4$.

468. $\int_4^6 \frac{0{,}5x}{x-3}dx$ ni hisoblang. A) $1-1{,}5\ln 3$.

B) $1+2\ln 3$. C) $1+3\ln 3$. D) $1+1{,}5\ln 3$.

469. $\int_3^4 \frac{x^2-4x+5}{x-2}dx$ ni hisoblang. A) $1+\ln 2$.

B) $1{,}5+\ln 2$. C) $\ln 2-3$. D) $2/3\cdot\ln 2-2$.

470. $\int_0^{3\pi} \sqrt[3]{(1-\sin x)^3}dx$ ni hisoblang.

A) 0. B) π. C) $2\pi-3$. D) $3\pi-2$.

471. $\int_2^1 x\ln x dx = a+1$. a ni toping. A) -1.

B) $2\ln 2$. C) $-1-2\ln 2$. D) $-1/4-2\ln 2$.

472. $xy=7$, $y=0$, $x=4$ va $x=12$ chiziqlar bilan chegaralangan shaklning yuzini toping.

A) 3. B) $\ln 3$. C) $\ln 4$. D) $7\ln 3$.

473. $y=-x^3$, $y=8/3\sqrt{x}$, va $y=8$ chiziqlar bilan chegaralangan shaklning yuzini toping.

A) 32. B) 36. C) 42. D) 48.

474. $y=\sqrt{25-x^2}$ funksiyaning grafigi bo'lgan egri chiziq va $y=0$ to'g'ri chiziq bilan chegaralangan shaklning yuzini aniqlang.

A) aniqlab bo'lmaydi. B) 5π. C) $12{,}5\pi$. D) 25π.

475. Qo'shni burchaklardan biri ikkinchisidan 11 marta katta. Shu burchaklardan kichigini toping. A) 12°. B) 15°. C) 20°. D) 30°.

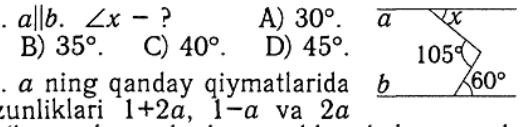
476. O'ziga qo'shni burchakning 20% iga teng bo'lgan burchakning qiymatini toping.

A) 25°. B) 30°. C) 36°. D) 45°.

477. O'ziga qo'shni burchakning 4/5 qismiga teng bo'lgan burchakning yarimini toping.

A) 40°. B) 45°. C) 50°. D) 55°.

478. $a\|b$. $\angle x$ – ? A) 30°.



B) 35°. C) 40°. D) 45°.

479. a ning qanday qiymatlarida uzunliklari $1+2a$, $1-a$ va $2a$ bo'lgan kesmalardan uchburchak yasash mumkin? A) $(-0{,}5;\ 0)$. B) $(0;\ 1)$.

C) $(-0{,}5;\ -0{,}25)$. D) $\varnothing$.

480. a ning qanday qiymatlarida uzunliklari $1+a$, $1-a$ va 1,5 bo'lgan kesmalardan uchburchak yasash mumkin? A) $(-0{,}5;\ 0{,}5)$.

B) $\varnothing$. C) $(-0{,}75;\ 0{,}75)$. D) $(-0{,}7;\ 0{,}7)$.

481. Teng yonli uchburchakning uchidagi tashqi va ichki burchaklari nisbati 3:2 kabi. Asosidagi tashqi burchakni toping.

A) 126°. B) 130°. C) 135°. D) 144°.

482. Teng yonli uchburchakning uchidagi tashqi va ichki burchaklari nisbati 7:5 kabi. Asosidagi tashqi burchakni toping.

A) 120°. B) 120,5°. C) 137°. D) 127,5°.

483. Teng yonli uchburchakning uchidagi burchagi 16°ga teng. Asosiga tushirilgan balandlik bilan asosidagi burchak bissektrisasi tashkil qilgan burchaklarni toping. A) 39°; 141°.

B) 41°; 139°. C) 49°; 131°. D) 51°; 129°.

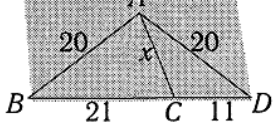
484. To'g'ri burchakli uchburchakda o'tkir burchaklarning medianalari uzunliklari 15 va $6\sqrt{5}$ ga teng. Gipotenuza uzunligini toping.

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

485. ABC to'g'ri burchakli uchburchakning AB gipotenuzasiga C uchidan o'tkazilgan CO mediananing CE balandlikka nisbatini aniqlang. $BO:BE=5:1$. A) 2/3. B) 5/2.

C) 5/3. D) 7/2.

486. Rasmda berilganlarga ko'ra x ni toping. A) 13. B) 14.



C) 15. D) 16.

487. XOY uchburchakda $\angle XOY=90°$. M va N nuqtalar mos ravishda OX va OY tomonlarning o'rtalari. Agar $XN=19$ va $YM=22$ bo'lsa, XY qanday bo'ladi?

A) 13. B) 14. C) 26. D) 28.

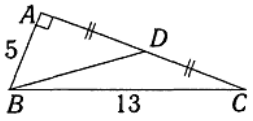
488. Uchburchak to'g'ri burchagining bissektrisasi gipotenuzani 1:5 nisbatda bo'ladi. Uning balandligi gipotenuzani qanday nisbatda bo'ladi? A) 25:1. B) 5:1. C) 1:5. D) 1:25.

489. Uchburchak to'g'ri burchagining bissektrisasi gipotenuzani 1:2 nisbatda bo'ladi. Uning balandligi gipotenuzani qanday nisbatda bo'ladi? A) 1:4. B) 1:3. C) 2:3. D) 2:1.

490. To'g'ri burchakli uchburchakning kateti 7 ga, uning gipotenuzadagi proeksiyasi 1,96 ga teng. Ikkinchi katetning uzunligini toping. A) 15. B) 16. C) 24. D) 25.

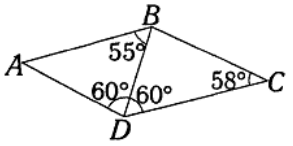
491. To'g'ri burchakli uchburchakning gipotenuzasi 30 ga, katetlaridan biri $12\sqrt{5}$ ga teng. Ikkinchi katetning gipotenuzadagi proeksiyasini toping. A) 4. B) 5. C) 6. D) 7.

492. $AB \perp AC$, $AD=DC$, $AB=5$, $BC=13$ bo'lsa, $\overline{BD}\cdot\overline{CD}$ qanday bo'ladi? A) −36. B) 25. C) −25. D) 36.



493. ABC to'g'ri burchakli uchburchakning tomonlarini diametr qilib yarim doiralar chizildi. Katetlardagi yarim doiralarning yuzlari 20π va 30π ga teng. Gipotenuzaning uzunligini toping. A) 10. B) 15. C) 20. D) 22.

494. Berilgan chizmadagi eng uzun kesmani aniqlang.
A) AB. B) AD. C) CD. D) DB.



495. ABC o'tkir burchakli uchburchakda $AB=0,7$; $BC=0,9$, $\sin B=0,8$ bo'lsa, uchinchi tomonning kvadrati qanday bo'ladi?
A) 0,519. B) 0,541. C) 0,543. D) 0,544.

496. ABC uchburchakda $AB=3$, $BC=4$, $AC=5$ bo'lsa, A burchakning kosinusi qanday bo'ladi? A) 1/5. B) 2/5. C) 3/5. D) 3/7.

497. Uchburchakning 120° burchak tashkil qiluvchi ikki tomoni uzunliklarining ayirmasi 1 ga, uchinchi tomoni 13 ga teng. Uning perimetrini toping. A) 27. B) 28. C) 30. D) 32.

498. To'rtburchakning tomonlari 3, 4, 5 va 6 ga teng. 3 va 4 ga teng tomonlar orasidagi burchak 60° bo'lsa, 5 va 6 ga teng tomonlar orasidagi burchakning kosinusi qanday?
A) 2/5. B) 4/5. C) 7/8. D) $\sqrt{3}/2$.

499. Uchburchakning tomonlari 6, 7 va 8 m ga teng. 6 m li tomonning 8 m li tomondagi proeksiyasini toping (m).
A) $2\frac{13}{16}$. B) $3\frac{1}{16}$. C) $3\frac{3}{16}$. D) $4\frac{3}{16}$.

500. Uchburchakning tomonlari 4, 5 va 6 cm ga teng. 4 cm li tomonning 6 cm li tomondagi proeksiyasini toping (cm).
A) 2,25. B) 3,25. C) 3,75. D) 4,75.

501. Uchburchakning 24 ga teng bo'lgan balandligi uning 42 ga teng bo'lgan tomonini 5:16 nisbatda bo'lsa, uning perimetri qanday bo'ladi? A) 54. B) 98. C) 104. D) 108.

502. ABC uchburchakda $\angle A=30°$, $AB=\sqrt{3}$, $AC=4$. A uchdan tushirilgan balandlik uzunligini toping.
A) $\frac{\sqrt{21}}{7}$. B) $\frac{2}{7}\sqrt{21}$. C) $\frac{3}{7}\sqrt{21}$. D) $\frac{4}{7}\sqrt{21}$.

503. Teng yonli to'g'ri burchakli uchburchakning kateti $\sqrt{2}$ ga teng. Shu uchburchakning medianalari kesishgan nuqtadan bissektrisalari kesishgan nuqtagacha bo'lgan masofani aniqlang.
A) $\frac{2-\sqrt{3}}{3}$. B) $\frac{2\sqrt{3}-3}{6}$. C) $\frac{\sqrt{2}-1}{2}$. D) $\frac{3\sqrt{2}-4}{3}$.

504. Gipotenuzasi 10 ga, katetlaridan biri 6 ga teng bo'lgan to'g'ri burchakli uchburchakning kichik burchagi uchidan o'tkazilgan bissektrisaning uzunligini toping.
A) $\frac{3\sqrt{5}}{2}$. B) $\frac{2\sqrt{10}}{3}$. C) $\frac{8\sqrt{10}}{3}$. D) $\frac{7\sqrt{10}}{2}$.

505. ABC uchburchakda BE mediana va AD bissektrisa o'zaro perpendikular bo'lsa, $AB:AC$ nisbat qanday bo'ladi?
A) 1:3. B) 1:2. C) 2:1. D) 3:1.

506. ABC teng yonli uchburchakda AC– asos, C uchdan o'tkazilgan bissektrisa AB tomonni D nuqtada kesadi. AC tomonda shunday E nuqta olinganki, bunda $DE \perp DC$ bo'ladi. Agar $CE=2$ bo'lsa, AD qanday bo'ladi?
A) 0,5. B) 1. C) 2. D) 3.

507. ABC uchburchakda AN – bissektrisa, $AB=AN$ va $\angle ACB=30°$ bo'lsa, $\angle ABC$ qanday bo'ladi? A) 60°. B) 70°. C) 75°. D) 80°.

508. ABC to'g'ri burchakli uchburchakning AC kateti 15 ga teng. BC gipotenuzasi AB katetdan 9 ga uzun. AB katetga o'tkazilgan mediana uzunligini toping.
A) 16. B) $\sqrt{134}$. C) $\sqrt{209}$. D) $\sqrt{241}$.

509. Uchburchak medianalari kvadratlari yig'indisining tomonlari kvadratlari yig'indisiga nisbatini toping.
A) 1/2. B) 5/9. C) 2/3. D) 3/4.

510. Teng yonli uchburchakning asosi $4\sqrt{2}$ cm, yon tomoniga tushirilgan medianasi 5 cm bo'lsa, uchburchakning yon tomoni qanday bo'ladi (cm)? A) 5. B) 6. C) 7. D) $4\sqrt{2}$.

511. Uchburchakning tomonlari 11, 12 va 13 ga teng. Uning katta tomoniga o'tkazilgan medianasi uzunligini toping.
A) 9,5. B) 10. C) 10,5. D) 11.

512. ABC uchburchakning CD medianasi ACD muntazam uchburchak hosil qilsa, $\angle DCB$ qanday bo'ladi?
A) 30°. B) 40°. C) 45°. D) 50°.

513. Katetlari $x^2-2\sqrt{5}x+3=0$ tenglama ildizlariga teng bo'lgan to'g'ri burchakli uchburchakning yuzini toping.
A) 1,5. B) 2. C) 4. D) 5.

514. To'g'ri burchakli uchburchakning katetlari yig'indisi gipotenuzadan 8 cm uzun. Agar uning perimetri 48 cm bo'lsa, yuzi qanday (cm^2)? A) 52. B) 60. C) 96. D) 148.

515. To'g'ri burchakli uchburchakning yuzi 60 dm^2 ga, perimetri 40 dm ga teng. Uning katetlari uzunliklarini toping (dm). A) 4 va 12. B) 7 va 11. C) 7 va 13. D) 8 va 15.

516. ABC uchburchakda $AM=m$ va $BN=n$ medianalar o'zaro perpendikular bo'lsa, shu uchburchakning yuzi qanday bo'ladi?
A) $1/3mn$. B) $2/3mn$. C) mn. D) $2mn$.

517*. ABC uchburchakda $AC=5$, $BC=4$ va $\angle ACB=120°$ bo'lsa, uning yuzi qanday bo'ladi? A) $5\sqrt{3}$. B) $6\sqrt{5}$. C) $10\sqrt{2}$. D) $12\sqrt{2}$.

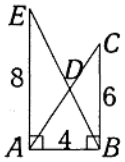
518. ABC uchburchakda $AB=3$, $BC=7$ va mediana $BM=4$ bo'lsa, uning yuzi qanday bo'ladi? A) $3\sqrt{3}$. B) $3\sqrt{6}$. C) $6\sqrt{3}$. D) $12\sqrt{3}$.

519. Uchburchakning tomonlari 5, 6 va 7 cm ga teng. Uning yuzini toping (cm^2).
A) 6. B) 8. C) $5\sqrt{5}$. D) $6\sqrt{6}$.

520. Bir uchburchakning asosi 9 cm ga, balandligi 4 cm ga teng. Shu uchburchakka tengdosh va asosi 18 cm bo'lgan uchburchakning balandligini toping (cm).
A) 2. B) 2,5. C) 3. D) 4.

521. To'g'ri burchakli uchburchakning gipotenuzasi 6,4 ga teng. Gipotenuza bilan o'tkir burchakning bissektrisasi 22,5° burchak tashkil qiladi. Berilgan uchburchakning yuzini toping. A) 9,8. B) 10,24. C) 20,48. D) 102,4.

522. Rasmda berilgan ADE va BDC uchburchaklar yuzlarining ayirmasini toping.
A) 2. B) 4. C) 5. D) 8.



523. M va N nuqtalar ABC uchburchakning AB va AC tomonlari o'rtasida yotadi. ANM uchburchakning perimetri 21 cm bo'lsa, ABC uchburchakning perimetri qanday (cm) bo'ladi?
A) 42. B) 50. C) 63. D) 84.

524. ABC uchburchak berilgan. AB tomonga parallel to'g'ri chiziq AC tomonni A_1 nuqtada, BC tomonni B_1 nuqtada kesib o'tadi. $AB=15$ cm, $AA_1:AC=2:3$. A_1B_1 kesma uzunligini toping (cm). A) 2. B) 3. C) 4. D) 5.

525. To'rtburchak diagonallarining yig'indisi 18 cm ga teng. Bu to'rtburchak tomonlari o'rtalarini ketma-ket tutashtirish natijasida hosil qilingan to'rtburchakning perimetrini toping (cm). A) 9. B) 18. C) 20. D) 36.

526. To'g'ri to'rtburchakning bo'yi kvadratning tomonidan 8 m uzun, eni esa shu kvadratning tomonidan 4 m kalta. Kvadrat tomonini x bilan belgilab, to'rtburchak perimetri va yuzi uchun ifoda tuzing.
A) $P=4x+2$; $S=(x+8)(x-4)$.
B) $P=4(x+2)$; $S=(x+8)(x-4)$.
C) $P=4x+8$; $S=4(x+8)$.
D) $P=4x+4$; $S=x^2+4x-18$.

527. To'g'ri to'rtburchakning tomonlari $3+2a$ va $9+a$ bo'lsin. a ning qanday qiymatida bu to'rtburchak kvadratga aylanadi?
A) 5. B) 6. C) 8. D) 9.

528. To'g'ri to'rtburchakning yuzi 72 ga, tomonlari nisbati 2:1 ga teng. Uning perimetrini toping. A) 18. B) 24. C) 32. D) 36.

529. To'g'ri burchakli uchburchakning katetlari 3 va 5 ga teng bo'lib, bu uchburchakka u bilan umumiy to'g'ri burchakka ega bo'lgan kvadrat ichki chizilgan. Kvadratning yuzini toping. A) $\frac{7}{8}$. B) $\frac{15}{8}$. C) $\frac{225}{128}$. D) $\frac{225}{64}$.

530. $ABCD$ to'g'ri to'rtburchakda $AD=1$. AB tomonda shunday P nuqta olinganki, DB va DP kesmalar $\angle ADC$ ni teng uchga bo'ladi. BDP uchburchakning perimetrini toping.
A) $2+2\sqrt{2}$. B) $3+\sqrt{3}/3$.
C) $3+\sqrt{5}/2$. D) $2+4\sqrt{3}/3$.

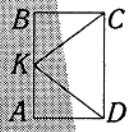
531. Yuzi 120 cm^2, diagonali esa 17 cm bo'lgan to'g'ri to'rtburchakning tomonlarini toping (cm).
A) 12; 10. B) 15; 8. C) 16; 12. D) 30; 4.

532. To'g'ri to'rtburchakning tomonlari 3 va 4 bo'lsa, diagonallari orasidagi kichik burchakning kosinusi qanday bo'ladi?
A) $\frac{\sqrt{7}}{25}$. B) $\frac{2\sqrt{6}}{25}$. C) $\frac{7}{25}$. D) $\frac{24}{25}$.

533. $ABCD$ to'g'ri to'rtburchakda $AB=5$, $BC=3$. CD tomonda F va G nuqtalar shunday olinganki, $DF=1$ va $CG=2$. AF va BG to'g'ri chiziqlar E nuqtada kesishadi. AEB uchburchakning yuzini toping.
A) 10. B) 21/2. C) 23/2. D) 25/2.

534. Parallelogramm qo'shni tomonlarining ayirmasi 4 cm. O'tmas burchagi uchidan tomonlariga tushirilgan balandliklari 6 va 8 cm ga teng. Parallelogrammning perimetrini toping (cm). A) 54. B) 56. C) 58. D) 64.

535. To'g'ri to'rtburchakda $BK=KA$, $AB=6$, $AD=4$. KCD uchburchakning yuzini toping.
A) 10. B) 12. C) 14. D) 16.



536. Parallelogramm tomonlari 4 va 6 ga teng bo'lsa, uning bissektrisasi diagonalini qanday nisbatda bo'ladi?
A) 1:3. B) 4:7. C) 2:3. D) 5:6.

537. Parallelogrammning yuzi 32 ga, balandliklari 4 va 5,(3) ga teng bo'lsa, uning perimetri qanday bo'ladi?
A) 18. B) 20. C) 28. D) 36.

538. $ABCD$ parallelogrammda $BD=4\sqrt{2}$, $\angle ADB=60°$, $\angle CDB=75°$ bo'lsa, AB qanday bo'ladi?
A) $3\sqrt{3}$. B) $4\sqrt{3}$. C) $5\sqrt{3}$. D) $6\sqrt{2}$.

539. Parallelogrammning 5 ga teng bo'lgan diagonali uning 12 ga teng bo'lgan yon tomoniga perpendikular. Parallelogrammning katta tomoniga tushirilgan balandligini toping.
A) $3\frac{6}{13}$. B) $3\frac{8}{13}$. C) $4\frac{5}{13}$. D) $4\frac{8}{13}$.

540. Parallelogrammning diagonali uning 8 cm li tomoni bilan 60° li, ikkinchi tomoni bilan esa 75° li burchak tashkil etadi. Ushbu diagonalning uzunligini (cm) toping. A) $4(\sqrt{3}-1)$.
B) $8(\sqrt{3}-1)$. C) $4(\sqrt{3}+1)$. D) $8(\sqrt{3}+1)$.

541. AC asosli ABC teng yonli uchburchakka $FBDG$ parallelogramm shunday ichki chizilganki, B uchdagi burchak umumiy, G nuqta esa AC asosda yotadi. Agar $BC=14$ cm bo'lsa, parallelogrammning perimetri qanday bo'ladi (cm)? A) 14. B) 20. C) 24. D) 28.

542. Agar $\angle PKN=75°$, $PK=5\sqrt{2}$, $PM=26$ va diagonallari orasidagi burchak 60° bo'lsa, $KMNP$ parallelogrammning yuzi qanday bo'ladi? A) 65. B) 120. C) 130. D) 150.

543. Rombning yuzi S, diagonallarining nisbati $m:n$ kabi bo'lsa, uning perimetri qanday bo'ladi? A) $\sqrt{\frac{mn}{4S(m^2+n^2)}}$. B) $\sqrt{\frac{2S(m^2+n^2)}{mn}}$. C) $\sqrt{\frac{4mn}{S(m^2+n^2)}}$. D) $\sqrt{\frac{8S(m^2+n^2)}{mn}}$.

544. Tomoni diagonallarining o'rta proporsional qiymatiga teng bo'lgan rombning o'tmas burchagini toping. A) $\operatorname{arctg}(\sqrt{2}-\sqrt{3})$. B) 120°. C) 135°. D) 150°.

545. Rombning balandligi 12 ga, diagonallaridan biri 15 ga teng bo'lsa, uning yuzi qanday bo'ladi? A) 100. B) 125. C) 150. D) 180.

546. Perimetri 40 cm ga, diagonallari yig'indisi 28 cm ga teng bo'lgan rombning yuzini toping (cm^2). A) 72. B) 96. C) 104. D) 128.

547. $ABCD$ trapetsiyada $AD\|BC$, $2AB=2BC=AD$ munosabatlar o'rinli. $\angle ACD$ necha gradusga teng? A) 30. B) 45. C) 60. D) 90.

548. Teng yonli trapetsiyaning diagonali yon tomoniga perpendikular. Uning kichik asosi 2 cm, balandligi $\sqrt{24}$ cm bo'lsa, katta asosi qanday (cm)? A) 6. B) 8. C) 10. D) $2\sqrt{24}$.

549. To'g'ri burchakli trapetsiyaning kichik diagonali 15 cm bo'lib, yon tomoniga perpendikular. Trapetsiyaning kichik yon tomoni 12 cm bo'lsa, yuzi qanday bo'ladi (cm^2)? A) 196. B) 200. C) 204. D) 244.

550. Trapetsiya asoslarining uzunliklari 28 va 10 ga teng. Uning diagonallari o'rtalarini tutashtiruvchi kesmaning uzunligini aniqlang. A) 7. B) 8. C) 9. D) 10.

551. Qavariq ko'pburchakning bir uchidan chiqqan diagonalari soni 47 ta. Uning tomonlari nechta? A) 48. B) 49. C) 50. D) 51.

552. Beshburchakning ichki burchaklari yig'indisi qanday? A) 540°. B) 560°. C) 580°. D) 720°.

553. Bir burchagi botiq, qolgan burchaklari qavariq bo'lgan beshburchakning ichki burchaklari yig'indisini toping. A) 450°. B) 540°. C) 720°. D) 960°.

554. Har bir ichki burchagi markaziy burchagidan 10 marta katta bo'lishi uchun ko'pburchakning nechta tomoni bo'lishi kerak? A) 16. B) 22. C) 24. D) 28.

555. Ichki burchaklari yig'indisi tashqi burchaklari yig'indisidan 720° ga katta bo'lgan ko'pburchakning tomonlari sonini toping. A) 5. B) 6. C) 8. D) 10.

556. Qavariq ko'pburchakning 14 ta diagonali bor. Uning tomonlari nechta? A) 5. B) 6. C) 7. D) 8.

557. Muntazam yigirmaburchakning eng uzun va eng kalta diagonallari orasidagi burchakni toping. A) 72°. B) 76°. C) 80°. D) 82°.

558. Agar $A_1A_4=4+\sqrt{32}$ bo'lsa, muntazam sakkizburchak $A_1A_2A_3A_4A_5A_6A_7A_8$ ning perimetri qanday bo'ladi? A) $16\sqrt{2}$. B) 24. C) 32. D) 48.

559. $ABCDEFGH$ muntazam sakkizburchakning yuzi 1 ga teng. $ABEF$ to'g'ri to'rtburchakning yuzini toping. A) $\frac{\sqrt{2}}{4}$. B) $\frac{1}{2}$. C) $\frac{1+\sqrt{2}}{4}$. D) $\frac{3}{2}$.

560. Aylanani 1; 5; 7; 11 sonlarga proporsional uzunlikdagi yoylarga bo'lganda, ularning burchaklari qanday bo'ladi? A) 10°,50°,70°,110°. B) 14°,72°,100°,174°. C) 20°,80°,120°,140°. D) 15°,75°,105°,165°.

561. Doiraning yuzi $6,25\pi$ ga teng. Bu doirada uzunligi 3 ga teng bo'lgan vatar o'tkazilgan. Doira markazidan vatargacha bo'lgan masofani toping. A) 2. B) 2,5. C) 3. D) 4.

562. Aylana yoyining uzunligi 10 cm, u tiralgan markaziy burchak 60° bo'lsa, aylananing radiusi qanday (cm)? A) $15/\pi$. B) $24/\pi$. C) $30/\pi$. D) $36/\pi$.

563. Aylana uzunligi shu aylananing 40° li yoyi uzunligidan necha foiz katta? A) 600. B) 700. C) 800. D) 900.

564. Radiusi r bo'lgan aylananing markazidan vatarigacha bo'lgan masofa $r\sqrt{3}/2$ ga teng bo'lsa, bu vatar tortib turgan yoyning uzunligi qanday bo'ladi? A) $\pi r/2$. B) $\pi r/3$. C) $\pi r/4$. D) $\pi r/6$.

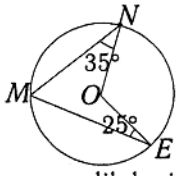
565. To'g'ri burchakli ABC uchburchakda $\angle A=70°$. Uzunligi $BC=12$ cm bo'lgan katetni diametr qilib aylana chizilgan. Aylananing uchburchak ichida yotgan qismining uzunligini toping (cm). A) 2π. B) 3π. C) $2\pi/3$. D) $4\pi/3$.

566. To'rtta nuqta aylanani yoylarining uzunligi maxraji 3 bo'lgan geometrik progressiya tashkil etuvchi bo'laklarga ajratadi. Shu nuqtalarni ketma-ket tutashtirish natijasida hosil bo'lgan to'rtburchakning diagonallari orasidagi kichik burchakni toping. A) 22,5°. B) 30°. C) 45°. D) 60°.

567. To'rtta nuqta aylanani yoylarining uzunligi maxraji 3 bo'lgan geometrik progressiya tashkil etuvchi bo'laklarga ajratadi. Shu nuqtalarni ketma-ket tutashtirish natijasida hosil bo'lgan to'rtburchakning diagonallari orasidagi katta burchakni toping. A) 45°. B) 120°. C) 135°. D) 150°.

568. Radiusi 1 ga teng bo'lgan aylana uchta yoyga bo'lindi. Ularga mos markaziy burchaklar 1, 2 va 3 sonlarga proporsional. Yoylardan eng kattasining uzunligini toping.
A) $\pi/3$. B) $2\pi/3$. C) π. D) $3\pi/2$.

569. Chizmadagi NOE burchakni toping. A) 105°.
B) 110°. C) 120°. D) 135°.



570. Aylananing ikkita kesishuvchi vatarlaridan birining uzunligi 36 cm, ikkinchisi kesishish nuqtasida 18 va 16 cm uzunlikdagi kesmalarga ajraladi. Birinchi vatarning kesmalarini aniqlang. A) 12 va 24.
B) 16 va 20. C) 17 va 19. D) 22 va 14.

571. Radiuslari 1 va 3 cm bo'lgan aylanalar bir-biriga tashqi ravishda urinadi. Urinish nuqtasidan ularning umumiy urinmalarigacha bo'lgan masofani toping (cm).
A) 2/3. B) 4/5. C) 5/6. D) 3/2.

572. Doiraning yuzi $6{,}25\pi$ ga teng. Bu doirada uzunligi 3 ga teng bo'lgan vatar o'tkazilgan. Doira markazidan vatargacha bo'lgan masofani toping. A) 2. B) 2,5. C) 3. D) 4.

573. Radiusi 5 ga teng bo'lgan doiradagi uzunligi 8 ga teng bo'lgan vatardan doira markazigacha bo'lgan masofa qanday?
A) 3. B) 3,2. C) 3,6. D) 4.

574. Ikkita doira radiuslari 1:2 nisbatda. Katta doira aylanasining uzunligi 8π. Kichik doira yuzini toping. A) π. B) 2π. C) 4π. D) 8π.

575. Doiraning yuzi 44% ortishi uchun uning radiusi necha foizga ortishi kerak?
A) 20. B) 25. C) 30. D) 35.

576. Doira markazidan $\sqrt{2}$ birlik uzoqlikda yotuvchi vatar uzunligi 4 birlikka teng. Doira yuzini toping.
A) $(2+\sqrt{2})\pi$. B) 6π. C) 8π. D) 9π.

577. Markazlari bir nuqtada bo'lgan ikki doiradan kattasining radiusi kichiginikidan 20% ga katta. Ular orasidagi halqaning yuzi katta doira yuzidan necha marta kichik?
A) $2\frac{3}{7}$. B) $2\frac{4}{7}$. C) $3\frac{3}{11}$. D) $3\frac{4}{9}$.

578. Radiuslari 2 va 3 ga teng bo'lgan doiralar bir-biriga tashqi ravishda urinadi. Ularning ikkalasi uchinchi doiraga ichki ravishda urinsa va markazlari bir to'g'ri chiziqda yotsa, tashqi doiraning ichki doiralardan tashqaridagi sohasi yuzi qanday bo'ladi?
A) 4π. B) 6π. C) 9π. D) 12π.

579. Radiusi R bo'lgan doiraning markazidan bir tomonda ikkita o'zaro parallel vatar o'tkazildi. Ulardan biri 120° li, ikkinchisi 60° li yoylarni tortib tursa, ular orasidagi maydonning yuzi qanday bo'ladi?
A) $\frac{\pi R^2}{6}$. B) $\frac{\pi R^2}{4}$. C) $\frac{\pi R^2}{3}$. D) $\frac{5\pi R^2}{8}$.

580. Doira yuzining shu doiradagi markaziy burchagi 36° bo'lgan sektor yuziga nisbatini toping. A) 5. B) 10. C) 5π. D) 10π.

581. $A(2; 1)$ nuqtadan o'tib, koordinata o'qlariga urinuvchi aylana tenglamasini tuzing.
A) $(x-1)^2+(y-5)^2=16$.
B) $(x-5)^2+(y-5)^2=25$ yoki $(x-1)^2+(y-1)^2=1$.
C) $(x-3)^2+(y-3)^2=9$. D) $(x-2)^2+(y-4)^2=9$.

582. Uchlari $A(3; 0)$, $B(-3; 8)$, va $C(3; 8)$ nuqtalarda bo'lgan uchburchakka ichki chizilgan aylana tenglamasini toping.
A) $(x-1)^2+(y-6)^2=4$. B) $(x-3)^2+(y+1)^2=2$.
C) $(x-2)^2+(y+6)^2=4$. D) $(x+3)^2+(y-2)^2=1$.

583. To'g'ri burchakli uchburchakning gipotenuzasi c ga, unga ichki chizilgan aylananing radiusi r ga teng bo'lsa, uchburchakning yuzi qanday bo'ladi?
A) $2cr$. B) r^2+cr. C) c^2+cr. D) r^2+c^2.

584. To'g'ri burchakli uchburchakning katetlaridan biri 15 cm ga, ikkinchi katetning gipotenuzadagi proeksiyasi 16 cm ga teng. Bu uchburchakka ichki chizilgan aylananing radiusini toping (cm). A) 3. B) 4. C) 5. D) 6.

585. To'g'ri burchakli uchburchakning katetlari 15 va 20 ga teng. Uchburchakka ichki chizilgan doira markazidan gipotenuzaga tushirilgan balandlikkacha bo'lgan masofani toping.
A) 1. B) 1,5. C) 2. D) 3.

586. Tomonlari 25, 29 va 36 cm bo'lgan uchburchakka ichki chizilgan aylana uzunligini toping (cm). A) 8. B) 8π. C) 10π. D) 16π.

587. Tomonlari 13, 14 va 15 ga teng bo'lgan uchburchakka ichki chizilgan aylana radiusini toping. A) 2. B) 3. C) 4. D) 5.

588. Teng yonli uchburchakka ichki chizilgan aylana urinish nuqtasida yon tomonni uchburchak uchidan boshlab hisoblaganda 2 va 3 cm li qismlarga ajratadi. Uchburchakning yuzini toping. A) 6. B) 12. C) 18. D) 24.

589. ABC uchburchakka ichki chizilgan aylanaga o'tkazilgan urinma BC va AC tomonlarni mos ravishda A_1 va B_1 nuqtalarda kesib o'tadi. Agar $BC=5$, $AC=6$, $AB=7$ bo'lsa, A_1B_1C uchburchakning perimetri qanday bo'ladi? A) 3. B) 4. C) 5. D) 6.

590. Teng yonli uchburchakning yon tomoni 10 cm ga, asosi 12 cm ga teng. Uchburchakka ichki chizilgan aylanaga o'tkazilgan urinmalar uchburchakning asosiga tushirilgan balandligiga parallel va berilgan uchburchakdan ikkita to'g'ri burchakli uchburchak ajratadi. Ushbu uchburchakning tomonlarini toping (cm). A) 2; 2; 3. B) 2; 3; 4.
C) 3; 3; 5. D) 3; 4; 5.

591. Tomonlari 104, 112 va 120 bo'lgan uchburchakka tashqi chizilgan aylana radiusini toping. A) 60. B) 63. C) 64. D) 65.

592. Uchburchakning ikkita tomoni 11, 24 ga, ular orasidagi burchagi 120° ga teng. Shu uchburchakka tashqi chizilgan aylananing radiusini toping.
A) $3\sqrt{2}$. B) $\frac{20}{\sqrt{3}}$. C) $\frac{31}{\sqrt{3}}$. D) $\frac{40}{\sqrt{3}}$.

593. To'g'ri burchakli uchburchakning perimetri 24 cm ga, yuzi 24 cm^2 ga teng. Unga tashqi chizilgan doiraning yuzini (cm^2) toping. A) 20π. B) 25π. C) 30π. D) 35π.

594. Tomonlari $2a$, a^2-1, a^2+1 bo'lgan uchburchakka tashqi chizilgan aylananing radiusini toping. A) aniqlab bo'lmaydi. B) a. C) $(a^2-1)/2$. D) $(a^2+1)/2$.

595*. Uchidagi burchagi 45° bo'lgan teng yonli uchburchakning yuzi $\sqrt{2}+1$ ga teng. Unga tashqi chizilgan doira yuzini toping.
A) π. B) 2π. C) $2\sqrt{2}\,\pi$. D) 3π.

596. Rombning tomoni $10\sqrt{3}$ ga, o'tmas burchagi 120° ga teng. Unga ichki chizilgan doiraning yuzini toping. A) $48{,}75\pi$. B) $52{,}25\pi$. C) $56{,}25\pi$. D) $58{,}6\pi$.

597. Rombning tomoni 4 ga, o'tkir burchagi 30° ga teng. Unga ichki chizilgan aylananing uzunligini toping. A) $\pi/2$. B) π. C) 2π. D) 4π.

598. Aylanaga tashqi chizilgan to'rtburchakning uchta ketma-ket tomonlari nisbati 1:2:3 kabi. Agar to'rtburchakning perimetri 28,8 ga teng bo'lsa, uning eng kichik tomonining uzunligi qanday? A) 3,6. B) 3,8. C) 4. D) 4,5.

599. Ikkita qarama-qarshi tomonlari yig'indisi 45 cm bo'lgan to'rtburchakka aylana ichki chizilgan. Qolgan ikki tomoni 2:3 kabi nisbatda bo'lsa, bu tomonlardan kattasi qanday bo'ladi (cm)? A) 25. B) 26. C) 27. D) 28.

600. r radiusli yarim doiraga ichki chizilgan kvadratning yuzini toping.
A) $2/3r^2$. B) $3/4r^2$. C) $4/5r^2$. D) $5/6r^2$.

601. Trapetsiyaning tomonlari a, a, a va $2a$ bo'lsa, unga tashqi chizilgan aylananing uzunligi qanday bo'ladi?
A) $a\pi$. B) $2a\pi$. C) $3a\pi$. D) $6a\pi$.

602. Asosidagi burchaklari 60° va 30° bo'lgan trapetsiyaga radiusi $3\sqrt{3}$ bo'lgan doira ichki chizilgan. Trapetsiyaning perimetrini toping.
A) 8. B) $2\sqrt{2}$. C) $3\sqrt{3}$. D) $24(1+\sqrt{3})$.

603. To'g'ri burchakli trapetsiyaning asoslari 4 va 6 ga teng. Unga ichki chizilgan aylananing uzunligini toping.
A) 3π. B) $4{,}8\pi$. C) $6{,}4\pi$. D) $9{,}6\pi$.

604. To'g'ri burchakli trapetsiyaga radiusi 5 ga teng aylana ichki chizilgan. Agar trapetsiyaning katta asosi 17 ga teng bo'lsa, aylana markazidan trapetsiyaning o'tkir burchagigacha bo'lgan masofa qanday bo'ladi?
A) 7. B) 9. C) 12. D) 13.

605. r radiusli aylanaga tashqi chizilgan teng yonli trapetsiyaning o'tkir burchagi α bo'lsa, uning yuzi qanday bo'ladi?
A) $r^2\operatorname{tg}\alpha$. B) $2r^2\sin\alpha$. C) $\frac{4r^2}{\sin\alpha}$. D) $\frac{2r^2}{\cos\alpha}$.

606. Markazi $ABCD$ ($BC\|AD$) trapetsiyaning AC diagonalida yotuvchi aylana A va B nuqtalardan o'tib, CD ga C nuqtada urinadi, hamda AD ni E nuqtada kesib o'tadi. Agar $AB=5\sqrt{2}$ va $CD=10\sqrt{13}$ bo'lsa, trapetsiyaning yuzi qanday bo'ladi?
A) 130. B) 134. C) 135. D) 136.

607. Yon tomoni 7,5 cm, yuzi 45 cm^2 bo'lgan teng yonli trapetsiyaga ichki chizilgan doiraning yuzini toping (cm^2).
A) $4{,}5\pi$. B) 6π. C) 8π. D) 9π.

608. Muntazam oltiburchakning tomoni 6 ga teng. Unga tashqi chizilgan aylana radiusini toping. A) 3. B) 6. C) $4\sqrt{3}$. D) 9.

609. Tomoni 12 cm ga teng bo'lgan muntazam oltiburchakka ichki chizilgan doiraning yuzini toping (cm^2).
A) 108π. B) 112π. C) 116π. D) 120π.

610. Aylanaga muntazam uchburchak va muntazam oltiburchak ichki chizilgan. Oltiburchak va uchburchak yuzlarining nisbatini toping. A) 4:1. B) 3:1. C) 2:1. D) 3:2.

611. Aylanaga tomoni $2\sqrt{3}$ cm bo'lgan muntazam oltiburchak tashqi chizilgan. Aylanaga ichki chizilgan kvadratning yuzini toping (cm^2). A) 15. B) 16. C) 18. D) 20.

612. Aylanaga tashqi chizilgan muntazam oltiburchakning tomoni $4\sqrt{2}$ bo'lsa, aylanaga ichki chizilgan kvadratning yuzi qanday bo'ladi? A) 48. B) 50. C) 52. D) 64.

613. Radiusi R bo'lgan aylanaga tashqi chizilgan muntazam n-burchakning tomoni b bo'lsa, shu aylanaga ichki chizilgan muntazam n-burchakning tomoni qanday bo'ladi?
A) $\sqrt{R^2+\frac{b^2}{4}}$. B) $\sqrt{R^2-\frac{b^2}{4}}$.
C) $\frac{2bR}{\sqrt{4R^2+b^2}}$. D) $\frac{2bR}{\sqrt{4R^2-b^2}}$.

614. Muntazam ko'pburchakning tomoni a, unga tashqi chizilgan aylananing radiusi R bo'lsa, unga ichki chizilgan aylananing radiusi qanday bo'ladi? A) $\sqrt{R^2+\frac{a^2}{4}}$.
B) $\sqrt{R^2-\frac{a^2}{4}}$. C) $\frac{2aR}{\sqrt{4R^2+a^2}}$. D) $\frac{2aR}{\sqrt{4R^2-a^2}}$.

615. Muntazam sakkizburchakka tashqi va ichki chizilgan doiralar yuzlarining nisbatini toping. A) $2-\sqrt{2}$. B) $3-2\sqrt{2}$.
C) $4-2\sqrt{2}$. D) $5-3\sqrt{2}$.

616. Tomoni 12 ga teng bo'lgan muntazam oltiburchakka tashqi va ichki chizilgan aylanalar orasidagi sohaning yuzini toping.
A) 20π. B) 24π. C) 30π. D) 36π.

617. $ABCDEF$ muntazam oltiburchakda M va N nuqtalar mos ravishda AB va CD tomonlarning o'rtalari. $BCNM$ trapetsiyaning perimetri 14 ga teng bo'lsa, $ABCDEF$ ga tashqi chizilgan aylana radiusi qanday bo'ladi?
A) 4. B) 5. C) 6. D) 7.

618*. Tekislikni kesmaydigan va uzunligi 17 ga teng bo'lgan kesmaning uchlari tekislikdan 4 va 12 ga teng uzoqlikda joylashgan. Kesmaning tekislikdagi proeksiyasini toping.

A) 10. B) 12. C) 15. D) 16.

619*. α tekislikni kesmaydigan AB kesmaning uchlaridan shu tekislikka uzunliklari AC=3 m va BD=2 m bo'lgan perpendikularlar o'tkazilgan. Agar CD=24 dm bo'lsa, AB kesmaning uzunligi qanday bo'ladi (dm)?
A) 20. B) 24. C) 26. D) 28.

620. A nuqtadan α tekislikka ikkita: AB=20 cm va AC=15 cm og'malar o'tkazilgan. AB og'maning α tekislikdagi proeksiyasi 16 cm bo'lsa, AC og'maning shu tekislikdagi proeksiyasi qanday bo'ladi (cm)?
A) 6. B) 8. C) 9. D) 10.

621. Tekislikdan a masofadagi nuqtadan tekislik bilan 30° li burchak hosil qiluvchi ikkita og'ma o'tkazilgan. Ularning tekislikdagi proeksiyalari o'zaro 120° li burchak hosil qiladi. Og'malarning uchlari orasidagi masofani aniqlang. A) $2a$. B) $3a$. C) $\sqrt{2}\,a$. D) $\sqrt{3}\,a$.

622. Tekislikdan h masofadagi nuqtadan tekislikka o'tkazilgan va tekislik bilan 30° li burchak hosil qiluvchi og'maning uzunligini aniqlang. A) $1{,}5h$. B) $2h$. C) $\sqrt{2}\,h$. D) $\sqrt{3}\,h$.

623. Uzunligi 50 cm bo'lgan kesmaning uchlari berilgan tekislikdan 30 va 44 cm uzoqlikda joylashgan. Kesmaning shu tekislikdagi proeksiyasini toping (cm).
A) 36. B) 42. C) 44. D) 48.

624. A nuqta ikki yoqli to'g'ri burchakning yoqlaridan 6 va 8 ga teng uzoqlikda yotsa, undan ikki yoqli burchakning qirrasigacha bo'lgan masofa qanday bo'ladi?
A) 8. B) 9. C) 10. D) 12.

625. $ABCD$ kvadrat tekisligiga A uchidan AK perpendikular o'tkazilgan. Agar AB=3, BK=4 bo'lsa, K nuqtadan kvadratning C uchigacha bo'lgan masofa qanday bo'ladi?
A) 4. B) 5. C) 6. D) $5\sqrt{2}$.

626. To'g'ri parallelepipedning asosi rombdan iborat bo'lib, diagonal kesimlarining yuzlari S_1 va S_2 bo'lsa, parallelepiped yon sirtining yuzi qanday bo'ladi? A) $S_1^2+S_2^2$.
B) $0{,}5\sqrt{S_1^2+S_2^2}$. C) $\sqrt{S_1^2+S_2^2}$. D) $2\sqrt{S_1^2+S_2^2}$.

627. Muntazam to'rtburchakli prizmaning hajmi 1944 ga, yon sirti $432\sqrt{2}$ ga teng. Prizma asosining simmetriya markazidan ustki asosining uchigacha bo'lgan masofani toping.
A) 8 B) 9. C) 12. D) 15.

628. To'g'ri prizmaning asosi teng yonli uchburchak bo'lib, uning asosi uzunligi 6 ga va asosga yopishgan burchakning sinusi 0,6 ga teng. Prizma asoslari yuzlarining yig'indisi uning yon sirti yuziga teng. Prizmaning hajmini toping. A) 5,75. B) 6,75. C) 7,2. D) 7,5.

629. Muntazam uchburchakli prizmaning hajmi 16 ga teng. Asosi tomonining uzunligi qanday bo'lganda, prizmaning to'la sirti eng katta bo'ladi? A) 2 B) 3. C) 4. D) 6.

630. Uchburchakli piramidaning yon yoqlari asos tekisligi bilan 60°li burchak tashkil etadi. Piramida asosining yuzi 40 ga teng. Uning to'la sirti yuzini toping.
A) 72. B) 80. C) 120. D) 128.

631. Muntazam to'rtburchakli piramidaning balandligi 8 ga, asosining tomoni 12 ga teng. Piramidaning yon yog'iga parallel bo'lib, asosining markazidan o'tgan kesimi yuzini aniqlang. A) 30. B) 45. C) 60. D) 72.

632. To'rtburchakli muntazam piramida asosining tomoni 10 m, balandligi 12 m bo'lsa, to'la sirtining yuzi qanday bo'ladi (m^2)?
A) 345. B) 360. C) 480. D) 540.

633. Muntazam o'nikkiburchakli piramidaning apofemasi $2\sqrt{2}$ ga teng, barcha yon yoqlari asos tekisligiga 45° burchak ostida og'ishgan. Uning hajmini toping. A) $64-32\sqrt{2}$.
B) $64-32\sqrt{3}$. C) $64-30\sqrt{2}$. D) $68-48\sqrt{2}$.

634. Konusning balandligi 24 ga, o'q kesimining perimetri 72 ga teng. Uning hajmini toping. A) 400π. B) 720π. C) 800π. D) 960π.

635. Uchburchakli piramidaning yon qirralari o'zaro perpendikular va uzunliklari $\sqrt{70}$, $\sqrt{99}$ va $\sqrt{126}$ ga teng. Uning hajmini toping.
A) $2\sqrt{110}$. B) $16\sqrt{33}$. C) $4\sqrt{68}$. D) $21\sqrt{55}$.

636. Uchburchakli piramidaning asosi tomonlari 9; 12 va 15 ga teng bo'lgan uchburchakdan iborat. Piramidaning barcha yon yoqlari asos tekisligi bilan 60° li burchak tashkil etadi. Uning hajmini toping.
A) $27\sqrt{3}$. B) $54\sqrt{3}$. C) $108\sqrt{3}$. D) $162\sqrt{3}$.

637. Uchburchakli piramidaning asosi tomonlari 4; 4 va 2 ga teng bo'lgan uchburchakdan iborat. Piramidaning barcha yon yoqlari asos tekisligi bilan 60° li burchak tashkil etadi. Uning hajmini toping.
A) $\sqrt{3}$. B) 3. C) $2\sqrt{3}$. D) 6.

638. Kesik piramida asoslarining yuzlari 96 va 24 ga, unga mos keluvchi butun piramidaning balandligi 16 ga teng. Kesik piramidaning hajmini toping.
A) 384. B) 424. C) 436. D) 448.

639. To'rtburchakli muntazam prizmaga ichki chizilgan silindr yon sirti yuzining prizma yon sirti yuziga nisbatini toping.
A) $\pi/4$. B) $\pi/2$. C) 2. D) 4.

640. Yon sirti 60π ga, balandligi 2 ga teng bo'lgan silindr asosining diametrini toping.
A) 10. B) 15. C) 20. D) 30.

641. Yuzi Q ga teng bo'lgan kvadratning biror tomoni atrofida aylanishidan hosil bo'lgan jismning sirti yuzini aniqlang.
A) $4\pi Q$. B) $4{,}5\pi Q$. C) $6\pi Q$. D) $8\pi Q$.

642. Balandligi asosining diametriga teng bo'lgan silindrning yon sirti 16π ga teng. Silindr asosining diametrini toping.
A) 1. B) 2. C) 4. D) 8.

643. Silindr yon sirtining yuzi 50π ga teng. Agar asoslari yuzlarining yig'indisi ham shunday bo'lsa, uning hajmi qanday bo'ladi?
A) 125π. B) 128π. C) 144π. D) 196π.

644. Silindrning balandligi 16 cm, asosining radiusi 10 cm. Uning o'qidan 60 mm masofada o'qqa parallel kesim o'tkazilgan. Shu kesimning yuzini toping (cm^2)?
A) 196. B) 208. C) 216. D) 256.

645. Silindrning balandligi H ga teng. Uning yon sirti yoyilganda yasovchisi bilan diagonali 60° burchak tashkil qilsa, uning hajmi qanday bo'ladi?
A) $6\pi H^3$. B) $\frac{H^3}{3\pi}$. C) $\frac{3H^3}{4\pi}$. D) $\frac{3H^3}{2\pi}$.

646. Teng tomonli silindrning va teng tomonli konusning balandliklari o'zaro teng. Ularning to'la sirtlari nisbatini toping.
A) 3:8. B) 3:4. C) 3:2. D) 5:3.

647. Konusning o'q kesimi muntazam uchburchakdan, silindrniki esa kvadratdan iborat. Agar konus hajmining silindr hajmiga nisbati $\sqrt{3}:2$ kabi bo'lsa, ularning to'la sirtlari nisbati qanday bo'ladi?
A) 3:2. B) $\sqrt{3}:\sqrt{2}$. C) $\sqrt[3]{9}:2$. D) $\sqrt[3]{3}:\sqrt[3]{2}$.

648. Asoslarining radiuslari 2 va $\sqrt{101}-1$ ga teng bo'lgan kesik konusning va unga tengdosh silindrning balandliklari o'zaro teng bo'lishi uchun silindrning radiusi qanday bo'lishi kerak?
A) $\frac{104}{3}$. B) $\frac{\sqrt{208}}{\sqrt{3}}$. C) $\frac{2\sqrt{104}}{3}$. D) $\sqrt{\frac{104}{3}}$.

649. Asoslarining radiuslari 2 va 11 ga teng bo'lgan kesik konus va unga tengdosh silindrning balandliklari o'zaro teng. Silindr asosining radiusini toping.
A) 6. B) 7. C) 7,5. D) 8.

650. Konusning balandligi 24 ga, o'q kesimining perimetri 72 ga teng. Uning hajmini toping. A) 400π. B) 720π. C) 800π. D) 960π.

651. Konus asosining radiusi 2 ga, o'q kesimining uchidagi burchagi 60° ga teng. Shu konusga tashqi chizilgan muntazam uchburchakli piramidaning hajmini toping.
A) 12. B) $10\sqrt{3}$. C) $12\sqrt{3}$. D) 24.

652. $y=|x+1|$, $x=-3$, $x=0$ va $y=0$ chiziqlar bilan chegaralangan shaklning abssissalar o'qi atrofida aylanishidan hosil bo'ladigan jismning hajmini toping.
A) π. B) $1{,}5\pi$. C) 2π. D) 3π.

653. Radiusi 13 ga teng bo'lgan shar sirtiga diagonallari 30 va 40 ga teng bo'lgan romb tomonlari urinadi. Romb tekisligidan shar markazigacha bo'lgan masofani aniqlang.
A) 3. B) 4. C) 5. D) 6.

654. Radiusi 37 cm bo'lgan shar markazidan 23 cm masofada kesim o'tkazilgan. Shu kesimning yuzini toping (cm^2).
A) 720π. B) 820π. C) 840π. D) 860π.

655. Qirralari 6 ga teng bo'lgan kubga ichki chizilgan sharning hajmini toping.
A) 27π. B) 36π. C) 72π. D) 108π.

656. Kubga ichki chizilgan shar hajmi unga tashqi chizilgan shar hajmining qanday qismini tashkil etadi?
A) $\frac{\sqrt{3}}{9}$. B) $\frac{4\sqrt{3}}{3}$. C) $\frac{3\sqrt{3}}{2}$. D) $\frac{\sqrt{3}}{3}$.

657. Ikkita qo'shni tomonlarining markazlari orasidagi masofa $3\sqrt{2}$ ga teng bo'lgan kubga tashqi chizilgan shar sirtining yuzini toping.
A) 108π. B) 120π. C) 125π. D) 144π.

658. Radiusi R bo'lgan sharga balandligi H bo'lgan uchburchakli prizma ichki chizilgan. Prizmaning hajmini toping.
A) $\sqrt{3}\,H(4R^2-H^2)$. B) $\frac{3\sqrt{3}H}{16}(4R^2-H^2)$.
C) $\frac{3\sqrt{2}H}{16}(4R^2-H^2)$. D) $\frac{3\sqrt{3}H}{16}(2R^2-H^2)$.

659. Uchburchakli muntazam piramidaga tashqi chizilgan sharning markazi uning balandligini 6 va 3 ga teng bo'lgan qismlarga ajratadi. Piramidaning hajmini toping.
A) $81\sqrt{3}$. B) $\frac{243\sqrt{3}}{4}$. C) $\frac{125\sqrt{3}}{2}$. D) $\frac{729\sqrt{3}}{4}$.

660. O'q kesimining diagonali l ga teng bo'lgan silindrga shar ichki chizilgan. Shar sirtining yuzini toping.
A) πl^2. B) $\frac{\pi}{2}l^2$. C) $\frac{\pi}{3}l^2$. D) $\frac{\pi}{4}l^2$.

661. Sfera sirtining yuzi 27π ga teng. Shu sferaga ichki chizilgan eng katta hajmli silindr balandligi qanday?
A) 2. B) 3. C) $2\sqrt{3}$. D) $3\sqrt{2}$.

662. Radiusi $3\sqrt{3}$ ga teng bo'lgan sferaga ichki chizilgan eng katta hajmli silindrning balandligini aniqlang. A) 5. B) 6. C) 7. D) 8.

663. Sferaga balandligi asosining diametriga teng bo'lgan konus ichki chizilgan. Sfera sirtining yuzi 125 ga teng. Konus asosining yuzini toping. A) 10. B) 15. C) 20. D) 5π.

664. $\sin^4 x+\cos^4 x=0{,}5\sin 2x$ tenglamaning (0°; 180°) oraliqqa tegishli ildizlarini toping.
A) 45°. B) 90°. C) 120°. D) 45° va 135°.

665. Sharga balandligi asosining diametriga teng bo'lgan konus ichki chizilgan. Konus asosining yuzi 2,4 ga teng. Shar sirtining yuzini toping. A) 12,5. B) 15. C) 6π. D) 9π.

666. Radiusi 15 ga teng bo'lgan sferaga balandligi 24 ga teng bo'lgan konus ichki chizilgan. Konusning hajmini toping.
A) 512π. B) 720π. C) 852π. D) 1152π.

667. Konusning balandligi va uning yasovchisi mos ravishda 4 cm va 5 cm ga teng. Asosi konus asosida yotgan ichki chizilgan yarimsharning hajmini toping (cm^3).
A) 8π. B) $\frac{125}{1152}\pi$. C) $\frac{156}{137}\pi$. D) $\frac{1152}{125}\pi$.

668. $y=\sqrt{16-x^2}$ funksiyaning grafigi bo'lgan

egri chiziqning uzunligini toping. A) 4π. B) 6π. C) 8π. D) aniqlab bo'lmaydi.

669. OX o'qqa parallel bo'lib, $M(-3; 1)$ nuqtadan o'tuvchi to'g'ri chiziq tenglamasini tuzing. A) $x=1$. B) $x=-3$. C) $x+y=1$. D) $y-1=0$.

670. $A(0; 2)$ nuqtadan o'tib, $y=3x+1$ funksiya grafigiga perpendikular bo'lgan to'g'ri chiziq tenglamasini ko'rsating. A) $y=-x/3-2$. B) $y=-x/3+2$. C) $y=-3x-2$. D) $y=-3x+2$.

671. Koordinata boshidan o'tuvchi tekislik tenglamasini toping.
A) $2x-2y+5z=0$. B) $x+y-1=0$.
C) $x+3y+9z-1=0$. D) $x+y+1=0$.

672. Koordinata boshidan va $P(1; 2; 3)$ nuqtadan o'tuvchi to'g'ri chiziq tenglamasini toping.
A) $x=2y=3z$. B) $6x=2y=3z$.
C) $3x=2y=z$. D) $6x=3y=2z$.

673. ABC uchburchak uchlaridan va shu uchburchakning medianalari kesishgan M nuqtadan α tekislikka tushirilgan perpendikularlar asoslari mos ravishda A_1, B_1, C_1, M_1 nuqtalarda yotadi. $AA_1+BB_1+CC_1$ va MM_1 uzunliklar nisbatni toping. A) 1. B) 1,5. C) 2. D) 3.

674. Uchlari (1; 2), (3; 4), va (5; −1) nuqtalarda bo'lgan uchburchak medianalarining kesishish nuqtasi koordinatalarini toping.
A) (2; 3). B) (3; 2). C) (3; 3). D) (3; 5/3).

675. Uchlari $y_1=x^2-4x+8$, $y_2=x^2-8x+18$ va $y_3=x^2+6x+12$ parabolalarning uchlari bilan ustma-ust tushadigan uchburchakning medianalari kesishish nuqtasi koordinatalarini toping. A) $(-1; 3)$. B) $(1; 3)$. C) $(2; 3)$. D) $(3; 2)$.

676. Boshi $A(2; 4)$ nuqtada bo'lgan $\overline{AB}(3; -2)$ vektorning B nuqtasi koordinatalarini aniqlang. A) $(-5; -2)$. B) $(-1; 6)$.
C) $(5; 2)$. D) $(1; -6)$.

677. $\overline{a}(-2; 3)$ va $\overline{b}(4; 1)$ vektorlar berilgan. $\overline{m}=2\overline{a}-3\overline{b}$ vektorning koordinatalarini aniqlang. A) $(-6; 4)$. B) $(-16; 3)$.
C) $(-13; 14)$. D) $(16; -3)$.

678. $\overline{a}(1; 2; 3)$ vektorni $\overline{m}(1; 1; 0)$, $\overline{n}(1; 0; 1)$ va $\overline{p}(0; 1; 1)$ vektorlar orqali ifodalang.
A) $\overline{a}=\overline{n}+2\overline{p}$. B) $\overline{a}=\overline{m}+\overline{n}+\overline{p}$.
C) $\overline{a}=\overline{m}+\overline{p}-2\overline{n}$. D) $\overline{a}=2\overline{m}-3\overline{p}$.

679. Agar $|\overline{AB}|=|\overline{AC}|=|\overline{AB}+\overline{AC}|=4$ bo'lsa, $|\overline{CB}|$ qanday bo'ladi?
A) $2\sqrt{3}$. B) 4,5. C) $4\sqrt{2}$. D) $4\sqrt{3}$.

680. $\overline{a}(1; -2; 2)$ va $\overline{b}(2; -2; -1)$ vektorlar berilgan. $2\overline{a}^2-4(\overline{a}\,\overline{b})+5\overline{b}^2$ ifodaning qiymatini toping. A) 44. B) 45. C) 46. D) 47.

681. Muntazam uchburchak ichida olingan nuqtadan uning tomonlarigacha bo'lgan masofalar $\overline{a}(1; 2; 3)$, $\overline{b}(1; 2; 1)$ va $\overline{c}(2; 3; 1)$ vektorlarning modullariga teng. Shu uchburchakning balandligini toping.
A) 16. B) 18. C) $\sqrt{6}+\sqrt{14}$. D) $2\sqrt{14}+\sqrt{6}$.

682. $\overline{a}(1; 4; 2\sqrt{2})$ vektorga qarama-qarshi yo'nalan birlik vektorni toping.
A) $\overline{n}\left(-\frac{1}{5}; \frac{4}{5}; \frac{2\sqrt{2}}{5}\right)$. B) $\overline{n}\left(\frac{1}{5}; \frac{1}{5}; -\frac{2\sqrt{2}}{5}\right)$.
C) $\overline{n}\left(-\frac{1}{5}; -\frac{4}{5}; -\frac{2\sqrt{2}}{5}\right)$. D) $\overline{n}\left(\frac{1}{5}; -\frac{4}{5}; \frac{2\sqrt{2}}{5}\right)$.

683. m ning qanday qiymatida $\overline{a}(1; -1)$ va $\overline{b}(-2; m)$ vektorlar kollinear bo'ladi?
A) −3. B) −2. C) 1. D) 2.

684. $\overline{a}(1; 2; -1)$ va $\overline{b}(2; 2; 0)$ vektorlar berilgan. $\overline{c}(x; y; -6)$ vektor $2\overline{b}-3\overline{a}$ vektorga kollinear. $|\overline{c}|$ ning qiymatini toping.
A) 8. B) 13. C) $2\sqrt{13}$. D) $2\sqrt{14}$.

685. Uchlari $A(1; 1)$, $B(-2; 3)$, va $C(-1; -2)$ nuqtalarda bo'lgan uchburchakning A va B burchaklarini toping. A) 30°; 90°.
B) 45°; 90°. C) 60°; 30°. D) 90°; 45°.

686. $\overline{a}(-6; 3; 3)$ va $\overline{b}(3; -3; 0)$ vektorlar berilgan. $2\overline{a}$ va $1/3\,\overline{b}$ vektorlar orasidagi burchakni toping.
A) 60°. B) 120°. C) 135°. D) 150°.

687. Parallelogrammning $A(-3; -2; 0)$, $B(3; -3; 1)$ va $C(5; 0; 2)$ uchlari berilgan. $\overline{AC}$ va $\overline{BD}$ vektorlar orasidagi burchakni toping.
A) 60°. B) 120°. C) 135°. D) 150°.

688. $A(-4; 1; 1)$, $B(1; 4; 0)$, $C(1; -2; 2)$ va $D(-5; -5; 3)$ nuqtalar berilgan. $\overline{AC}$ va $\overline{BD}$ vektorlar orasidagi burchakni toping.
A) 30°. B) 45°. C) 60°. D) 90°.

689. $(63x-61)^4$ ifodaga teng standart shakldagi ko'phadning koeffitsientlari yig'indisini toping. A) 8. B) 12. C) 14. D) 16.

IZOHLAR

1. Nomeri to'rtburchak (□) ichiga olingan savollar qaytarilgan savollardir.
2. Nomeri yulduzcha (*) bilan belgilangan masalalar xatoli masalalar edi. Ularning xatolari to'g'rilangan.
3. Testlarning matnlari asl nusxadagi bilan aynan bir xil emas, chunki ular tahrir qilingan.

2013 yil matematika testining to‘g‘ri javob kodlari

(Javoblarning o‘rni almashtirilgan.)

№	Nomerning oxirgi raqami										№	Nomerning oxirgi raqami									
	0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**		**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
0		C	B	D	B	D	B	A	B	A	**35**	B	A	B	C	D	B	B	A	D	B
1	C	C	D	A	C	C	C	B	A	A	**36**	A	A	B	C	A	C	A	C	B	C
2	B	B	A	D	A	A	C	C	C	B	**37**	B	A	D	B	A	B	A	D	D	C
3	C	A	C	A	D	C	A	B	A	B	**38**	A	B	D	D	D	C	B	B	B	B
4	C	B	B	C	A	A	D	B	C	B	**39**	D	C	D	B	A	D	D	D	A	B
5	A	D	C	D	A	A	B	D	D	B	**40**	A	D	D	D	B	D	A	C	D	A
6	B	C	A	B	B	C	B	B	C	D	**41**	C	D	B	C	C	D	D	B	A	B
7	A	C	C	A	A	A	A	B	B	D	**42**	D	B	B	C	D	B	D	A	C	D
8	D	B	D	C	D	B	B	B	D	B	**43**	C	C	C	D	B	A	A	D	D	C
9	C	C	D	A	C	C	B	B	D	A	**44**	D	B	D	D	D	A	A	C	C	D
10	A	A	A	D	D	B	C	A	B	A	**45**	A	A	B	C	D	A	C	C	D	D
11	D	D	A	C	D	B	B	D	C	C	**46**	D	C	D	D	A	D	C	A	D	B
12	C	C	D	D	B	D	A	C	A	C	**47**	D	D	D	B	C	B	B	A	D	D
13	B	A	D	B	A	B	D	C	C	B	**48**	C	A	D	C	A	C	A	C	D	A
14	B	B	B	C	A	D	C	A	C	B	**49**	C	C	A	C	C	D	C	B	B	C
15	B	B	B	A	A	C	B	D	D	D	**50**	A	D	B	D	C	B	B	B	D	D
16	B	D	B	B	B	B	D	B	A	A	**51**	B	A	A	A	C	D	B	A	C	D
17	D	B	A	A	A	D	A	B	C	B	**52**	A	B	B	A	D	B	B	B	D	D
18	C	D	A	A	D	D	B	C	D	B	**53**	D	B	C	D	B	B	C	C	B	D
19	D	B	D	A	C	B	D	D	A	D	**54**	B	D	A	D	D	C	B	D	C	C
20	B	B	D	C	A	A	D	C	B	A	**55**	C	C	A	B	B	C	C	A	C	B
21	A	C	C	C	D	B	D	A	D	B	**56**	D	A	C	C	B	D	C	C	C	C
22	D	B	D	A	D	C	B	B	A	A	**57**	A	D	A	A	C	A	B	C	D	A
23	B	A	D	D	C	C	D	D	B	A	**58**	B	B	A	B	C	A	D	C	B	D
24	A	C	B	A	C	D	B	D	A	C	**59**	D	D	C	B	D	B	C	C	A	C
25	D	B	C	D	D	C	C	C	D	B	**60**	C	B	D	B	D	C	C	D	B	A
26	C	D	A	A	B	C	A	D	C	A	**61**	C	C	A	C	B	C	D	A	C	C
27	D	C	B	D	B	D	D	D	C	C	**62**	C	B	B	D	C	B	D	D	B	C
28	D	A	B	B	A	A	B	D	C	B	**63**	C	B	B	B	C	D	B	A	D	A
29	C	D	C	A	B	D	D	D	C	B	**64**	D	A	C	A	D	C	C	C	D	B
30	D	D	B	C	B	C	A	A	D	D	**65**	C	D	D	C	C	B	A	A	B	B
31	D	A	D	B	D	C	C	A	C	B	**66**	D	B	B	C	A	B	D	D	A	D
32	A	C	D	D	A	D	D	D	B	C	**67**	B	A	D	D	D	B	C	B	A	D
33	D	B	C	A	B	D	C	D	C	B	**68**	D	D	C	D	D	D	D	B	D	D
34	C	A	B	A	D	B	C	C	C	A	**69**										
№	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	№	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
	Nomerning oxirgi raqami											Nomerning oxirgi raqami									