MATEMATIKADAN YANGI TESTLAR TO`PLAMI

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1. Ifodaning qiymatini toping:

$(-20):\left[-4-(-2)\cdot\left(\frac{1}{3}\right)^{-1}\right]$

A) –24 B) –20 C) –10 D)10

2. Hisoblang: $(-2)^3:(-2)^2-(-5)^2\cdot(3)^0$

A) –27 B) –25 C) –20 D) –18

3. Hisoblang: $|-3|+|4|-\|-3|-|-2\|$

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

4. Hisoblang: $\frac{317^2-283^2}{300}$

A)143 B)130 C)85 D)68

5. Ifodani soddalashtiring:

$(x-4)\cdot(x+3)-(x+1)\cdot(x+2)$

A) $2x+10$ B) $-2x+5$

C) $-4x-14$ D) $-2x-10$

6. Ifodani soddalashtiring: $(x+y)^2+(x-y)^2$

A) $2x^2-2y^2$ B) $2xy$ C) $2x^2+2y^2$ D) $4xy$

7. Agar $x=212$ bo`lsa, $\frac{x^2-3x+2}{x-1}$ ifodaning qiymatini toping.

A)112 B)210 C)214 D)412

8. Hisoblang: $78^2+44\cdot78+22^2$

A) 25^4 B) 20^4 C)12^4 D)10^4

9. a, b va c musbat butun sonlardir. Agar $a\cdot b=17$ va $b\cdot c=15$ tengliklar o`rinli bo`lsa, $a+b+c$ ning qiymatini toping.

A)36 B)33 C)30 D)27

10. a, b va c manfiy butun sonlardir. Agar $a\cdot b=18$ va $a\cdot c=12$ tengliklar o`rinli bo`lsa, $b+c-a$ ning eng katta qiymatini toping.

A) –4 B) –3 C) –1 D)1

11. a va b musbat butun sonlardir. Agar $a=b\cdot\frac{1+\frac{1}{2}}{1-\frac{1}{4}}$ tenglik o`rinli bo`lsa, $a-3b$ ning eng kichik qiymatini toping.

A) –4 B) –2 C) –1 D)3

12. a, b va c musbat butun sonlari uchun $3a=7b$ va $\frac{b}{c}=\frac{5}{3}$ tengliklar o`rinli bo`lsa, $a+b+c$ ning eng kichik qiymatini toping.

A)56 B)57 C)58 D)59

13. Bir–biridan farqli ikki xonali 6 ta natural sonlarning yig`indisi 526 ga teng. Bu sonlardan eng kichigi nechaga teng bo`lishi mumkin?

A)32 B)38 C)39 D)41

14. a, b va c musbat butun sonlar bo`lib, $\frac{a}{3}+\frac{b}{4}+\frac{c}{5}=12$ tenglik bajarilsa, $a+b+c$ yig`indi eng ko`pi bilan nechaga teng bo`lishi mumkin?
A)57 B)59 C)61 D)63

15. x va y natural sonlar bo`lib, $x+y=35$ tenglik bajarilsa, $(x+1)\cdot(y+1)$ ifodaning eng katta qiymatini toping.
A)342 B)346 C)354 D)362

16. x va y biror natural sonlar bo`lib, $x=\frac{12}{y+1}$ tenglik bajariladigan $y$ ning qabul qilishi mumkin bo`lgan qiymatlari yig`indisini toping.
A)22 B)23 C)24 D)25

17. a, b va c biror raqamlar bo`lsin. $a-b=6$ va $a-c=3$ tengliklar o`rinli bo`lsa, $a+b+c$ yig`indining eng katta qiymati nimaga teng?
A)7 B)8 C)9 D)10

18. x, y va z musbat butun sonlardir. Agar $\frac{1}{x}+\frac{1}{y}+\frac{1}{z}=1$ tenglik bajarilsa, $x+y+z$ yig`indi quyidagilardan qaysi biriga teng bo`lishi mumkin?
A)8 B)9 C)12 D)13

19. Quyidagilardan qaysi biri toq son?
A) $4!$ B) 2^5+6^7 C) $3^{14}+5^{15}$ D) 7^7+2^{30}

20. Agar $x\cdot y\cdot z>0$ bo`lsa, javoblardan qaysi biri x, y va z ning ishoralariga mos keladi?
A)+,+,– B) –,–,– C) –,+,– D)+,–,+

21. x natural son bo`lib, $5x^4+60!$ juft son bo`lsa, quyidagilardan qaysi toq son bo`ladi?
A)x+2 B)x^2+4 C)3x+5 D)x^2+x

22. x butun son bo`lib, $(x+2)\cdot(x+4)\cdot(x+6)$ toq son bo`lsa, quyidagilardan qaysi juft son bo`ladi?
A)x^2 B)x+2 C)3x+4 D)7x+1

23. a, b va c biror haqiqiy son bo`lib, $a^4\cdot b^3\cdot c^7>0$ ma'lumotdan foydalanib, quyidagi ifodalardan qaysilari har doim o`rinli?
1) a – manfiy
2) b/c – musbat
3) a+c – musbat
A)faqat 1 B)faqat 2 C)1 va 2 D)2 va 3

24. 10^{n^2-5n+6} ifoda toq son bo`ladigan $n$ ning barcha qiymatlari kvadratlari yig`indisini toping.
A)13 B)17 C)20 D)24

25. x, y, va z haqiqiy sonlar bo`lib, quyidagi ma'lumotlardan foydalangan holda, x, y va z ning ishoralarini aniqlang.
1) $x^2\cdot y<0$
2) $\frac{y}{z}>0$
3) $x\cdot y\cdot z>0$
A)+,+,+ B)–,–,– C)+,–,– D)+,–,+

26. x, y, va z – haqiqiy sonlar. Agar $3x+y=z^2+z$ tenglik o`rinli bo`lsa, quyidagi ifodalardan qaysilari doimo juft bo`ladi?

1) $x\cdot y$

2) x^y

3) $3x+5y$

A)faqat 1 B)faqat 2 C)faqat 3 D)1 va 3

27. a, b va c ketma – ket toq sonlar bo`lib, $\left(1+\frac{2}{a}\right)\cdot\left(1+\frac{2}{b}\right)\cdot\left(1+\frac{2}{c}\right)=\frac{11}{9}$ tenglik o`rinli bo`lsa, shu sonlar ichidan eng kichigini toping.

A)33 B)27 C)31 D)25

28. Hisoblang:

$1\cdot 3-3\cdot 5+5\cdot 7-7\cdot 9+\ldots+57\cdot 59-59\cdot 61$

A)–1860 B)–1760 C)–1800 D)–1700

29. Musbat sonlardan tuzilgan quyidagi ketma–ketlikning 104–o`rinda turgan sonni toping:

1, 2, 2, 3, 3, 3, 4, 4, 4, 4, 5,…

A)11 B)12 C)13 D)14

30. Hisoblang: $\frac{10!}{9!}+\frac{6!}{4!}$

A)40 B)56 C)60 D)72

31. Hisoblang: $\dfrac{\frac{1}{4!}+\frac{1}{5!}}{\frac{1}{6!}-\frac{1}{7!}}$

A)28 B)32 C)36 D)42

32. $x=23\cdot 5!$ bo`lsa, $7!+6!-2\cdot 5!$ ni x orqali ifodalang.

A)$2x$ B)$6x$ C)$8x$ D)$12x$

33. $(2n-4)!=(20-n)!$ tenglikdan foydalanib, $\frac{n!}{6!}$ ifodaning qiymatini toping.

A)7 B)56 C)8 D)42

34. Tenglamani yeching: $5!\cdot x+6!=4!\cdot x+7!$

A)56 B)45 C)42 D)36

35. Hisoblang: $((x-3)!+(3-x)!)!\cdot x!$

A)2 B)6 C)12 D)48

36. $3\cdot 5\cdot 7\cdot 9\cdot\ldots\cdot 33$ ko`paytmaning har bir ko`paytuvchisini birga orttirib, hisoblanganda quyidagilardan qaysi biriga teng bo`ladi?

A) $33!\cdot 2^{16}$ B) $17!\cdot 2^{16}$ C) $16!\cdot 2^{16}$ D) $16!\cdot 2^{14}$

37. m ning qanday natural qiymatida quyidagi ifoda biror butun sonning kvadrati bo`ladi?

$\left[(17!)^2-(16!)^2\right]\cdot m$

A)2 B)3 C)5 D)6

38. Hisoblang: $\sqrt[3]{\frac{(8!)^4+(7!)^4}{(7!)^4}-1}$

A)4 B)8 C)12 D)16

39. Quyidagi ma'lumotlardan foydalanib, $(n-m)!$ ni toping. $(n-1)!=24$, $(m+2)!=120$

A)1 B)2 C)6 D)24

40. Tenglikdan n ni toping. $\frac{(n+4)!}{(n+1)!}=720$

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

41. $9!-8!+7!$ ifoda quyidagilarning qaysi biriga bo`linmaydi?

A)51 B)12 C)25 D)8

42. $52!$ ifoda nechta nol bilan tugaydi?

A)9 B)10 C)11 D)12

43. a va b natural son bo`lib, $((3!)!)!=4!\cdot a\cdot b!$ bo`lsa, $a+b$ ning eng kichik qiymatini toping.

A)737 B)742 C)749 D)747

44. a va b natural sonlardir. $60!=a\cdot 21^b$ bo`lsa, b ning eng kichik qiymatini toping.

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

45. a, b va c musbat butun sonlardir. $10!=a\cdot 2^b\cdot 3^c$ bo`lsa, a ning eng kichik qiymatini toping.

A)25 B)175 C)125 D)55

46. n – musbat butun son. $\frac{11!}{4^n}$ ifoda toq son bo`lsa, n ning qiymatini toping.

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

47. a va b natural sonlardir. Agar $\begin{cases}A=a\cdot 7^b\\ A=\frac{150!}{42!}\end{cases}$ bo`lsa, b ning eng kichik qiymatini toping,

A)16 B)17 C)18 D)19

48. Hisoblang: $5-5\cdot\left(1+4\cdot 10^{-2}\right)$

A) –0,3 B) –0,2 C) –0,1 D)0,1

49. Ketma–ket ikki musbat toq sonlarning kvadratlari ayirmasi 120 ga teng. Bu sonlardan kichigini toping.

A)29 B)17 C)19 D)27

50. a, b va c juft sonlar bo`lsa, quyidagilardan qaysilari doimo juft bo`ladi?

1) $\frac{a+b+c}{2}$

2) $\frac{a\cdot b\cdot c}{4}$

3) $\frac{a+b}{2}+c$

A)faqat 1 B)faqat 2 C)2 va 3 D)1 va 3

51. a, b va c musbat butun sonlar uchun $8!-6!\cdot 2=2^a\cdot 3^b\cdot 5^c$ tenglik o`rinli bo`lsa, $a+b+c$ yig`indi nechaga teng?

A)10 B)9 C)11 D)13

52. a, b va c butun sonlar va $a>b>0>c$ bo`lsa, quyidagilardan qaysilari doimo manfiy butun son bo`ladi?

1) $a\cdot c$

2) $(a+c)^b$

3) $(c-a)\cdot(b-c)$

4) $a^3-(-b)^2+c^4$

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

53. Hisoblang: $200-199+198-197+...+4-3$

A)98 B)99 C)100 D)101

54. Hisoblang: $\frac{1!}{0!}+\frac{3!}{2!}+\frac{5!}{4!}+...+\frac{33!}{32!}$

A)216 B)264 C)279 D)289

55. aa, bb va cc sonlar ikki xonali natural sonlar bo`lib, $(aa)^2+(bb)^2+(cc)^2=3509$ tenglik o`rinli bo`lsa, $a^2+b^2+c^2$ ning qiymatini toping.

A)20 B)24 C)29 D)33

56. $1!+2!+3!+4!+...+27!$ yig`indini 12 ga bo`lgandagi qoldiqni toping.

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

57. Besh xonali $705ab$ natural son bo`lib, 30 ga bo`linsa, $a+b$ ning eng katta qiymatini toping.

A)6 B)9 C)15 D)16

58. $\overline{xyza}$ to`rt xonali natural son bo`lsa, $\overline{xyza}-(x+y+z+a)$ ifoda quyidagilardan qaysi biriga har doim bo`linadi?

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

59. c va d biror musbat sonlar uchun $A=5^c\cdot 2^2$, $B=5^3\cdot 2^d$ va $EKUB(A;B)=100$ tenglik o`rinli bo`lsa, $c+d$ ning eng kichik qiymatini toping.

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

60. $\overline{abc}$ turli raqamlardan iborat uch xonali natural son bo`lsa, $\frac{\overline{abc}}{30}+\frac{\overline{abc}}{24}$ ifodaning eng kichik qiymatini toping.

A)5 B)7 C)9 D)12

61. a va b musbat butun sonlar bo`lib, $EKUK(a;b)=30$ tenglik o`rinli bo`lsa, $a+b$ ifodaning eng kichik qiymatini toping.

A)9 B)10 C)11 D)12

62. a va b musbat butun sonlar. Agar $EKUB(a;b)=6$ va $\frac{a}{b}=\frac{13}{11}$ bo`lsa, $a+2b$ ni toping.

A)210 B)108 C)144 D)240

63. a va b o`zaro tub sonlardir. Agar $EKUK(a;b)=120$ va $\frac{25}{b}+19=a$ bo`lsa, $a+b$ ni toping.

A)25 B)27 C)29 D)31

64. a va b natural sonlardir. Agar $EKUB(a;b)=4$ va $a\cdot b=192$ bo`lsa, $a+b$ ning eng kichik qiymatini toping.
A)26 B)28 C)30 D)32

65. Agar x=6!+7! va y=7!+8! bo`lsa, $EKUK(x;y)$ ning qiymatini toping.
A)7! B)5·7! C)9! D)8!

66. a va b musbat butun sonlar. Agar $\frac{a+5}{b+6}=\frac{5}{6}$ va $2\cdot EKUB(a;b)+EKUK(a;b)=96$ bo`lsa, a ni toping.
A)10 B)12 C)15 D)18

67. m musbat butun son bo`lsa, $EKUK(13;m)-EKUB(13;m)$ ifoda quyidagilardan qaysi biriga teng bo`la olmaydi.
A)25 B)57 C)38 D)51

68. Hisoblang: $\frac{4}{3}+\frac{44}{33}+\frac{444}{333}+...+\frac{444...4}{\underbrace{333...3}_{90\ xonali}}$
A)111 B)114 C)120 D)117

69. 22222 sonini 2 ga bo`lganda qoldiq $a$ ga, 3 ga bo`lganda qoldiq b ga, 4 ga bo`lganda qoldiq $c$ ga teng bo`lsa, $a+b+c$ ning qiymatini toping.
A)3 B)4 C)6 D)5

70. a va b ketma – ket juft natural sonlar. Agar $EKUB(a;b)=2x-22$ va $EKUK(a;b)=x+132$ bo`lsa, $a+b$ ning qiymatini toping.
A)32 B)34 C)36 D)38

71. a va b bir – biridan farqli tub sonlar uchun quyidagi mulohazalardan qaysilari har doim o`rinli?
1) $a-b$ tub son
2) a va b o`zaro tub sonlar
3) a^b va b^a o`zaro tub sonlar
A)1 B)2;3 C)2 D)1;2

72. Tenglamani yeching: $\frac{x}{1-\frac{1}{2}}+\frac{x}{1-\frac{2}{3}}+\frac{x}{1-\frac{3}{4}}=26,(9)$
A)3 B)4 C)6 D)5

73. $\frac{a}{2^4\cdot3\cdot5}+\frac{b}{2^2\cdot3\cdot5^2}+\frac{c}{2^2\cdot3^2\cdot5}=\frac{1}{12}$ tenglik o`rinli bo`lsa, $15a+12b+20c$ ning qiymatini toping.
A)460 B)300 C)480 D)500

74. a va b bir – biridan farqli haqiqiy sonlardir. Agar $3a+\frac{1}{4b}=24$ bo`lsa, $4a+\frac{1}{3b}$ ning qiymatini toping.
A)32 B)45 C)42 D)36

75. Soddalashtiring: $\sqrt{(-2)^2}-\sqrt[3]{(-5)^3}+\sqrt[5]{-1}$
A)7 B)6 C)5 D)4

76. Agar $3^{x^2-y^2}=4^{x+y}$ bo`lsa, $2^{\frac{2}{x-y}}$ ning qiymatini toping.
A)3 B)4 C)3^x D)4^x

77. Hisoblang: $\sqrt{333^2+444^2}:\sqrt{37:\frac{0,1}{3,7}}$
A)24 B)21 C)18 D)15

78. Hisoblang: $\sqrt{4022\cdot 14+2004^2}$
A)2018 B)2008 C)2017 D)2016

79. Agar $x=4^6$ bo`lsa, $\frac{\sqrt[4]{x}+\sqrt[5]{2x^2}}{\sqrt[6]{x}}$ ning qiymatini toping.
A)6 B)7 C)8 D)10

80. Tenglamani yeching;
$\sqrt{1+\frac{1}{x}}+\sqrt{4+\frac{4}{x}}+\sqrt{9+\frac{9}{x}}=12$
A)0,25 B)0,(3) C)4 D)3

81. Agar $x+y=6$ va $x+z=2$ bo`lsa, $x^2+xy+xz+yz$ ning qiymatini toping.
A)18 B)15 C)12 D)10

82. Agar $a^2+b^2+c^2=13$ va $a-b-c=5$ bo`lsa, $bc-ab-ac$ ning qiymatini toping.
A)4 B)5 C)6 D)7

83. Agar $x^2-x-1=0$ bo`lsa, $\frac{x^3+2x+11}{x^2+2}$ ning qiymatini toping.
A)4 B)3 C) –4 D) –3

84. Agar $t^3-10=0$ bo`lsa, $\frac{2}{t^2+2t+4}$ ni t orqali ifodalang.
A)t+2 B)t–2 C)t D)t+3

85. Agar $\begin{cases}x^2+xy+xz=43\\y^2+xy+yz=63\\z^2+yz+xz=38\end{cases}$ bo`lsa, $x+y+z$ ning qiymatini toping.
A)10 B)11 C)12 D)14

86. x musbat haqiqiy son bo`lib, $x-2\sqrt{x}=4$ bo`lsa, $\frac{12\cdot x}{(x-4)^2}$ ning qiymatini toping.
A)2 B)3 C)4 D)6

87. Agar $\frac{x}{y}=\frac{a}{b}$ bo`lsa, $\frac{x+2y}{y}+\frac{b-a}{b}$ ning qiymatini toping.
A)3 B)2 C)1 D)0

88. Agar
$2^4\cdot 3^5\cdot 5^2\cdot a=2^3\cdot 3^4\cdot 5^2\cdot b=2^5\cdot 3^4\cdot 5\cdot c$ va $a+b+3=c$ bo`lsa, a ni toping.
A)3 B)6 C)15 D)36

89. a, b va c bir – biridan farqli musbat haqiqiy sonlardir. Agar $\frac{2}{a\cdot b}=\frac{3}{b\cdot c}=\frac{6}{a\cdot c}$ va $a^2+b^2+3c^2=1152$ bo`lsa, $a+b+c$ ni toping.

A)36 B)32 C)30 D)24

90. a, b va c musbat butun sonlardir. Agar $|2a-3b|+|2b-5c|=0$ bo`lsa, $a+b+c$ ning kichik qiymatini toping.

A)32 B) 30 C)29 D)34

91. a, b va c musbat haqiqiy sonlar uchun $a\cdot b+a\cdot c+a^2=45$ va $\frac{a}{a+b+c}=\frac{4}{5}$ tengliklar o`rinli bo`lsa, a ni toping.

A)1 B)1,5 C)4 D)6

92. Agar $\begin{cases}2^x-3^y=10\\2^{x-1}=3^{y+1}\end{cases}$ bo`lsa, 2^x+3^y ni toping.

A)18 B)16 C)14 D)12

93. Agar $f(x+1)=(2x+1)!$ bo`lsa, $EKUK\left(\frac{f(4)}{f(3)};\frac{f(3)}{f(2)}\right)$ ning qiymatini toping.

A)350 B)420 C)360 D)400

94. Agar $\frac{f(x)+f(3)}{x+3}=x+2$ bo`lsa, $f(2)$ ning qiymatini toping.

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

95. Agar $f(x)=3x+1$ bo`lsa, $f(2x-1)+f(x+1)$ ning qiymatini toping.

A)9x+2 B)9x–7 C)8x+4 D)8x–1

96. Agar $f(g(x))=2g(x)+5$ bo`lsa, $f(2)$ ning qiymatini toping.

A)12 B)11 C)10 D)9

97. Agar $f(4x-1)=x^m-7$ va $f(7)=25$ bo`lsa, m ni toping.

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

98. Agar $f(x)=x^3-4x^2+4x+1$ bo`lsa, $x^3\cdot f\left(\frac{1}{x}\right)$ ning qiymatini toping.

A) x^3+2x^2-x+3 B) x^3+4x^2-4x+1

C) x^3-5x^2+x+1 D) x^3+x^2-4x+4

99. Agar $f(2^x)=8^x-4^{x+1}+10$ bo`lsa, $f(3)$ ning qiymatini toping.

A)1 B)3 C)5 D)7

100. $f(-1)=1$ va $f(2)=3$ bo`lib, $g(x^2+f(x))=6\cdot f(x)+x$ bo`lsa, $g(2)+g(7)$ ning qiymatini toping.

A)23 B)24 C)25 D)26

101. Agar $f(x)=\begin{cases}3x+2 & , x\ge 2\\ f(x+2), & -1\le x<2\\ f(x+4), & x<-1\end{cases}$ bo`lsa, $f(-8)+f(-13)$ ning qiymatini toping.

A)19 B)20 C)21 D)22

102. Agar $f(x-3)=3x+7$ bo`lsa, $f(x)$ funksiyani toping.

A)$3x$+1 B)$3x$+4 C)$3x$+16 D)$3x$+12

103. Agar $f\left(\frac{3x+3}{x-2}\right)=\frac{2x-4}{x+1}$ bo`lsa, $f\left(1-\frac{1}{x}\right)$ ning qiymatini toping.

A) $\frac{x-1}{6}$ B) $\frac{6x-6}{x}$ C) $\frac{x-1}{x}$ D) $\frac{6x}{x-1}$

104. Agar $f(x)=2^{x-1}$ va $g(x)=4^{x+1}$ bo`lsa, $g(x+1)$ funksiyani $f(x+2)$ orqali ifodalang.

A) $64\cdot f^2(x+2)$ B) $32\cdot f^2(x+2)$

C) $16\cdot f^2(x+2)$ D) $4\cdot f^2(x+2)$

105. $f(x)=\sqrt{\frac{12-2x}{\sqrt{x}+4}}$ funksiysning aniqlanish sohasini toping.

A)$(0;2)$ B)$(-4;12]$ C)$[0;6]$ D)$(-4;6]$

106. Agar $f^{-1}\left(\frac{x+4}{x-2}\right)=\frac{x+2}{x+3}$ bo`lsa, $f\left(\frac{1}{2}\right)$ ning qiymatini toping.

A) –2 B) –1,5 C) –1 D)0,5

107. Agar $\left(f^{-1}\right)^{-1}(x)=2x+5$ bo`lsa, $f(2)$ ning qiymatini toping.

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

108. Agar $f^{-1}(2a-1)=5$ va $f(5)=a+2$ bo`lsa, a ni toping.

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

109. Quyidagilarga ko`ra a ni toping.

$f(x)=3^x$ *va* $f^{-1}(9^a)\cdot f\left(\frac{1}{2}\right)=6$

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

110. $f(x)=\frac{2-x}{x}$ ga ko`ra, $f\left(\frac{1}{f^{-1}(x)}\right)=2$ tenglamadan x ni toping.

A) $\frac{1}{4}$ B) $\frac{1}{3}$ C) $\frac{1}{2}$ D)7

111. Agar $f(x)$, $g(x)$ va $h(x)$ funksiyalar uchun $f^{-1}(h(x)+g(x))=h(x)\cdot g(x)$, $h(4)=3$ *va* $g(4)=2$ shart bajarilsa, $f(6)$ ning qiymatini toping.

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

112. Agar $f(x)=\frac{2-x}{3}$ va $g(f(x))=\frac{x+2}{x-2}$ bo`lsa, $g(x)$ ni toping.

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

113. Agar $f^{-1}(x+2)=x$ *va* $g(x)=x^2$ bo`lsa, $f(g(4))$ ning qiymatini toping.

A)18 B)8 C)6 D)5

114. Agar $f(3x-2)=4x+7$ va $g(x+15)=2x-6$ bo`lsa, $g(f(10))$ ni toping.

A)9 B)10 C)11 D)13

115. Agar $f(x)=mx+2$, $g(x)=4x+m$ va $g^{-1}(f(2))=3$ bo`lsa, m ni toping.

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

116. $f(x-2)=x-1$, $g(x+2)=2x-3$ ga ko`ra, $f(g(x))$ funksiyaning teskari funksiyasini aniqlang.

A) $\frac{1}{2}(x-4)$ B) $\frac{1}{3}(x-2)$ C) $\frac{1}{2}(x+6)$ D) $\frac{1}{4}(x+6)$

117. Agar $f(g(x))=x+6$ va $f(x)=\frac{2x-4}{5}$ bo`lsa, $g^{-1}(x)$ funksiya quyidagilardan qaysi biriga teng?

A) $\frac{2x+3}{4}$ B) $\frac{3x+12}{5}$ C) $\frac{2x-34}{5}$ D) $\frac{5x+1}{4}$

118. Agar $f(x)=2x+3$ va $g(x)=\frac{x+1}{2}$ bo`lsa, $f(g(1))+g(f(2))$ ni toping.

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

119. Agar $f^{-1}(g(x))=x+1$ bo`lsa, $\frac{f(3)}{g(2)}$ ni toping.

A)1 B)0,(3) C)0,5 D)2

120. Agar $2^{f^{-1}(g(x+2))}=4x+8$ bo`lsa, $\frac{f(5)}{g(8)}$ ni toping.

A)1 B)0,(3) C)0,5 D)2

121. Agar $\frac{f(3x-2)+x}{3}=\frac{f(2x-1)+3x}{2}$ bo`lsa, $f(1)$ ni toping.

A)–7 B) –5 C) –6 D) –4

122. Agar $f(x)$ va $g(x)$ funksiyalar uchun $g^{-1}(f^{-1}(x))=2x+3$ *va* $g(x)=4x-7$ tenglik o`rinli bo`lsa, $f(x)$ ning qiymatini toping.

A) $\frac{2x+1}{3}$ B) $\frac{3x-1}{4}$ C) $\frac{x+1}{8}$ D) $\frac{x-5}{8}$

123. Agar $f(x)$ toq va $g(x)$ juft funksiyalar bo`lsa, quyidagilardan qaysi biri doimo juft funksiya bo`ladi?

A) $f^3(x)$ B) $f(x)+g(x)$ C) $f(g(x))$ D) $\frac{f(x)}{g(x)}$

124. 33022 besh xonali sonning raqamlaridan foydalanib yana nechta bir – biridan farqli besh xonali son yozish mumkin?

A)30 B)24 C)21 D)18

125. A={0,1,2,3,4,5,6} to`plam elementlaridan foydalanib turli raqamli nechta to`rt xonali juft natural sonlar yozish mumkin?
A)500 B)480 C)420 D)450

126. A={0,2,4,5,6,7} to`plam elementlaridan foydalanib turli raqamli uch xonali beshga bo`linadigan nechta natural sonlar yozish mumkin?
A)36 B)32 C)48 D)42

127. A={0,1,2,5,6} to`plam elementlaridan foydalanib yozilgan uch xonali sonlar ichidan nechtasi 500 dan kichik bo`ladi?
A)25 B)30 C)50 D)75

128. 1, 2, 3, 4, 5 va 6 raqamlaridan foydalanib bir – biridan farqli 4 xonali sonlar yozilgan. Bu sonlar ichida 3 va 4 raqamlari yonma – yon yozilgan sonlar nechta?
A)108 B)72 C)96 D)84

129. A={0,1,2,3,4,5} to`plam elementlaridan foydalanib bir – biridan farqli uch xonali sonlar ichida 300 dan kichik juft sonlar nechta?
A)18 B)36 C)24 D)20

130. “KAPALAK” so`zining harflaridan foydalanib yozilgan 7 ta harfli so`zlaridan nechtasi L harfi bilan boshlanib P harfi bilan tugaydi?
A)8 B)10 C)12 D)15

131. A={0,1,2,3,4,5} to`plam elementlaridan foydalanib tuzilgan uch xonali natural sonlar ichida 3 raqami mavjud bo`lganlari nechta?
A)91 B)72 C)100 D)216

132. A={a,b,c,d,e,f,g,h} to`plam elementlaridan foydalanib undosh harflardan iborat 3 harfli so`z yozish mumkin?
A)216 B)210 C)120 D)96

133. A={a,b,c,d,e,f } to`plam elementlaridan foydalanib 5 harfli so`zlar yozilgan. Bu so`zlar ichidan nechtasi “ba” bo`g`ini bilan boshlanadi?
A)18 B)48 C)72 D)24

134. 123450 soning raqamlaridan foydalanib nechta raqamlari turlicha bo`lgan 6 xonali sonlar yozilgan?
A)4·5! B)5·5! C)4·4! D)6!

135. $(x^2-2x)^6$ yoyilmasining hadlaridan biri $a\cdot x^{11}$ bo`lsa, a ni toping.
A) –20 B) –18 C) –15 D) –12

136. $\left(\frac{x}{3}-3\right)^{10}$ yoyilmasining musbat koeffitseyentlari nechta?
A)7 B)6 C)5 D)4

137. $(1+2a)^7$ ifoda yoyilmasining a^2 hadi oldidagi koeffitseyentini toping.
A)84 B)72 C)60 D)56

138. $\left(\frac{x^3+2x}{x^4}\right)^{10}$ ifoda yoyilmasining hadlaridan biri $1024\cdot x^{-n}$ bo`lsa, n ni toping.
A)18 B)28 C)30 D)20

139. $(x^2+x+1)^5=a_0+a_1\cdot x+a_2\cdot x^2+...+a_{10}\cdot x^{10}$ yoyilmadan $a_0+a_2+a_4+...+a_{10}$ yig`indini toping.
A)100 B)110 C)120 D)122

140. $a=12$ va $b=15$ uchun $a^6+6a^5b+15a^4b^2+20a^3b^3+15a^2b^4+6ab^5+b^6$ ifodaning qiymatini toping.
A) 3^{12} B) 3^{15} C) 3^{16} D) 3^{18}

141. $(x^2-2x+1)^6$ ifoda nechta haddan iborat?
A)13 B)12 C)8 D)7

142. $(4a+b)^n$ ifodaning hadlaridan biri $m\cdot a^2\cdot b^3$ bo`lsa, m ni toping.
A)180 B)160 C)150 D)140

143. $P(x)=(x^3-1)^3+(x+2)^6$ ko`phadning x^3 birhadi oldidagi koeffitseyentini toping.
A)163 B)156 C)144 D)139

144. $(2x+3y)^{10}$ ifodaning binom yoyilmasidagi $x^7\cdot y^3$ hadi koeffitseyentining musbat bo`luvchilari sonini toping.
A)180 B)240 C)110 D)120

145. $(a^2\cdot b+a\cdot b^3)^6$ yoyilmasidagi hadlaridan biri $m\cdot a^8\cdot b^{14}$ bo`lsa, m ni toping.
A)6 B)10 C)15 D)20

146. $(2a+1)^n$ ning koeffitsiyentlari yig`indisi 243 bo`lsa, a^2 hadi oldidagi koeffitsiyentini toping.
A)40 B)45 C)20 D)24

147. Hisoblang: $\frac{7!+8!}{(4!)^2-(3!)^2}$
A)72 B)84 C)88 D)92

148. a, b va c bir – biridan farqli raqamlar bo`lsa, $\frac{a^2+ab+ac+bc}{a(b+c)+c(b-a)}$ ifodaning $a=54$ va $b=27$ bo`lgandagi qiymatini toping.
A)6 B)5 C)4 D)3

149. Tenglamani yeching: $\frac{1}{\sqrt{x}}+\frac{3}{\sqrt{4x}}-\frac{6}{\sqrt{9x}}=1$

A) $\frac{1}{9}$ B) $\frac{1}{6}$ C) $\frac{1}{4}$ D)1

150. Tenglamaning ildizlari yig`indisini toping:
$(3x-2)^2\cdot(x^2-x-13)=0$

A) $\frac{1}{3}$ B) $\frac{4}{3}$ C) $\frac{5}{3}$ D) $\frac{7}{3}$

151. n biror haqiqiy son bo`lsa,
$x^2-(2n+1)x+n^2+n-6=0$ ikkinchi darajali tenglamaning ildizlarini to`plami quyidagilardan qaysi biriga teng?

A) $\{1;n-2\}$ B) $\{1;n+3\}$
C) $\{1+n;n+2\}$ D) $\{n-2;n+3\}$

152. $(x-y)^2-4(x+y)^2+x^2-y^2=0$ ko`ra, $\frac{x-y}{x+y}$ ifodaning olishi mumkin bo`lgan qiymatlari ko`paytmasini toping.

A) –1 B) –2 C) –3 D) –4

153. $x^2-x-4=0$ tenglamaning ildizlari m va n bo`lsa, $(m-1)\cdot(n-2)\cdot(m-3)\cdot(m+2)\cdot(n+1)\cdot m$ ning qiymatini toping.

A) –16 B) –8 C)0 D)8

154. $x^2-4x-12=0$ tenglamaning x_1 va x_2 bo`lsa, $(x_1+x_2)\cdot x_1\cdot x_2$ ning qiymatini toping.

A) –60 B) –56 C) –48 D)48

155. $x^2-ax+3=0$ tenglamaning ildizlari x_1 va x_2 bo`lib, $x_2+\frac{1}{x_1}=\frac{2}{3}$ bo`lsa, a ni toping.

A) $\frac{13}{2}$ B) $\frac{14}{3}$ C)5 D)6

156. $x^2+x-3=0$ tenglamaning ildizlari x_1 va x_2 bo`lsa, $(x_1+1)\cdot(x_2+1)$ ning qiymatini toping.

A) –4 B) –3 C) –2 D) –1

157. $x^2-(x_1\cdot x_2)x+8=0$ tenglamaning ildizlari x_1 va x_2 bo`lsa, uning diskriminantini toping.

A)24 B)30 C)32 D)36

158. $x^2-6x+3m=0$ ikkinchi darajali tenglamaning ildizlari x_1 va x_2 bo`lib, $2x_1-x_2=3$ tenglik o`rinli bo`lsa, m ni toping.

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

159. $x^2-(a-1)x+a+1=0$ ikkinchi darajali tenglamaning ildizlari x_1 va x_2 bo`lib, $x_1^2\cdot x_2+x_2^2\cdot x_1=15$ tenglik o`rinli bo`lsa, a ni toping.

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

160. $x^2-(m-2)x+16=0$ tenglamaning ildizlari x_1 va x_2 bo`lib, $-\sqrt{x_1}+3=\dfrac{8}{\sqrt{x_2}}$ tenglik o`rinli bo`lsa, m ni toping.

A)17 B)18 C)19 D)20

161. $x^2-(x_1-3)\cdot x+(x_2+1)^4=0$ ikkinchi darajali tenglmaning ildizlari x_1 va x_2 bo`lib, $x_2^2\cdot x_1=4m$ tenglik o`rinli bo`lsa, m ni toping.

A) –16 B) –15 C) –12 D) –10

162. $\begin{cases}x_1+x_2-2x_1x_2=-1\\x_1+x_2+3x_1x_2=19\end{cases}$ ga ko`ra, ildizlari $x_1+2$ va $x_2+2$ bo`lgan ikkichi darajali tenglama tuzing.

A) $x^2-11x+22=0$ B) $x^2-10x+12=0$

C) $x^2+10x+22=0$ D) $x^2-7x+15=0$

163. $4x^2-2x-4=0$ tenglamaning ildizlari x_1 va x_2. Bunga ko`ra, ildizlari $4^{x_1}\cdot 4^{x_2}$ va $\left(2^{x_1}\right)^{x_2}$ bo`lgan ikkinchi darajali tenglama tuzing.

A) $2x^2-5x+3=0$ B) $x^2-3x-7=0$

C) $2x^2-5x+2=0$ D) $2x^2-5x+1=0$

164. Agar $P(x^2+x+7)=14-3x^2-3x$ bo`lsa, $P(x)$ ko`phad quyidagilardan qaysi biriga teng?

A)–3x+35 B)–3x+15 C)–3x+20 D)–3x+30

165. $P(x)$ ko`phad uchun $P(x-1)=\dfrac{x+1}{P(2)}$ o`rinli bo`lsa, $P(4)\cdot P(6)$ ni toping.

A)6 B)8 C)10 D)12

166. $P(x)=x^7-5x^6-x^5+5x^4+x+1$ ko`phadni $x-5$ ga bo`lgandagi qoldiqni toping.

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

167. Agar $P(x+3)$ ko`phadni $x-2$ ga bo`lgandagi qoldiq 5 ga teng bo`lsa, quyidagilardan qaysi biri $x-1$ ga qoldiqsiz bo`linadi?

A) $P(x-3)$ B) $P(x-2)+x$

C) $P(x+3)+3$ D) $P(6x-1)-5x$

168. Agar $2P(x+1)+3P(x)=10x+9$ bo`lsa, $P(x)$ ko`phadning koeffitseyentlari yig`indisini toping.

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

169. $P(x)=x^{m+4}-3\cdot x^m+2$ ko`phadni $x^2-2$ ga bo`lganda qoldiq 6 bo`lsa, m ni toping.
A)3 B)4 C)5 D)6

170. Agar $P(2)=3$ va $P(3)=5$ bo`lsa, $P(x)$ ko`phadni $(x-2)\cdot(x-3)$ ga bo`lgandagi qoldiqni toping.
A)$2x-1$ B)$x-1$ C)$2x+1$ D)$3x-1$

171. Agar $P(x+4)=x^2+4x+a$, $Q(x+2)=x^2+4$ va $P(x+2)=Q(x+2)$ bo`lsa, a ni toping.
A)6 B)7 C)8 D)9

172. $P(x)=2x-3$ bo`lsa, $P(m-1)+P(m+1)=14$ tenglikdan m ni toping.
A)2 B)3 C)4 D)5

173. x^5+x^4+ax+b ko`phad $x^2+x+1$ ga qoldiqsiz bo`linsa, $a+b$ ni toping.
A)0 B)1 C)2 D)3

174. Agar $P(2^x+1)=8^x-2^x$ bo`lsa, $P(4)$ ni toping.
A)24 B)21 C)18 D)16

175. $\dfrac{P(x)}{x-3}=x\cdot Q(x-2)+x^2-13$ bo`lib, $P(x+1)$ ko`phadni $x-3$ ga bo`lgandagi qoldiq 31 ga teng. $Q(x)$ ko`phadni $x-2$ ga bo`lgandagi qoldiqni toping.
A)7 B)8 C)9 D)10

176. Agar $f(x)=\begin{cases}((x-1)^2)!, & x<3\\ (x!)!, & x\geq 3\end{cases}$ bo`lsa, $\dfrac{f(4)}{\underbrace{f(f(f(\ldots f(1))))}_{13ta}}$ ifodaning qiymatini toping.
A)120! B)72! C)48! D)24!

177. Agar $f(x)=\begin{cases}x^2+m+1, & x<2\\ x-2m, & x\geq 2\end{cases}$ bo`lsa, $f(-2)>f(10)$ tengsizlikni qanoatlantiruvchi m ning eng kichik qiymatini toping.
A)–2 B)–1 C)2 D)1

178. Soddalashtiring: $\dfrac{(x-1)(x^3+x^2+x)+x}{x^2}$
A)x^4 B)x^3 C)x^2 D)x

179. a, b va c musbat butun sonlar uchun $\dfrac{a}{b}=\dfrac{5}{4}$ va $\dfrac{b}{c}=\dfrac{6}{5}$ tengliklar o`rinli bo`lsa, $a+b+c$ yig`indining eng kichik butun qiymatini toping.
A)15 B)23 C)37 D)54

180. $1+5+9+...+n=A$ va $1+4+7+...+n=B$ bo`lsa, $\frac{A}{B}=\frac{13}{17}$ ga ko`ra, n ning qiymatini toping.

A)45 B)49 C)51 D)53

181. $\frac{10}{23}+\frac{11}{24}+\frac{12}{25}=m$ bo`lsa, $\frac{82}{23}-\frac{59}{24}+\frac{38}{25}$ ifodani m orqali ifodalang.

A)m–4 B)2m–1 C)m+6 D)4–m

182. $\left(1-\frac{13}{2}\right)\cdot\left(1-\frac{13}{3}\right)\cdot\left(1-\frac{13}{4}\right)\cdot...\cdot\left(1-\frac{13}{50}\right)$ ko`paytmaning qiymatini toping.

A)0 B)1 C)$\frac{37}{50}$ D)$\frac{50}{37}$

183. $A=18^2+24^2+30^2$ bo`lsa, $A$ sonining tub bo`luvchilari yig`indisini toping.

A)6 B)10 C)18 D)25

184. x, y, z bir – biridan farqli musbat butun sonlardir. Agar $EKUK(x;y;z)=100$ bo`lsa, $x$+$y$+$z$ yig`indining eng katta qiymatini toping.

A)150 B)175 C)200 D)255

185. *EKUB*i 4 ga va *EKUK*i 72 bo`lgan ikki musbat butun sonlar yig`indisining eng kichik qiymatini toping.

A)36 B)40 C)44 D)56

186. a,b,c bir – biridan farqli tub sonlardir. Agar $A=a^2\cdot b^3\cdot c^2$, $B=a^3\cdot b\cdot c^3$, $C=a^4\cdot b^2$ bo`lsa, $\frac{EKUK(A;B;C)}{EKUB(A;B;C)}$ ning qiymatini toping.

A)$a^3\cdot b^2\cdot c$ B)$a^2\cdot b^2\cdot c^3$ C)$a\cdot b^2\cdot c^3$ D)$a\cdot b^2\cdot c$

187. x, y musbat butun sonlardir. $\frac{x}{y}=\frac{5}{8}$ va $EKUK(x;y)=200$ bo`lsa, $EKUB(x;y)$ni toping.

A)1 B)5 C)10 D)16

188. $x,y,z\in Z$ bo`lsa, $A=7x-4=8y+4=9z+5$ ga ko`ra A sonining olishi mumkin bo`lgan uch xonali butun sonni toping.

A)500 B)504 C)618 D)770

189. $x\cdot y>x^2\cdot y^2$ bo`lsa, quyidagilarning qaysi biri doimo o`rinli?

A)$x\cdot y\ge 0$ B)$\frac{x+y}{y}>1$ C)$\frac{x}{y+1}>0$ D)$\frac{x}{y}<0$

190. Agar $x>0$ bo`lsa, $\frac{\left(-x^2\right)^3\cdot\left(x^{-2}\right)^5\cdot\left(-x^2\right)^5}{\left(-x^4\right)^{-3}\cdot\left(-x^5\right)^{-1}}$ ni soddalashtiring.

A) $-x^{25}$ B) $-x^{17}$ C)1 D) x^{17}

191. x va y butun sonlar bo`lib, $7^{x+y-3}=11^{x-y+7}$ bo`lsa, x^2-y^2 ning qiymatini toping.

A)–21 B)–15 C)1 D)25

192. Agar $\frac{\sqrt{5}-\sqrt{3}}{\sqrt{3}+1}=x$ bo`lsa, $\frac{\sqrt{3}-1}{\sqrt{5}+\sqrt{3}}$ ni x roqali ifodalang.

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

193. Hisoblang: $\sqrt{244\cdot 324-243\cdot 325}$

A)16 B)12 C)10 D)9

194. a, b, c haqiqiy sonlar uchun $a\cdot b+a\cdot c+b\cdot c=-12$ tenglik o`rinli bo`lsa, $a^2+b^2+c^2$ ning eng kichik qiymatini toping.

A)48 B)36 C)24 D)0

195. Soddalashtiring:

$$\frac{x^3-8y^3}{(x-2y)^2+6xy}:\frac{x^2-4y^2}{x^2+2xy-2x-4y}$$

A)x–2 B)x–2y C)y–2x D)x+y

196. Hisoblang; $\frac{9!+8!}{8!}+\frac{9!-8!}{7!}$

A)74 B)54 C)60 D)64

197. $\frac{(2n+1)!}{(2n-1)!}=42$ ifodadan n ning qiymatini toping.

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

198. $(a+2b+3c)^5$ yoyilmaning a^2b^2c birhadi oldidagi koeffitsiyentini toping.

A)360 B)120 C)80 D)240

199. Agar $f(x)=(x+1)^2\cdot(x-4)^3$ bo`lsa, $f'(x)=0$ tenglamaning ildizlari yig`indisini toping.

A)3 B)4 C) –1 D)0

200. Agar $f(x)=x^{55}+x^{54}+x^{53}+\ldots+1$ bo`lsa, $f'(0)$ ning qiymatini toping.

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

201. Agar $f(x)=x^{55}+x^{54}+x^{53}+\ldots+1$ bo`lsa, $f'(1)$ ning qiymatini toping.

A)1450 B)1540 C)1050 D)928

202. $f(x)=x^3-5ax+4$ funksiya berilgan. Agar $\frac{f`(1)}{f``(1)}=3$ bo`lsa, a ning qiymatini toping.

A)0 B)1 C) –5 D) –3

203. $f(x)=ax^3+2x^2b+5x-2$ funksiya berilgan. Agar $f`(1)=3$ va $f``(-1)=5$ bo`lsa, a ning qiymatini toping.

A) $-\frac{7}{9}$ B) $-\frac{4}{9}$ C) $-\frac{5}{9}$ D) $-\frac{1}{3}$

204. $f(x)=-x^3+ax^2+5x+3$ va $g(x)=3x^4+2x$ funksiyalar berilgan. Agar $f`(1)+g`(1)=8$ bo`lsa, a ning qiymatini toping.

A)0 B)0,5 C)1 D)1,5

205. Agar $f(x)=\cos x$ va $g(x)=f(x)\cdot f`(x)$ bo`lsa, $g`(x)$ ni toping.

A) $\cos 2x$ B) $-\sin 2x$ C) $\sin 2x$ D) $-\cos 2x$

206. Agar $f(x)=arctg(\sin x)$ bo`lsa, $f`(x)$ ni toping.

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

207. Agar $f(x)=(\cos x)^{\ln x}$ bo`lsa, $f`(x)$ ni toping.

A) $(\cos x)^{\ln x}\cdot\left(\frac{1}{x}\ln(\sin x)-tgx\cdot\ln x\right)$

B) $(\cos x)^{\ln x}\cdot\left(\frac{1}{x}\ln(\cos x)-tgx\cdot\ln x\right)$

C) $(\cos x)^{\ln x}\cdot\left(\frac{1}{x}\ln(\sin x)-\ln(tgx)\right)$

D) $(\cos x)^{\ln x}\cdot\left(\frac{1}{x}\ln(\cos x)+tgx\cdot\ln x\right)$

208. 3, 9, 9, 27, 27, 27, 81, 81, 81, 81, … ketma – ketlikning 40 – hadi A, 15 – hadi B ga teng bo`lsa, $\frac{A}{B}$ ni toping.

A)81 B)9 C)27 D)243

209. Agar $M=1-2+2^2-2^3+...+2^8-2^9$ bo`lsa, $1-2+2^2-2^3+...+2^6-2^7$ ni M orqali ifodalang.

A) $\frac{M+1}{4}$ B) $\frac{M-1}{4}$ C) $\frac{M+3}{4}$ D) $\frac{M}{4}$

210. Agar $3^x=5^y$ bo`lsa, $9^{\frac{x}{y}}-125^{\frac{y}{x}}$ ni toping. (x va y haqiqiy sonlar)

A)1 B)2 C)–4 D)–2

211. Hisoblang: $\dfrac{\overbrace{4\cdot 4\cdot 4\cdot \ldots \cdot 4}^{16ta}}{\underbrace{4+4+4+\ldots+4}_{16ta}}$

A) 2^{13} B) 2 C) 2^{26} D) 2^{24}

212. Agar $\underbrace{x^2+x^2+x^2+\ldots+x^2}_{x\,ta} > x^a$ bo`lsa, $a$ ning qabul qilishi mumkin bo`lgan nutaral qiymatlari yig`indisini toping.

A)1 B)6 C)3 D)10

213. a, b va c musbat butun sonlardir. Agar $a+b=10$ va $b+c=14$ bo`lsa, $a\cdot b\cdot c$ ko`paytmaning eng katta qiymatini toping.

A)225 B)240 C)162 D)96

214. a, b va c musbat butun sonlar va $a>b>c$. Agar $a+\dfrac{b}{c}=12$ bo`lsa, $a+b+c$ ning eng katta qiymatini toping.

A)16 B)22 C)24 D)18

215. m va n natural sonlar uchun $(m-2n)\cdot(m+n)=13$ o`rinli bo`lsa, $m\cdot n$ ko`paytmani toping.

A)33 B)36 C)40 D)30

216. Quyida keltirilgan tasdiqlardan nechtasi to`g`ri?

1) $2^{13}-3^{10}$ *toq son*

2) 3^8+5^7 *toq son*

3) $4^{-2}+10$ *juft son*

4) 8^0+1 *toq son*

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

217. $a+b$ va $a-b$ sonlar o`zaro tub. Agar $\dfrac{a+b}{a-b}=\dfrac{30}{14}$ tenglik o`rinli bo`lsa, $a\cdot b$ ni toping.

A)40 B)44 C)38 D)35

218. Agar $m=2+4+6+\ldots+20$ va $n=1+3+5+\ldots+19$ bo`lsa, m^2-n^2 ifodaning qiymatini toping.

A)2400 B)2100 C)120 D)180

219. Agar $a=5\cdot 6+6\cdot 7+7\cdot 8+\ldots+14\cdot 15$ va $b=6\cdot 9+7\cdot 10+8\cdot 11+\ldots+15\cdot 18$ bo`lsa, $b-a$ ifodaning qiymatini toping.

A)480 B)360 C)310 D)420

220. $(n+2)!=20\cdot n!$ bo`lsa, n ni toping.

A)6 B)10 C)3 D)4

221. Ifodaning birlar xonasidagi raqamini aniqlang: $0!+2!+4!+6!+\ldots+34!$

A)1 B)5 C)7 D)6

222. $\frac{n^2+n}{132}=\frac{10!}{(n-1)!}$ bo`lsa, n ni toping.

A)11 B)9 C)12 D)8

223. a, b, c musbat butun sonlardir. Agar $2^a\cdot 3^b\cdot c=10!$ bo`lsa, c ning eng kichik qiymatini toping.

A)35 B)175 C)350 D)120

224. $\frac{1}{2!}+\frac{2}{3!}+\frac{3}{4!}=1-\frac{1}{a!}$ tenglikdan a ni toping.

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

225. $124!-13!+12$ sonining mezonini toping.

A)2 B)5 C)3 D)8

226. Agar $f(x)=\log_4 2x+3$ bo`lsa, $f^{-1}(x)$ ni toping.

A) $\frac{4^{x-3}}{2}$ B) 4^x-3 C) $\frac{4^x-3}{2}$ D) $\frac{4^x+3}{2}$

227. Agar $\log_{(x+6)}((n-2)x+m+3)$ bo`lsa, $m+n$ ni toping.

A)0 B)8 C)3 D)6

228. Hisoblang: $\lg\frac{3}{4}+\lg\frac{4}{5}+\lg\frac{5}{6}+\ldots+\lg\frac{299}{300}$

A)–1 B)–2 C)3 D)10

229. Agar $\log_5 25!=x$ bo`lsa, $\log_5 24!$ ni x orqali ifodalang.

A)x–4 B)x+2 C)x–2 D)x

230. Agar $\log_{18}48=A$ bo`lsa, $\log_3 2$ ni a orqali ifodalang.

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

231. $\frac{\log_2(7x+1)-1}{\log_2(x-2)+\log_2 4}=1$ ga ko`ra, x ni toping.

A)17 B) $\frac{43}{18}$ C) $\frac{25}{12}$ D) $\frac{1}{6}$

232. Hisoblang: $\frac{8}{\log_{\sqrt{2}}42}+\frac{4}{\log_3 42}+\frac{12}{\log_{\sqrt[3]{7}}42}$

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

233. Soddalashtiring: $\frac{(\cos x-\sin x)^2-1}{\sin x}:\cos x$

A) –1 B)1 C)–2 D)2

234. Agar $\sin x=\frac{a}{b}$ bo`lsa, $\cos 2x$ ni toping.

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

235. Agar $4\cos x-6\sin x=0$ bo`lsa, $|\sin 2x|$ ning qiymatini toping.

A) $\frac{1}{4}$ B) $\frac{12}{13}$ C) $\frac{9}{13}$ D) $\frac{3}{4}$

236. Agar $f(x)=\arcsin(3-2x)$ bo`lsa, $f^{-1}(x)$ ni toping.

A) $\frac{1}{2}(2-\sin x)$ B) $\frac{1}{2}(3-2x)$

C) $\frac{1}{3}(2+\sin x)$ D) $\frac{1}{2}(3+\sin x)$

237. Agar $f(x)=\lg(\lg x^4)$ bo`lsa, $f'\left(\frac{1}{100}\right)$ ni toping.

A) $-\frac{25}{\ln^2 10}$ B) $-\frac{\log^2 e}{100}$ C) $\frac{\log^2 e}{100}$ D $-\frac{50}{\ln^2 10}$

238. Taqqoslang: $x=\frac{\sqrt{9!-8!}}{\sqrt{8!}}$ $y=\frac{\sqrt{8!+7!}}{\sqrt{7!}}$ $z=\frac{\sqrt{7!+6!}}{\sqrt{6!}}$

A)$x>y>z$ B)$z>y>x$ C)$x=z<y$ D)$x=z>y$

239. Agar $a+b+c=0$ bo`lsa, $\frac{a+b}{c}+\frac{a+c}{b}+\frac{a}{b+c}$ ning qiymatini toping.

A)–3 B)–1 C)3 D)0

240. Agar $a+b+c+d=0$ bo`lsa, $\frac{a+d}{b+c}+\frac{d+c}{a+b}-\frac{a+b}{c+d}$ ning qiymatini toping.

A)–3 B)–1 C)3 D)0

241. Soddalashtiring:

$$\frac{\sin 70^0\cdot\sqrt{\sin 70^0}-\cos 70^0\cdot\sqrt{\cos 70^0}}{\sin 70^0+\cos 70^0+\sqrt{\sin 70^0\cdot\cos 70^0}}+\sqrt{\sin 20^0}$$

A) $\sqrt{\sin 20^0}$ B) $\cos 20^0$ C) $\sqrt{\cos 20^0}$ D) $\sin 20^0$

242. Hisoblang: $\arcsin\left(tg\left(\arccos\frac{2}{\sqrt{5}}\right)\right)$

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

243. Agar $\sin 17^0=x$ va $\cos 17^0=y$ bo`lsa, $\cos 56^0$ ni x va y orqali ifodalang.

A)$2xy$ B)$2x+y$ C)xy D)$4xy$

244. Agar $\sin 85^0=a$ bo`lsa, $\sin 80^0$ ni a orqali ifodalang.

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

245. Agar $tg22^0=x$ bo`lsa, $\frac{tg158^0-tg112^0}{tg202^0-tg22^0\cdot ctg22^0}$ ni x orqali ifodalang.

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

246. Agar $tg35^0=n$ bo`lsa, $\frac{ctg55^0-ctg125^0}{tg35^0\cdot ctg145^0}$ ni n orqali ifodalang.

A) $2n$ B) n C) $-2n$ D) 0

247. Agar $ctg50^0=x$ bo`lsa, $\frac{ctg400^0-tg220^0}{ctg130^0+tg230^0}$ ni x orqali ifodalang.

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

248. Soddalashtiring:

$$\frac{\sin 7^0\cdot\cos 17^0\cdot tg27^0\cdot ctg37^0}{\sin 73^0\cdot\cos 83^0\cdot tg53^0\cdot ctg63^0}$$

A) 2 B) 1 C) $0,5$ D) $0,25$

249. Agar $x+y+z=3\pi$ bo`lsa, $\frac{tgx+tgy+tgz}{tgx\cdot tgy\cdot tgz}$ ning qiymatini toping.

A) $2,5$ B) 1 C) 2 D) $0,5$

250. Agar $(2x^2-3y)^n$ ifoda yoyilganda, birhadlaridan biri Ax^6y^5 ga teng bo`lsa, n ning qiymatini toping.

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

251. Agar $(x^2-y^3)^n$ ifoda yoyilganda, birhadlaridan biri Ax^8y^9 ga teng bo`lsa, A ning qiymatini toping.

A) 35 B) -28 C) 28 D) -35

252. Agar $lg(a-b)=lga+lgb$ bo`lsa, a ni b orqali ifodalang.

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

253. a_n arifmetik progressiya berilgan. $a_1+a_2+a_3=3$ va $a_1^3+a_2^3+a_3^3=9$ bo`lsa, a_3 ni toping.

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

254. Aniqmas integralni hisoblang: $\int\frac{dx}{x^2+4x+20}$

A) $\frac{1}{4}arctg\frac{x}{4}+C$ B) $\frac{1}{4}arctg\frac{x+2}{4}+C$

C) $4arctg\frac{x+2}{4}+C$ D) $4arctg\frac{x}{4}+C$

255. Aniqmas integralni hisoblang: $\int \frac{dx}{x^2-4x+13}$

A) $3arctg\frac{x-2}{3}+C$ B) $3arctg(x-2)+C$

C) $\frac{1}{3}arctg\frac{x-2}{3}+C$ D) $\frac{1}{6}arctg\frac{x-2}{3}+C$

256. Aniqmas integralni hisoblang: $\int \frac{dx}{x^2-8x+17}$

A) $\arcsin(x-4)+C$ B) $arcctg(x-4)+C$

C) $arctg(x+4)+C$ D) $arctg(x-4)+C$

257. Aniqmas integralni hisoblang: $\int \frac{dx}{\sqrt{25-x^2}}$

A) $\arcsin\frac{x}{25}+C$ B) $\arcsin\frac{x^2}{5}+C$

C) $\arcsin\frac{x}{5}+C$ D) $\arcsin\frac{x^2}{25}+C$

258. Aniqmas integralni hisoblang: $\int \frac{dx}{x(\ln x)^5}$

A) $-\frac{1}{4}(\ln x)^4+C$ B) $\frac{1}{4}(\ln x)^4+C$

C) $-\frac{1}{4}(\ln x)^{-4}+C$ D) $\frac{1}{16}(\ln x)^{-4}+C$

259. Aniqmas integralni hisoblang: $\int \frac{3x^2}{(x^3+1)^2+1}dx$

A) $arctg(3x^2+1)+C$ B) $arctg(x^3+1)+C$

C) $arcctg(x^3+1)+C$ D) $arcctg(x^3-1)+C$

260. Aniqmas integralni hisoblang: $\int \frac{dx}{\sqrt{4x-x^2-3}}$

A) $2\arcsin(x-2)+C$ B) $\arcsin(x-2)+C$

C) $\arccos(x-2)+C$ D) $\arcsin(2-x)+C$

261. Aniqmas integralni hisoblang: $\int \frac{\sin^5 x}{\cos^7 x}dx$

A) $\frac{\cos^6 x}{6}+C$ B) $\frac{tg^6 x}{6}+C$ C) $\frac{ctg^6 x}{6}+C$ D) $ctg^6 x+C$

262. Aniqmas integralni hisoblang: $\int \cos^3 x dx$

A) $\sin x+\frac{1}{3}\sin^3 x+C$ B) $\sin x+\sin^3 x+C$

C) $\sin x-\frac{1}{3}\sin^3 x+C$ D) $\sin x-\sin^3 x+C$

263. Aniq integralni hisoblang: $\int_{-1}^{1}[x-1]dx$

A) –3 B) –2 C) –1 D) –4

264. Aniq integralni hisoblang: $\int_0^{10}[x-[x]]dx$

A)0 B)10 C)1 D)5

265. Aniq integralni hisoblang: $\int_0^4\left[\frac{x}{2}+1\right]dx$

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

266. Aniq integralni hisoblang: $\int_1^4[x]^{[x]}dx$

A)32 B)5 C)27 D)36

Yechish: $1\le x<2\Rightarrow[x]=1$

$2\le x<3\Rightarrow[x]=2$

$3\le x<4\Rightarrow[x]=3$ chegaralab olamiz.

$$\int_1^4[x]^{[x]}dx=\int_1^2dx+\int_2^3 2^2dx+\int_3^4 3^3dx=$$

$$=x\Big|_1^2+4x\Big|_2^3+27x\Big|_3^4=$$

$$=(2-1)+(12-8)+(108-81)=$$

$$=1+4+27=32$$

$Javob: A)32$

267. Aniqmas integralni hisoblang: $\int\frac{x^3-x}{\sqrt{x}}dx$

A) $\frac{2}{7}\cdot x^{\frac{2}{7}}-\frac{2}{3}\cdot x^{\frac{3}{2}}+C$ B) $\frac{2}{7}\cdot x^{\frac{2}{7}}-\frac{3}{2}\cdot x^{\frac{3}{2}}+C$

C) $\frac{2}{7}\cdot x^{\frac{7}{2}}-\frac{2}{3}\cdot x^{\frac{3}{2}}+C$ D) $\frac{2}{7}\cdot x^{\frac{2}{7}}+\frac{3}{2}\cdot x^{\frac{3}{2}}+C$

268. Aniqmas integralni hisoblang: $\int\sqrt{x+1}\cdot\sqrt[3]{x+1}dx$

A) $\frac{6}{11}(x-1)^{\frac{6}{11}}+C$ B) $\frac{11}{6}(x-1)^{\frac{11}{6}}+C$

C) $\frac{11}{6}(x+1)^{\frac{11}{6}}+C$ D) $\frac{6}{11}(x+1)^{\frac{11}{6}}+C$

269. Aniqmas integralni hisoblang:

$$\int\frac{1}{(x-1)\cdot(x+1)^2}dx$$

A) $\ln\left|\frac{x-1}{x+1}\right|+\frac{1}{2x+2}+C$ B) $\frac{1}{4}\ln\left|\frac{x-1}{x+1}\right|+\frac{1}{2x+2}+C$

C) $\frac{1}{4}\ln\left|\frac{x-1}{x+1}\right|+\frac{1}{x+1}+C$ D) $\frac{1}{4}\ln\left|\frac{x-1}{x+1}\right|-\frac{1}{2x+2}+C$

270. $f(x)=3x^2-\frac{1}{x}+7$ va $g(x)=\int f(x)dx$ funksiyalar berilgan. Agar $g(1)=12$ bo`lsa, $g(x)$ ni toping.

A) $x^3-\ln|x|+7$ B) $x^3-\ln|x|+7x+4$

C) $x^3+\ln|x|-7x+7$ D) $x^3-\ln|x|+7x-4$

271. Ko`paytuvchilarga ajrating:

$(x-y)^2\cdot(y-z)+(y-x)\cdot(z-y)^2$

A) $(x-y)(y-z)(x-z)$ B) $(x-y)(y-z)(x+z-2y)$

C) $(x-y)(y-z)(z-x)$ D) $(x-y)(y-z)(x-z+2y)$

272. Agar $x=\sqrt[3]{2019}$ bo`lsa,
$(x+1)^3-3(x+1)^2+3x+5$ ni toping.
A)2022 B)2021 C)2020 D)2019

273. n natural soni uchun $\frac{EKUK((n+2)!;n!)}{EKUB((n+1)!;n!)}=30$ o`rinli bo`lsa, n ni toping.
A)3 B)4 C)5 D)7

274. Agar $\frac{1}{x}<0<\frac{1}{z}<\frac{1}{y}$ bo`lsa, $|x-y|+|z-y|+|-x|$ ni toping.
A) z B) $2x-z$ C) $z-2x$ D) $z-2y$

275. Agar $-3<x<-2$ bo`lsa,
$\sqrt{x^2-5x+11+\sqrt{x^2+4x+4}}$ ni toping.
A) $x-3$ B) $x-3$ C) D) $3-x$

276. Agar $\frac{\sqrt{5}-5}{\sqrt{10}-3}=x$ bo`lsa, $\frac{3+\sqrt{10}}{\sqrt{5}+1}$ ni x orqali ifodalang.
A) $\frac{x}{4\sqrt{5}}$ B) $\frac{x}{\sqrt{5}}$ C) $-\frac{4x}{\sqrt{5}}$ D) $-\frac{x}{4\sqrt{5}}$

277. $\frac{x^2+9y^2}{xy}=6$ ga ko`ra, $\frac{x+2y}{x-y}$ ni toping.
A)3 B)1 C)2,5 D)2

278. Agar $f(x-a)=3x+5$ va $f(-1)=20$ bo`lsa, $f(a-5)$ ni toping.
A)29 B)26 C)25 D)24

279. Agar $\int x\cdot f(x)dx=\frac{x+1}{x}$ tenglik o`rinli bo`lsa, $f(x)$ funksiya javoblardan qaysi biriga teng?
A) $-\frac{1}{x^3}$ B) $-\frac{1}{x^2}$ C) $-\frac{1}{x}$ D) $-x$

280. Agar $\int\frac{f(x)}{x^2+1}dx=x^2-1+C$ tenglik o`rinli bo`lsa, $f(x)$ funksiya javoblardan qaysi biriga teng?
A) x^4-1+C B) $2x^3+2x$ C) x^4-1 D) x^3+1

281. $\int f(x)\cdot f'(x)dx$ integralni hisoblang.
A) $\frac{f(x)}{2}+C$ B) $f(x)+C$ C) $\frac{f^2(x)}{2}+C$ D) $\frac{f(x)}{4}+C$

282. $\int 2f'(x)\cdot f''(x)dx$ integralni hisoblang.

A) $\frac{f'(x)}{4}+C$ B) $f'(x)+C$ C) $\frac{f^2(x)}{2}+C$ D) $(f'(x))^2+C$

283. Hisoblang: $\frac{\sin 2^0+\sin 4^0+\sin 6^0+...+\sin 88^0}{\cos 2^0+\cos 4^0+\cos 6^0+...+\cos 88^0}$

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

284. Hisoblang:

$tg5^0+tg10^0+tg15^0+...+tg80^0+tg85^0$

A)-1 B)1 C)0 D)0,5

285. Hisoblang:

$\sin^2 5^0+\sin^2 10^0+\sin^2 15^0+...+\sin^2 180^0$

A)19 B)18 C)17 D)16

286. Agar $f(x)=3^{x+1}$ bo`lsa, $f(a+b)$ quyidagilardan qaysi biriga teng?

A) $f(a)\cdot f(b)$ B) $\frac{f(a)\cdot f(b)}{3}$

C) $\frac{f(a)+f(b)}{3}$ D) $f(a)+f(b)$

287. Agar $A=2^2+2^4+2^6+...+2^{22}$ bo`lsa, $2+2^3+2^5+...+2^{17}$ ni A orqali ifodalang.

A) $\frac{A-8}{32}$ B) $\frac{A-12}{32}$ C) $\frac{A-20}{32}$ D) $\frac{A+12}{32}$

288. Agar x haqiqiy musbat son bo`lib, $x+3\sqrt{x}=5$ bo`lsa, $x+\frac{15}{\sqrt{x}}$ ning qiymatini toping.

A)9 B)5 C)3 D)14

289. Soddalashtiring: $\frac{x+x^2+x^3+...+x^{19}}{x^{-1}+x^{-2}+x^{-3}+...+x^{-19}}$

A)x^{-20} B) x^{20} C) $x^{-20}+1$ D) $x^{20}-1$

290. Agar $a+\frac{1}{a-3}=6$ bo`lsa, $(a-3)^2+\frac{1}{(a-3)^2}$ ning qiymatini toping.

A)34 B)7 C)11 D)19

291. Agar $(x+2)^2=4(x+3)$ bo`lsa, $(x+3)^2+\frac{1}{(x+3)^2}$ ning qiymatini toping.

A)28 B)32 C)34 D)36

292. Agar $x^2+x+1=0$ bo`lsa, $x^{99}+x^{99}+...+x+1$ ning qiymatini toping.

A)$x+1$ B)0 C)1 D)$1-x$

293. Agar $a\sqrt{a}-10\sqrt{a}=3$ bo`lsa, $\sqrt{a}+\frac{1}{\sqrt{a}}$ ning qiymatini toping.

A)3 B)9 C)$\sqrt{13}$ D)$\sqrt{11}$

294. Agar $f\left(x+\frac{1}{x}\right)=\frac{3x^2+3}{4x}+3$ bo`lsa, $f(8)$ ning qiymatini toping.

A)15 B)9 C)$\frac{14}{3}$ D)$\frac{7}{3}$

295. Agar $f(x)=3^{x-2}$ bo`lsa, $f(2x+1)$ ni $f(x)$ orqali ifodalang.

A) $27f^2(x)$ B) $3f(x)$ C)$\frac{9}{2}f(x)$ D)$81f^3(x)$

296. Agar $f(2x+1)=4\cdot f(7)-9$ va $g(x)=x^2-2x+5$ bo`lsa, $g(f(13))$ ni toping.

A)8 B)13 C)29 D)50

297. $\frac{3^x\cdot|x-2|\cdot(x^2-7x+10)}{25-x^2}\geq 0$ tengsizlikni qanoatlantiruvchi yechimlari to`plamini toping.

A)$[-5;2]$ B)$(-5;2]$ C)$(0;5)$ D)$[0;2]$

298. $5x^2-(7m-1)x-11=0$ tenglamaning ildizlari x_1 va x_2. Agar $x_1=x_2$ bo`lsa, m ning qiymatini toping.

A)$-\frac{1}{7}$ B)$-\frac{7}{5}$ C)$\frac{1}{7}$ D)0

299. Tengsizliklar sistemasini yeching:

$$\begin{cases}3x^2-5x-2\geq 0\\ \frac{3x-1}{x}<0\end{cases}$$

A)$\left(\frac{1}{3};2\right]$ B)$[2;\infty)$ C)$\left(0;\frac{1}{3}\right)$ D)$\varnothing$

300. $\begin{cases}x-2y+z=-1\\2x+3y-z=6\\3x+y+z=7\end{cases}$ dan $x+y+z$ ning qiymatini toping.

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

Javoblar

		1	2	3	4	5	6	7	8	9
	0	C	A	B	D	C	C	B	D	B
1	D	C	D	D	A	A	A	C	B	D
2	C	C	D	B	A	C	C	B	A	D
3	A	D	A	B	B	C	B	A	D	C
4	B	A	D	C	A	B	D	C	B	A
5	B	C	A	B	D	C	C	B	D	D
6	C	C	A	C	B	C	C	B	C	A
7	B	B	A	B	A	B	A	D	A	D
8	B	C	C	A	B	C	B	A	B	A
9	C	D	C	B	B	A	D	C	B	A
10	C	A	C	D	D	C	C	B	A	C
11	B	B	D	A	B	C	C	C	B	A
12	A	A	D	C	B	C	A	C	B	D
13	B	A	A	D	B	D	B	A	C	D
14	D	A	B	A	C	C	A	B	D	C
15	D	D	D	A	C	A	B	C	C	D
16	C	C	A	C	A	D	B	D	C	B
17	A	C	D	B	A	A	D	C	C	C
18	B	D	A	B	B	D	B	B	A	B
19	A	A	B	D	C	A	A	C	A	B
20	B	B	D	A	C	D	B	B	A	A
21	D	C	C	B	B	B	C	B	B	D
22	C	C	A	B	B	C	A	D	B	C
23	C	A	B	C	A	B	B	D	C	A
24	A	C	C	A	B	B	C	B	B	B
25	B	D	C	B	B	C	D	C	C	B
26	B	B	C	A	A	A	A	C	D	B
27	B	B	A	B	C	D	D	C	B	A
28	B	C	D	B	B	B	B	C	D	B
29	B	C	C	C	B	A	A	B	C	D
30	D									