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1996–2021

O‘rta umumta’lim maktablari hamda akademik litsey va kasb-hunar kollejlari o‘quvchilari, oliy o‘quv yurtiga kiruvchilar uchun

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ALGEBRA VA MATEMATIK ANALIZ ASOSLARI

1-bob. Natural va butun sonlar

1. Sonlar ustida amallarning xossalari

1. (02-1-30) Agar a va b ixtiyoriy natural sonlar bo'lsa, u holda 2a + 8b ifoda quyidagi sonlarning qaysi biriga qoldiqsiz bo'linadi?
A) 2 B) 3 C) 4 D) 12 E) 24

2. (02-12-33) $249\cdot250 - 250\cdot251 + 251\cdot252 - 252\cdot253 + 253\cdot254 - 254\cdot255$ ni hisoblang.
A) −1514 B) −1516 C) −1512 D) −1518 E) −1510

3. (v6-10-1) Agar kamayuvchini 26 ta va ayriluvchini 12 ta orttirilsa, ayirma qanday o'zgaradi?
A) 14 ta ortadi B) 4 ta kamayadi C) 4 ta ortadi D) 28 ta kamayadi

4. (v6-11-1) Agar kamayuvchini 30 ta va ayriluvchini 12 ta kamaytirilsa, ayirma qanday o'zgaradi?
A) 24 ta ortadi B) 18 ta kamayadi C) 12 ta kamayadi D) 12 ta ortadi

5. (v6-19-1) $37\cdot24 - 34\cdot24 + 19\cdot11 - 16\cdot11$ ning qiymatini toping.
A) 90 B) 105 C) 100 D) 110

6. (v6-20-1) $18\cdot16 - 15\cdot16 + 36\cdot24 - 33\cdot24 + 17\cdot11 - 14\cdot11$ ni hisoblang.
A) 155 B) 166 C) 153 D) 180

7. (v7-101-25) Agar x, y, z va t ketma-ket keladigan natural sonlar bo'lsa, quyidagilarning qaysi biri albatta juft son bo'ladi?
A) $\frac{xyzt}{24}$ B) $\frac{x+y+z}{3}$ C) $\frac{yzt}{3}$ D) $\frac{xyz}{6}$

8. (v8-122-14) Nechta uch xonali son 16 ga qoldiqsiz b'olinadi?
A) 59 B) 56 C) 60 D) 61

9. (v12z-124-4) a, b, c ∈ N sonlari uchun qaysi tasdiq doimo o'rinli bo'ladi?
A) a + b − c juft son bo'lsa, $(a + b)^2 - 2c^2$ soni ham juft son bo'ladi
B) a + b − c toq son bo'lsa, a + b soni juft son bo'ladi
C) a + b − c toq son bo'lsa, a + b + c soni juft son bo'ladi
D) a + b − c juft son bo'lsa, $(a + b)^2 - c^2$ soni har doim 4 ga bo'linadi

10. (v12z-126-27) Hisoblang:
1 + 2 + 3 + … + 59 + 60 + 59 + … + 3 + 2 + 1.
A) 3721 B) 3600 C) 3601 D) 3481

11. (v12z-128-33) Hisoblang:
$28365\cdot28368 - 28364\cdot28366$.
A) 56730 B) 83198 C) 86492 D) 85096

12. (v12z-132-29) Agar kamayuvchi, ayiriluvchi va ayirmalar yig'indisi 216 ga teng bo'lsa, kamayuvchi nimaga teng?
A) 180 B) 108 C) 144 D) 72

13. (v12c-106-29) Hisoblang:
$\frac{122\cdot295 - 173}{122 + 121\cdot295}$.
A) 1 B) 2 C) 3 D) $\frac{1}{2}$

14. (v13-138-36) Nechta natural a < 100 sonlari uchun $\frac{a^3 + 23}{24}$ ∈ N o'rinli bo'ladi?
A) 5 ta B) 4 ta C) 10 ta D) 9 ta

15. (v13-148-21) Barcha ikki xonali sonlar ko'paytmasidan tashkil topgan ko'paytmada 7 sonining eng katta darajasini aniqlang.
A) 13 B) 16 C) 14 D) 15

16. (v13-150-36) Agar a ∈ N bo'lsa, quyidagilardan qaysi biri albatta juft son bo'ladi?
A) $\frac{a-1}{5}$ B) $a^2 + 4$ C) $a^3 + 2a$ D) $a^4\cdot(a + 1)$

17. (v14-103-15) $2014\cdot2011 - 2012\cdot2013$ ni hisoblang.
A) 2 B) −2 C) −4 D) 2010

18. (v15-114-17) Agar n ta juft son va m ta toq sonlarni qo'shganda juft son chiqsa, m ning qiymati qanday bo'ladi?
A) 0 B) toq C) juft D) aniqlab bo'lmaydi

19. (v16-102-14) A va B to'plamlarning barcha umumiy elementlaridan tuzilgan to'plam qanday nomlanadi?
A) A va B to'plamlarning birlashmasi
B) A va B to'plamlarning kesishmasi
C) A yoki B to'plamlarning yig'indisi
D) A yoki B to'plamlarning kesishmasi

20. (v16-103-12) {x|x ∈ N, −5 ≤ x < 5} to'plamni nechta usul bilan ikkita kesishmaydigan qism-to'plamlarga ajratish mumkin?
A) 4 B) 8 C) 10 D) 16

21. (v16-107-19) $\{x|x \in N, 6 \le x^2 \le 40\}$ to'plamning nechta qism-to'plamlari mavjud?
A) 8 B) 16 C) 5 D) 32

22. (v16-112-30) $\{x|x \in N, x^2 \le 23\}$ to'plamning nechta qism-to'plamlari mavjud?
A) 4 B) 32 C) 16 D) 23

23. (v16-116-15) $\{x|x \in N, 2 \le x^2 \le 44\}$ to'plamning nechta qism-to'plamlari mavjud?
A) 16 B) 5 C) 44 D) 32

24. (v16-118-12) $\{x|x \in N, -2 < x \le 5\}$ to'plamning nechta qism-to'plamlari mavjud?
A) 16 B) 8 C) 32 D) 5

25. (v16-123-10) $2012\cdot2011 - 2009\cdot2014$ ni hisoblang.
A) 23 B) −4 C) 6 D) −6

26. (v17-110-3) 1 − 2 + 3 − 4 + 5 − 6 + … + 2017 − 2018 + 2019 hisoblang.
A) 1010 B) −1009 C) −1010 D) 1009

27. (v17-111-25) Dastlabki 10 ta tub son ketma-ket bir qatorga yozilib 6 ta raqam shunday o'chirildiki, natijada eng katta son hosil bo'ldi. Shu sonning yettinchi raqamini toping.
A) 3 B) 2 C) 9 D) 7

28. (v17-112-11) 123451234512345123451234512345 sonida 10 ta raqam shunday o'chirilganki, hosil bo'lgan son eng katta bo'ladi. Shu sonning 3-raqamini toping.
A) 2 B) 5 C) 4 D) 3

29. (v18-1-1) O'zining raqamlari faktoriallari yig'indisiga teng bo'lgan uch xonali sonni toping.
A) 145 B) 135 C) 248 D) 526

30. (v18-1-2) Qanday musbat sonning o'zi va teskarisining yig'indisi eng kichik qiymatni beradi?
A) 1 B) 2 C) 8 D) 12

31. (v18-1-3) a va b raqamlar, $\overline{aabb}$ son biror sonning kvadrati. Bu sonni toping.
A) 2323 B) 3434 C) 7744 D) 4466

32. (v18-1-4) Bo'linuvchi 4 marta orttirilsa, bo'luvchi 3 marta kamaytirilsa, bo'lish natijasi qanday o'zgaradi?
A) 4 marta ortadi B) 3 marta kamayadi C) 12 marta ortadi D) aniqlab bo'lmaydi

33. (v18-1-5) Kamayuvchi 4 ga orttirilsa, ayriluvchi 3 ga kamaytirilsa, ayirma qanday o'zgaradi?
A) o'zgarmaydi B) 1 ga ortadi C) 1 ga kamayadi D) 7 ga ortadi

34. (v18-1-6) Hisoblang:
1·4 + 2·7 + 3·10 + … + 9·28.
A) 900 B) 740 C) 1210 D) 960

35. (v18-1-7) $2016\cdot(2017\cdot2018 + 1)$ ifoda quyidagilardan qaysi biriga teng?
A) $2017^3 + 1$ B) $2017^2 - 1$ C) $2017\cdot2018$ D) $2017^3 - 1$

36. (v18-1-8) Hisoblang:
1·4 + 2·7 + 3·10 + … + 10·31.
A) 1210 B) 1200 C) 1440 D) 900

37. (v18-1-9) Hisoblang:
1·4 + 2·7 + 3·10 + … + 8·25.
A) 720 B) 640 C) 648 D) 900

38. (v19/20-103-13) 30 − 25 − 13 − 1 ifodaga qavslar qo'yilganda nechta turli xil natijalar olish mumkin?
A) 5 B) 4 C) 7 D) 3

39. (v19/20-125-1)
a = 1·2 + 2·3 + 3·4 + … + 40·41,
b = 3·4 + 6·6 + 9·8 + … + 120·82 bo'lsa, $\frac{b}{a}$ ning qiymatini toping.
A) 6 B) 9 C) 10 D) 8

40. (v19/20-129-12) 50 − 45 − 13 − 1 ifodaga qavslar qo'yilganda nechta turli xil natijalar olish mumkin?
A) 6 B) 5 C) 4 D) 7

41. (v20/21-105-25) Agar *x* va *y* toq sonlar berilgan bo'lsa, juft son keltirilmagan javobni toping.
A) 7x + 11y B) $2x + y^2$ C) (3x + 5)y D) |x + y| + |x − y|

42. (v20/21-107-1) Natural *a* sonlarda juft qiymatlar qabul qiladigan ifodani toping.
A) (a + 6)(a − 1)
B) $2a^2 - 4a + 7$
C) $\frac{(a-1)(2a+5)}{a+1}$
D) $3^a - 15$

43. (v20/21-113-30) Turli harflar bilan turli raqamlar belgilangan $x:o = k$, key tenglikka ko'ra, $o + key$ ni toping.
A) 133 B) 8,125
C) 134 D) 126

44. (v20/21-115-29) Yuzlar xonasi juft, o'nlar xonasi toq va 10 ga karrali to'rt xonali sonlar nechta?
A) 250 ta B) 1125 ta
C) 180 ta D) 225 ta

45. (v20/21-116-7) O'zi ham, raqamlari o'rnini almashtirganda hosil bo'ladigan son ham tub bo'ladigan barcha ikki xonali sonlar yig'indisini toping.
A) 146 B) 157
C) 429 D) 418

46. (v20/21-116-20) Hisoblang:
$97654 - (1321 + 6333)$.
A) 90009 B) 100000
C) 90000 D) 89000

47. (v20/21-116-21) Hisoblang:
$125 \cdot 31 + 125 \cdot 61 + 125 \cdot 8$.
A) 12500 B) 125000
C) 12550 D) 1250

48. (v20/21-118-30) Hisoblang:
$21 \cdot 18 - 19 \cdot 18 + 18 \cdot 17 - 17 \cdot 16 + 16 \cdot 15 - 15 \cdot 14$.
A) 50 B) 100 C) 98 D) 24

49. (v20/21-119-1) Hisoblang: $15 - 9 : 3 + 4 \cdot 3$.
A) 24 B) 18 C) 48 D) 6

50. (v20/21-119-2) Hisoblang:
$27048 \cdot 27044 - 27047 \cdot 27043$.
A) 60491 B) 54090 C) 57091 D) 54091

51. (v20/21-119-3) Hisoblang:
$139 \cdot 15 + 18 \cdot 139 + 15 \cdot 261 + 18 \cdot 261$.
A) 14500 B) 15100 C) 13200 D) 17500

52. (v20/21-119-4) A sonni 6 ga ko'paytirganda ko'paytma ...44 ko'bo'ldi. A ning ko'rinishini toping.
A) ...29 B) ...74 C) ...19 D) ...54

53. (v20/21-119-9) Dastlabki yuzta natural son yozib chiqil-ganda 5 raqami necha marta qatnashadi?
A) 10 B) 20 C) 19 D) 21

54. (v20/21-120-6) Agar x va y raqamlar uchun $(\overline{xx} + \overline{yy})\,xy = 1980$ bo'lsa, $x + y$ ni toping.
A) 8 B) 9
C) 12 D) 15

55. (v20/21-120-7) Olti xonali sonning oxirgi raqami 7 ni sonning boshiga olib qo'yilsa, uning qiymati besh marta ortadi. Shu sonning uchinchi raqamini toping.
A) 2 B) 4 C) 5 D) 7

56. (v20/21-120-15) Uch xonali juft sonlardan nechtasining ikkinchi raqami 7?
A) 315 B) 45
C) 450 D) 120

57. (v20/21-120-18) 47 ning to'rt xonali karralilari orasidan eng kichigining raqamlari yig'indisini toping.
A) 8 B) 10
C) 9 D) 13

58. (v20/21-121-12) Raqamlarining yig'indisi 20 bo'lgan uch xonali sonlar nechta?
A) 20 B) 19 C) 24 D) 17

59. (v20/21-121-17) Hisoblang:
$1 - \left(2 - \left(3 - \left(4 - \ldots - (2016 - 2017)\right)\right)\right)$.
A) 1008 B) 1009
C) –1008 D) –1009

60. (v20/21-121-23) 9999999992·10000000008 sonning raqamlari yig'indisini toping.
A) 171 B) 11
C) 10 D) 181

61. (v20/21-125-3) Ushbu $15 \cdot 8 \cdot 50 \cdot 27 \cdot 14 \cdot 125$ soni necha xonali?
A) 8 B) 10
C) 11 D) 9

62. (v20/21-125-30) Hisoblang: $1 - (2 - (3 - (4 - \ldots - (2016 - (2017 - 2018))\ldots)))$.
A) –1008 B) –1007
C) –1010 D) –1009

63. (v20/21-127-17) Agar $X = 1 \cdot 2 + 2 \cdot 3 + 3 \cdot 4 + 4 \cdot 5 + 5 \cdot 6 + 6 \cdot 7 + 7 \cdot 8 + 8 \cdot 9$ va $Y = 9 \cdot 10 + 10 \cdot 11 + 11 \cdot 12 + 12 \cdot 13$ bo'lsa, X va Y ni taqqoslang.
A) $X > Y$ B) $X < Y$
C) $X = Y$ D) $X + 200 = Y$

64. (v20/21-127-22) Raqamlari yig'indisi 2 bo'lgan nechta besh xonali son bor?
A) 4 B) 3
C) 5 D) 6

65. (v20/21-130-12) Ushbu 151617...9899100 son necha xonali?
A) 173 B) 172
C) 171 D) 170

66. (v20/21-130-14) Quyidagi yig'indilarning qaysi biri 107 soni uchun to'g'ri?
A) $2^6 + 2^5 + 2^2 + 2 + 1$
B) $3^4 + 3^3 - 1$
C) $5^3 - 5^2 + 5 + 1$
D) $2^6 + 2^5 + 2^3 + 2 + 1$

67. (v20/21-131-19) Hisoblang:
$139 \cdot 163 - 160 \cdot 139 + 141 \cdot 175 - 172 \cdot 141$.
A) 840 B) 870 C) 832 D) 804

68. (v20/21-143-6) Hisoblang:
$163 \cdot 138 - 135 \cdot 163 - 122 \cdot 180 + 183 \cdot 122$.
A) 855 B) 840 C) 915 D) 945

2. Tub va murakkab sonlar. O'zaro tub sonlar

1. (97-9-14) 3607 sonni tub son ekanligini aniqlash uchun uni ketma-ket 2, 3, 5 va hokazo tub sonlarga bo'lib boriladi. Qanday tub songa yetganda bo'lishini to'xtatish mumkin?
A) 41 B) 43 C) 47 D) 53
E) 59

2. (98-5-8) 50 dan kichik tub sonlar nechta?
A) 10 B) 15 C) 17 D) 9
E) 16

3. (00-3-3) Quyidagi tasdiqlarning qaysilari to'g'ri? 1) Toq va juft sonlar doim o'zaro tub; 2) Ikkita juft son o'zaro tub bo'la olmaydi; 3) Ikkita turli tub sonlar doim o'zaro tub; 4) Ikkita ketma-ket natural sonlar doim o'zaro tub; 5) 39 va 91 sonlari o'zaro tub.
A) 1, 3, 5 B) 4, 5 C) 2, 3, 5 D) 2, 3, 4
E) 3, 4

4. (01-12-1) Dastlabki 30 ta natural sonlar ichida 6 soni bilan o'zaro tub bo'lgan sonlar?
A) 7 B) 8 C) 9 D) 10
E) 11

5. (v12z-111-2) [5; 9] kesmada nechta o'zaro tub sonlar jufti bor?
A) 8 B) 7 C) 6 D) 5

6. (v13-126-13) p qanday tub songa teng bo'lganda, $71p + 1$ soni biror natural sonning kvadratiga teng bo'ladi?
A) 73 B) 79
C) 83 D) 97

7. (v14-105-27) $33 \cdot 18^2 \cdot 24^3$ sonini kanonik ko'rinishda yozing.
A) $3^4 \cdot 5^2 \cdot 11$ B) $2^8 \cdot 3^5 \cdot 11$
C) $2^5 \cdot 3^{10} \cdot 5$ D) $2^{11} \cdot 3^8 \cdot 11$

8. (v15-101-14) Quyidagilardan o'zaro tub sonlarni toping.
1) (169; 143); 2) (n; n + 1), n ∈ N;
3) (n; n + 2), n ∈ N; 4) (121; 144).
A) 1, 2 B) 1, 3 C) 1, 4 D) 2, 4

9. (v18-1-10) Agar $a + b$ va $12a - b$ tub sonlar bo'lib, $\frac{a+b}{12a-b} = \frac{21}{57}$ tenglik bajarilsa, a sonini toping.
A) 2 B) 4 C) 5 D) 3

10. (v20/21-116-23) 1248 sonini tub ko'paytuvchilarga ajrating.
A) $2^4 \cdot 3 \cdot 13$ B) $2^5 \cdot 3^2 \cdot 13$
C) $2^5 \cdot 3 \cdot 11$ D) $2^5 \cdot 3 \cdot 13$

11. (v20/21-120-19) Dastlabki nechta tub sonning yig'indisi 330?
A) 13 B) 14
C) 16 D) 15

12. (v20/21-121-13) Agar tub p, q, r sonlar uchun $p^{q-r} = 512$ bo'lsa, $p + q + r$ ni toping.
A) 14 B) 18
C) 15 D) 19

13. (v20/21-121-14) O'zaro tub sonlar berilgan javobni toping.
1) 1591 va 2451; 2) 1276 va 1277; 3) $3n + 2$ va $3n - 7$; 4) 134, 136, 137.
A) 1, 2, 3, 4 B) 1, 2, 3
C) 2, 3 D) 2, 3, 4

14. (v20/21-130-17) 8001 sonining tub bo'luvchi-lari yig'indisini toping.
A) 127 B) 134
C) 140 D) 137

3. Sonlarning bo'linish belgilari

1. (98-2-3) Quyidagi sonlardan qaysi biri 15 ga qoldiqsiz bo'linmaydi?
A) 6525 B) 3105 C) 4620 D) 6145
E) 1245

2. (98-3-3) Berilgan p = 1018978560, q = 89761194416 va r = 987610734 sonlardan qaysilari 16 ga qoldiqsiz bo'linadi?
A) hech qaysisi B) p
C) q D) r
E) p va q

3. (98-9-4) Quyidagi sonlardan qaysi biri 12 ga qoldiqsiz bo'linmaydi?
A) 9216 B) 13626
C) 12024 D) 18312
E) 52308

4. (98-10-51) Berilgan p = 10189144, q = 396715256 va r = 78901644 sonlardan qaysilari 8 ga qoldiqsiz bo'linadi?

A) hech qaysisi B) p va q
C) p va r D) p
E) r

5. (02-12-21) Quyidagi ko'paytmalardan qaysi biri 45 ga qoldiqsiz bo'linadi?
A) 42·85 B) 35·61
C) 80·123 D) 39·18
E) 243·80

6. (v4-101-14) 17827542 quyidagi sonlardan qaysi biriga qoldiqsiz bo'linadi?
A) 4 B) 8 C) 6 D) 5
E) 7

7. (v4-104-14) 1*470 yozuvdagi yulduzchani shunday raqam bilan almashtiringki, hosil bo'lgan son 45 ga qoldiqsiz bo'linsin.
A) 0 B) 8 C) 4 D) 6
E) 5

8. (v4-106-14) n raqamining qanday qiymatlarida 7853n soni 9 ga qoldiqsiz bo'linadi?
A) 6 B) 2; 6 C) 2 D) 9
E) 4

9. (v4-108-16) Quyidagi sonlardan qaysi biri 12 ga qoldiqli bo'linadi?
A) 12024 B) 52304 C) 9216 D) 18312
E) 13644

10. (v6-4-1) Quyidagi mulohazalarning qaysi biri natural sonlarga nisbatan noto'g'ri?
A) 3 hamda 4 ga bo'lingan son 12 ga ham bo'linadi.
B) Berilgan sonlarga bo'linadigan sonlarning eng kichigi bu sonlarning eng kichik karralisi bo'ladi.
C) Oxirgi raqami 0 yoki 5 bo'lgan son 5 ga bo'linadi.
D) Oxirgi raqami 6 yoki 9 bo'lgan son 3 ga bo'linadi.

11. (v6-6-14) x raqamining qanday eng katta qiymatida $(741 + \overline{2x2})$ son 3 ga qoldiqsiz bo'linadi?
A) 8 B) 7 C) 2 D) 9

12. (v6-8-15) 842 sonining o'ng tomoniga qanday raqam yozilsa, hosil bo'lgan son 36 ga qoldiqsiz bo'linadi?
A) 2 B) 4 C) 8 D) 6

13. (v6-9-1) Quyidagi tasdiqlardan qaysi biri hamma vaqt to'g'ri?
A) birorta ham qo'shiluvchi 11 ga bo'linmasa, yig'indi ham 11 ga bo'linmaydi
B) har bir qo'shiluvchi 15 ga bo'linsa, yig'indi ham 15 ga bo'linadi
C) yig'indi 11 ga bo'linsa, har bir qo'shiluvchi ham 11 ga bo'linadi
D) qo'shiluvchilardan kamida bittasi 12 ga bo'linsa, yig'indi ham 12 ga bo'linadi

14. (v6-12-1) 2.68013579 soni 9 ga bo'linishi uchun nuqtaning o'rniga qanday raqam qo'yilishi kerak?
A) 4 B) 0 C) 8 D) 7

15. (v12z-114-19) 2; 3; 4; 5 raqamlaridan 11 ga karrali bo'lgan nechta to'rtxonali son tuzish mumkin?
A) 10 B) 8 C) 4 D) 6

16. (v12z-129-34) 136 sonining o'ng tomoniga qanday raqam yozilsa, hosil bo'lgan son 36 ga qoldiqsiz bo'linadi?
A) 6 B) 4 C) 8 D) 2

17. (v12z-137-2) 2, 3 va 4 sonlariga qoldiqsiz bo'linadigan nechta ikki xonali son bor?
A) 6 B) 12 C) 4 D) 8

18. (v13-133-28) Quyidagi ko'paytmalardan qaysi biri 46 ga qoldiqsiz bo'linadi?
A) 35·42 B) 33·15 C) 26·25 D) 23·24

19. (v13-144-1) $\overline{2013xy}$ ko'rinishidagi 6 xonali sonlar orasida 36 ga qoldiqsiz bo'linadiganlari nechta?
A) 3 ta B) 2 ta C) 5 ta D) 1 ta

20. (v14-101-30) 13478 + 1347 + 134 + 13 yig'indi quyidagi qaysi songa qoldiqsiz bo'linadi?
A) 5 B) 9 C) 3 D) 4

21. (v14-106-10) $\overline{2014xy}$ ko'rinishidagi 6 xonali sonlar orasida 36 ga qoldiqsiz bo'linadiganlari nechta?
A) 1 ta B) 2 ta C) 3 ta D) 0 ta

22. (v17-110-30) 141 va 152 sonlar asosida 9 ga karrali bo'lgan qanday son bor?
A) 146 B) 142 C) 144 D) 151

23. (v18-1-11) $\overline{aabb}$ to'rt xonali son quyidagilardan qaysi biriga bo'linadi?
A) 11 ga B) 9 ga C) 12 ga D) 7 ga

24. (v18-1-12) $\overline{abc} - \overline{cba}$ sonlar ayirmasi quyidagi sonlardan qaysi biriga bo'linadi?
A) 99 ga B) 88 ga
C) 121 ga D) 10 ga

25. (v18-1-13) $\overline{36x847x}$ yetti xonali son 3 ga qoldiqsiz bo'linsa, x ning eng kichik qiymatini toping.
A) 1 B) 4 C) 2 D) 3

26. (v18-1-15) Yetti xonali $\overline{70/12mn}$ soni 15 ga qoldiqsiz bo'linadi. Bu son barcha mumkin bo'lgan sonlardan eng kichik bo'lsa, m + n + l ni toping.
A) 9 B) 6 C) 2 D) 3

27. (v18-1-16) 0,5 va 7 raqamlaridan tashkil topgan 120 ga bo'linadigan eng kichik besh xonali sonni toping.
A) 50700 B) 70500 C) 57000 D) 75000

28. (v18-1-19) 4953251766·14205321 ko'paytmani 9 ga bo'lgandagi qoldiqni toping.
A) 0 B) 1 C) 3 D) 6

29. (v18-1-20) Besh xonali $\overline{x734y}$ sonini 55 ga bo'lganda natural son hosil bo'ladi, x ning barcha qiymatlari yig'indisini toping.
A) 11 B) 9 C) 3 D) 14

30. (v19/20-107-17) 73m06n soni 8 ga bo'linadi. Agar bu son 6 ga ham bo'linsa, u holda m ning o'rniga qo'yilishi mumkin bo'lgan barcha raqamlar yig'indisini toping.
A) 18 B) 12 C) 15 D) 10

31. (v19/20-108-3) 85m07n soni 8 ga bo'linadi. Agar bu son 6 ga ham bo'linsa, u holda m ning o'rniga qo'yilishi mumkin bo'lgan barcha raqamlar yig'indisini toping.
A) 15 B) 16 C) 12 D) 18

32. (v19/20-114-16) Agar $\overline{ab} = 3a + 6b$ bo'lsa, $\overline{ab}$ ikki xonali sonni toping.
A) 60 B) 56 C) 57 D) 83

33. (v19/20-129-8) 83m07n soni 8 ga bo'linadi. Agar bu son 6 ga ham bo'linsa, u holda m ning o'rniga qo'yilishi mumkin bo'lgan barcha raqamlar yig'indisini toping.
A) 10 B) 15 C) 12 D) 18

34. (v20/21-102-1) Ushbu $2^{1023} + 3^{1982}$ yig'indini 7 ga bo'lgandagi qoldiqni toping.
A) 5 B) 2
C) 3 D) 1

35. (v20/21-103-21) Agar $\overline{237x568y}$ sonining 72 ga bo'linishi ma'lum bo'lsa, $x + y$ ning mumkin bo'lgan barcha qiymatlarini toping.
A) 9 yoki 18 B) 7 yoki 25
C) 6 yoki 15 D) 5 yoki 14

36. (v20/21-108-25) Agar $\overline{2xy57}$ son 99 ga bo'linsa, $\overline{xy}^2$ ni toping.
A) 4 B) 361
C) 729 D) 1600

37. (v20/21-116-22) Quyidagi sonlardan qaysi biri 7 ga bo'linadi?
A) 257921445211
B) 8348696117657
C) 4455514239
D) 44879244552

38. (v20/21-119-28) 8 ga bo'linadigan sonni toping.
A) 68764351534864351
B) 35468463123153464
C) 35468463135534684
D) 13546843153453446

39. (v20/21-120-2) $\frac{3}{11} < \frac{a}{44} \le \frac{7}{11}$ shartni qanoatlantiradigan natural a sonlarning nechtasi 3 ga bo'linadi?
A) 3 B) 4 C) 5 D) 6

40. (v20/21-120-10) x ning $\overline{542x}$ son 3 ga karrali bo'ladigan barcha qiymatlari yig'indisini toping.
A) 13 B) 14
C) 5 D) 12

41. (v20/21-120-16) Agar $\overline{34x5y}$ son 11 ga qoldiqsiz bo'linsa, $x + y$ ni toping.
A) 6 B) 6 yoki 17
C) 17 D) 23

42. (v20/21-127-19) Uch xonali $\overline{abc}$ son 6 ga qoldiqsiz bo'lin-sa, $a + b + c$ ning eng katta qiymatini toping.
A) 18 B) 24
C) 25 D) 27

43. (v20/21-140-1) a ning qanday qiymatida $\overline{3a4a5a}$ soni 45 ga qoldiqsiz bo'linadi?
A) 9 B) 0 C) 3 D) 5

44. (v20/21-144-9) $\overline{32x6y}$ son 45 ga qoldiqsiz bo'linadigan x ning barcha qiymatlari yig'indisini toping.
A) 14 B) 17 C) 15 D) 9

4. Sonlarning umumiy bo'luvchisi

1. (96-8-59) 840 va 264 ning umumiy bo'luvchilari nechta?
A) 9 B) 4 C) 6 D) 8
E) 7

2. (v6-18-14) 24 sonining barcha natural bo'luvchilari yig'indisini toping.
A) 48 B) 60 C) 124 D) 108

3. (v11-140-6) 136 va 680 ning umumiy bo'luvchilari nechta?
A) 6 B) 4 C) 9 D) 8

4. (v11-146-23) 24 sonining bo'luvchilari yig'indisining bo'luvchilari soniga nisbati topilsin.
A) 10 B) $8\frac{4}{7}$ C) 7,5 D) 4,5

5. (v14-104-3) Natural bo'luvchilari soni eng ko'p bo'ladigan uch xonali natural sonni toping.
A) 908 B) 480
C) 804 D) 840

6. (v16-111-27) Murakkab n sonining 1 dan katta eng kichik bo'luvchisi m bo'lsin. U holda:
A) $m < \sqrt{n}$ B) $m \geq \sqrt{n}$
C) $m > \sqrt{n}$ D) $m \leq \sqrt{n}$

7. (v17-110-11) 720 va 924 ning umumiy bo'luvchisi nechta?
A) 8 B) 9 C) 6 D) 3

5. Qoldiqli bo'lish

1. (96-3-2) 243 ni qandaydir songa bo'lganda bo'linma 15 ga, qoldiq 3 ga teng chiqdi. Bo'luvchi nechaga teng?
A) 17 B) 16 C) 18 D) 19
E) 21

2. (97-2-2) 215 ni 19 ga bo'lganda, qoldiq 6 bo'ladi. Bo'linma nechaga teng?
A) 13 B) 12 C) 9 D) 11
E) 14

3. (99-1-3) 7 + 69 + 671 + 6673 + 66675 ni 6 ga bo'lishdagi qoldiqni toping.
A) 1 B) 4 C) 3 D) 5 E) 2

4. (99-8-6) 3680 va 5060 sonlarini ayni bir songa bo'lganda, birinchisida bo'linma 32 ga teng bo'lsa, ikkinchisida nechaga teng bo'ladi?
A) 44 B) 38 C) 48 D) 52
E) 46

5. (00-2-10) 3 ga bo'linmaydigan natural sonning kubini 9 ga bo'lganda, qoldiq qanday sonlar bo'lishi mumkin?
A) 1 yoki 8 B) 0 yoki 1
C) 0 yoki 8 D) 3 yoki 6
E) 0; 1 yoki 8

6. (00-7-4) 624 ni qanday songa bo'lganda, bo'linma 41 ga, qoldiq esa 9 ga teng bo'ladi?
A) 16 B) 17 C) 13 D) 15
E) 12

7. (02-7-49) 331 sonnini n natural songa bo'lganda, bo'linma 4n bo'lsa, qoldiq nechaga teng bo'ladi?
A) 7 B) 6 C) 5 D) 4 E) 3

8. (02-11-3) Bir son berilgan. Shu sonni 12 ga bo'lganda, qoldiq 8 ga, 14 ga bo'lganda esa qoldiq 2 ga teng bo'ladi. Berilgan sonni 13 ga bo'lgandagi qoldiqni toping.
A) 3 B) 4 C) 5 D) 7
E) 9

9. (v6-2-1) Natural sonni 18 ga bo'lganda, bo'linma 19 ga, qoldiq 8 ga teng bo'ldi. Bo'linuvchini toping.
A) 243 B) 263 C) 273 D) 350

10. (v6-5-1) 392 ni qanday songa bo'lganda bo'linma 17 va qoldiq 1 bo'ladi?
A) 21 B) 19 C) 23 D) 22

11. (v6-8-1) 279 ni 16 ga bo'lganda qoldiq 7 bo'ladi. Bo'linma nechaga teng?
A) 12 B) 13 C) 11 D) 17

12. (v8-109-14) 59 ni bo'lganda, qoldiq 9 chiqadigan barcha natural sonlarning yig'indisini toping.
A) 45 B) 55 C) 85 D) 50

13. (v12z-134-8) 9 ga bo'lganda qoldig'i 7 chiqadigan son berilgan. Shu son raqamlarining o'rnini almashtirishdan hosil bo'lgan sonni 9 ga bo'lganda qoldiq nechaga teng bo'ladi?
A) 1, 2, 3, 4, 5 B) aniqlab bo'lmaydi
C) 0 D) 7

14. (v12z-139-8) 3 ga bo'linmaydigan butun sonning kvadratidan bittaga kam bo'lgan son, qaysi songa qoldiqsiz bo'linadi?
A) 2 B) 4 C) 6 D) 3

15. (v12z-139-33) Ikki sonni 9 ga bo'lganda mos ravishda 6 va 7 qoldiq qoladi. Ular ko'paytmasini 9 ga bo'lgandagi qoldiq nechaga teng bo'ladi?
A) 7 B) 0 C) 4 D) 6

16. (v13-160-13) $4n - 4 \in N$ son 1, 2, 3, 4, 5, 6, 8, 10 va 20 ga qoldiqsiz bo'linsa, n ning eng kichik natural qiymatini toping.
A) 31 B) 28 C) 25 D) 27

17. (v13-167-5) a sonini 5 ga bo'lganda qoldiq 2 ga, 4 ga bo'lganda esa 1 ga teng. a ni 20 ga bo'lgandagi qoldiqni toping.
A) 17 B) 19 C) 18 D) 12

18. (v14-107-29) Ikkita natural sonni 3 ga bo'lganda qoldiqda 1 va 2 qoldi. Bu sonlar kvadratlarining musbat ayirmasini uchga bo'lganda qanday qoldiq qoladi?
A) 1 B) 1 yoki 2
C) 0 D) 2

19. (v14-112-8) 11…1 soni 7 ga bo'linsa, shu sonni 11 ga bo'lgandagi qoldiqni toping.
A) 1 B) 5 C) 3 D) 0

20. (v15-104-6) Natural sonlardan birini ikkinchisiga bo'lganda, shunday o'nli kasr hosil bo'ldiki, uning butun qismi bo'luvchiga, kasr qismi esa bo'linuvchiga teng bo'ldi. Bo'luvchini toping.
A) 2 B) 3 C) 5 D) 10

21. (v15-106-15) 2013^{2015} ni 10 ga bo'lgandagi qoldiqni toping.
A) 1 B) 3 C) 9 D) 7

22. (v15-126-27) $1^3 + 2^3 + \ldots + 100^3$ sonli ifoda qiymatini 3 ga bo'lgandagi qoldiqni toping.
A) 1 B) 0
C) 2 D) aniqlab bo'lmaydi

23. (v16-103-30) [0; 300] kesmada 3 ga bo'linganda qoldiq 1 ga, 4 ga bo'linganda qoldiq 2 ga, 5 ga bo'linganda qoldiq 3 ga va 6 ga bo'linganda qoldiq 4 ga teng bo'ladigan natural sonlar nechta?
A) 4 B) 3 C) 2 D) 5

24. (v16-111-14) [50; 150] kesmada 3 ga bo'linganda qoldiq 1 ga, 4 ga bo'linganda qoldiq 2 ga, 5 ga bo'linganda qoldiq 3 ga va 6 ga bo'linganda qoldiq 4 ga teng bo'ladigan natural sonlar nechta?
A) 2 B) 1 C) 3 D) 0

25. (v16-111-30) $2^{10} - 2^8 + 2^6 - 2^4 + 2^2 - 1$ ifodani 9 ga bo'lgandagi qoldiqni toping.
A) 1 B) 0 C) 3 D) 5

26. (v16-114-20) 324; 255 va 71 sonlarining har birini qanday natural songa bo'lganda qoldiqlari bir xil bo'ladi?
A) 23 B) 25 C) 27 D) 29

27. (v17-101-18) Natural n sonning kvadrati 10 ga bo'linganda hosil bo'lishi mumkin bo'lgan qoldiqlar yig'indisini toping.
A) 45 B) 21 C) 19 D) 25

28. (v17-107-11) 4 ga bo'linganda qoldig'i 3 ga teng bo'lgan barcha natural ikki xonali sonlar yig'indisini toping.
A) 1222 B) 1265 C) 1220 D) 1200

29. (v17-114-1) [200; 1000] kesmada 2, 3, 5 va 7 sonlariga bo'linganda qoldiq 1 ga teng bo'ladigan natural sonlar nechta?
A) 2 B) 3 C) 4 D) 1

30. (v18-1-21) To'rtga bo'linganda, 3 qoldiq qoladigan, 9 ga esa qoldiqsiz bo'linadigan eng kichik to'rt xonali sonni toping.
A) 1053 B) 1027 C) 1035 D) 1047

31. (v18-1-22) Beshga bo'linganda, 1 qoldiq qoladigan, 7 ga esa qoldiqsiz bo'linadigan eng katta to'rt xonali sonni toping.
A) 9996 B) 9991 C) 9986 D) 9981

32. (v18-1-23) 2, 3, 4 sonlarga bo'linganda, 1 qoldiq qoladigan, 7 ga karrali eng kichik natural sonni toping.
A) 56 B) 49 C) 43 D) 95

33. (v18-1-24) Ikki son yig'indisi 242 ga, bu sonlardan kattasini kichigiga bo'lganda bo'linma 4 ga, qoldiq esa 22 ga teng. Sonlardan kichigini toping.
A) 52 B) 44 C) 42 D) 56

34. (v18-1-25) Agar a natural sonni 36 ga bo'lganda bo'linma n, qoldiq n^2 ga teng bo'lsa, a sonining eng katta qiymatini toping
A) 160 B) 432 C) 205 D) 117

35. (v19/20-105-8) n natural sonni 5 ga bo'lganda 4 qoldiq, n ni 4 ga bo'lganda 3 qoldiq qolsa, n sonini 17 ga bo'lgandagi qoldiqni toping.
A) 1 B) 0 C) 6 D) 2

36. (v19/20-108-17) 3 ga bo'lganda 1 qoldiq qoladigan dastlabki o'n oltita toq natural sonlar yig'indisini toping.
A) 832 B) 736 C) 916 D) 735

37. (v19/20-113-13) 8017343·639032 ko'paytmani 5 ga bo'lgandagi qoldiqni toping
A) 0 B) 1 C) 2 D) 3

38. (v19/20-113-24) 3 ga bo'lganda 1 qoldiq qoladigan dastlabki o'n beshta toq natural sonlar yig'indisini toping.
A) 735 B) 820 C) 645 D) 936

39. (v19/20-120-8) M natural sonni 3 ga bo'lganda qoldiqda $\frac{(3a+1)^{40}+1}{(3a+1)^{20}}$ qoladi. a ning eng kichik qiymati nimaga teng?
A) 0 B) 1 C) $-\frac{1}{2}$ D) $-\frac{2}{3}$

40. (v19/20-121-1) 35704 + 400259 + 4173 yig'indini 5 ga bo'lgandagi qoldiqni toping.
A) 4 B) 3 C) 2 D) 1

41. (v19/20-126-3) a(a > 1) shunday eng kichik natural sonki, uni 2017 ga bo'lganda ham, 2018 ga bo'lganda ham 1 qoldiq qoladi. U holda a ni 20 ga bo'lgandagi qoldiqni toping.
A) 8 B) 17 C) 7 D) 12

42. (v20/21-101-8) Agar $\overline{ab}$ son 9 ga bo'linsa, $\overline{a215b}$ sonni 3 ga bo'lgandagi qoldiqni toping.
A) 8 B) 0 C) 1 D) 2

43. (v20/21-104-16) 25^{319} ni 37 ga bo'lgandagi qoldiqni toping.
A) 22 B) 15
C) 27 D) 19

44. (v20/21-105-12) Yig'indisi 144 bo'lgan sonlardan kattasini kichigiga bo'lganda bo'linma 7 va qoldiq 8 bo'ladi. Bo'luvchining kubini bo'linuvchiga bo'lganda qanday qoldiq qoladi?
A) 7 B) 87
C) 8 D) 17

45. (v20/21-108-6) 403 sonini butun songa bo'lganda bo'linma 33 va qoldiq 7 hosil bo'ladi. Bo'luvchini toping.
A) 12 B) 13
C) 14 D) 15

46. (v20/21-113-8) Natural sonni 3 ga bo'lganda 1 qoldiq qoladi. Shu sonning kubidan 64 ni ayirganda hosil bo'ladigan son quyidagi sonlardan qaysi biriga qoldiqsiz bo'linadi?
A) 12 B) 15
C) 9 D) 18

47. (v20/21-119-5) 3680 va 5060 sonlarini ayni bir songa bo'lganda birinchi bo'linma 32 bo'ldi. Ikkinchi bo'linmani toping.
A) 38 B) 44 C) 48 D) 52

48. (v20/21-119-10) 215 ni qandaydir songa bo'lganda bo'linma 11 va qoldiq 6 bo'ldi. Bo'luvchini toping.
A) 19 B) 11 C) 14 D) 13

49. (v20/21-119-11) Qandaydir sonni 18 ga bo'lganda bo'linma 15 va qoldiq 8 bo'ldi. Shu sonni toping.
A) 273 B) 268 C) 278 D) 248

50. (v20/21-119-25) 237 sonini 23 ga bo'lganda hosil bo'ladigan bo'linma va qoldiqning yig'indisini toping.
A) 27 B) 23 C) 33 D) 17

51. (v20/21-120-26) 7^{201} sonini 23 ga bo'lgandagi qoldiqni toping.
A) 17 B) 19
C) 2 D) 21

52. (v20/21-124-2) Agar *a* natural sonni 32 ga bo'lganda bo'linma *n* va qoldiq n^2 bo'lsa, *a* ning 4 ga karrali qiymatlari yig'indisini toping.
A) 68 B) 144
C) 152 D) 212

53. (v20/21-124-3) 3 ga bo'lganda 2, 7 ga bo'lganda 6, 13 ga bo'lganda 12 qoldiq qoladigan eng katta uch xonali sonni toping.
A) 272 B) 818
C) 545 D) 989

54. (v20/21-127-20) Quyidagi ifodalardan qaysi biri qoldiqli bo'lishni ifoda etmaydi?
A) 17 = 4·4 + 1
B) –17 = 4·(–5) + 3
C) –17 = 4·(–4) – 1
D) 17 = 6·2 + 5

55. (v20/21-128-2) Natural sonning kvadratini 8 ga bo'lganda qolishi mumkin bo'lgan qoldiqlar yig'indisini toping.
A) 1 B) 3
C) 4 D) 5

56. (v20/21-128-6) 200 dan 1000 gacha bo'lgan sonlar orasida 2, 3, 5, 7 ga bo'lganda qoldiq 1 bo'ladigan natural sonlar nechta?
A) 1 B) 2
C) 3 D) 4

57. (v20/21-128-22) Ikki xonali sonni raqamlarining yig'indisiga bo'lganda bo'linma 4 va qoldiqda 3; raqamlarining ko'paytmasiga bo'lganda bo'linma 3 va qoldiqda 5 hosil bo'ladi. Shu sonning raqamlari yig'indisini toping.
A) 5 B) 6
C) 7 D)

58. (v20/21-130-30) 5 ga bo'lganda 3 qoldiq qoladigan ikki xonali sonlar sonini toping.
A) 17 B) 18
C) 19 D) 204

6. Umumiy bo'luvchi, umumiy karrali

1. (v13-165-24) 54, 90 va 162 sonlarining umumiy bo'luvchilari nechta?
A) 6 ta B) 7 ta C) 4 ta D) 5 ta

2. (v14-102-19) 144 va 128 sonlarining umumiy bo'luvchilari yig'indisini toping.
A) 35 B) 32 C) 31 D) 33

3. (v16-102-12) 11 ga karrali uch xonali natural sonlar nechta?
A) 81 B) 91 C) 90 D) 80

4. (v16-112-12) a va b natural sonlarning umumiy bo'luvchilari soni 3 ga teng bo'lsa, a + 3b va b sonlarning umumiy bo'luvchilari nechta?
A) bir qiymatli aniqlab bo'lmaydi
B) 3
C) 4
D) 1

5. (v18-1-26) a va b sonlar natural sonlar bo'lib, ularning eng katta umumiy bo'luvchisi 9 ga teng. Agar 4a = 5b tenglik bajarilsa, a + b yig'indini hisoblang.
A) 81 B) 63 C) 54 D) 72

7. EKUB va EKUK. Sonning natural bo'luvchilari. Sonning natural bo'luvchilari yig'indisi

1. (98-11-2) 270 va 300 sonlari eng kichik umumiy karralisining 4 va 6 sonlarining eng kichik umumiy karralisiga nisbatini toping.
A) 25 B) 45 C) 225 D) 95
E) 125

2. (00-3-5) 72 va 96 sonlarining eng kichik umumiy karralisining eng katta umumiy bo'luvchisiga nisbatini toping.
A) 10 B) 0,1 C) 9 D) 12
E) $\frac{1}{12}$

3. (03-10-11) $8^{n+2}\cdot 12^{n-3}$ ko'paytmaning natural bo'luvchilari soni 42 ga teng bo'lsa, n nechaga teng bo'ladi?
A) 4 B) 3 C) 2 D) 5 E) 6

4. (v4-130-16) 15 va 35 sonlarining eng kichik umumiy karralisi bilan eng katta umumiy bo'luvchisining yig'indisini toping.
A) 112 B) 114 C) 108 D) 109
E) 110

5. (v8-110-14) Ikki sonning nisbati 11:14 kabi, ularning eng katta umumiy bo'luvchisi 5 ga teng. Bu sonlarning yig'indisini toping.
A) 120 B) 130 C) 150 D) 125

6. (v11-147-24) 150000 sonining nechta natural bo'luvchisi mavjud?
A) 120 B) 60 C) 100 D) 20

7. (v12z-109-20) 156 soning butun bo'luvchilari soni nechta?
A) 24 B) 12 C) 16 D) 8

8. (v12z-119-27) 72 sonini natural bo'luvchilari yig'indisini toping.
A) 172 B) 177
C) 189 D) 195

9. (v12z-122-8) $\frac{EKUB(36:240)}{EKUK(6:8)} = ?$
A) $\frac{1}{2}$ B) $\frac{2}{3}$ C) $\frac{3}{4}$ D) 1

10. (v12z-124-13) a va b o'zaro tub sonlar. Agar ularning ko'paytmasi 120 ga teng bo'lsa, bu sonlar EKUKini toping.
A) aniqlab bo'lmaydi B) 120
C) 60 D) 180

11. (v13-106-36) $\begin{cases} x+y=150 \\ EKUB(x,y)=30 \end{cases}$
tenglamalar sistemasining natural qiymatlardagi yechimlari juftligi nechta?
A) 2 B) 4 C) 3 D) 1

12. (v13-132-29) 7 va a sonlarining EKUKi va EKUBining ko'paytmasi 126 ga teng bo'lsa, a ni toping.
A) 18 B) 7 C) 36 D) 8

13. (v13-149-10) 948 sonining natural bo'luvchilari orasida 3 ga bo'linadiganlari nechta?
A) 3 B) 6 C) 5 D) 4

14. (v13-153-24) Birdan o'ngacha bo'lgan natural sonlar ko'paytmasining natural bo'luvchilari sonini toping.
A) 275 B) 260 C) 280 D) 270

15. (v13-166-6) m va n sonlari (m > n) bir-biriga bo'linmaydi. Agar EKUB(m; n) = 72 va EKUK(m; n) = 432 bo'lsa, m va n sonlarni toping.
A) (72; 288) B) (216; 144)
C) (144; 432) D) (72; 432)

16. (v13-169-30) x va 84 sonlarining eng katta umumiy bo'luvchisi 12 ga, eng kichik umumiy karralisi esa 336 ga teng. x ni toping.
A) 24 B) 48 C) 60 D) 16

17. (v15-102-21) 1440 sonining barcha natural bo'luvchilari yig'indisini toping.
A) 6198 B) 2317 C) 5225 D) 4914

18. (v15-103-26) 5200000 sonining nechta natural bo'luvchisi bor?
A) 96 B) 48 C) 64 D) 56

19. (v15-113-2) $(2^{10}+2^8)\cdot(2^5-2^3)$ ifoda qiymatining natural bo'luvchilari sonini toping.
A) 38 B) 48 C) 36 D) 13

20. (v15-122-15) $3\cdot13\cdot31^2\cdot33\cdot37^2$ ko'paytmaning natural bo'luvchilari sonini toping.
A) 216 B) 54 C) 106 D) 108

21. (v16-125-10) 2234 va 2235 sonlarining umumiy natural bo'luvchilari nechta?
A) 4 B) 0 C) 1 D) 2

22. (v17-104-5) 28 va 60 ning eng katta umumiy bo'luvchisi va eng kichik umumiy karralisi ko'paytmasini toping.
A) 370 B) 420
C) 1020 D) 1680

23. (v17-106-7) a va b natural sonlarning eng katta umumiy bo'luvchilari 2 ga teng bo'lsa, 5a + b va a sonlarning umumiy bo'luvchilari nechta?
A) 4
B) bir qiymatli aniqlab bo'lmaydi
C) 1
D) 2

24. (v17-113-19) a va b natural sonlarning eng katta umumiy bo'luvchi 5 ga teng bo'lsa, 2a + b va a sonlarning eng katta umumiy bo'luvchisi nechaga teng?
A) 1
B) 5
C) 4
D) bir qiymatli aniqlab bo'lmaydi

25. (v17-118-6) a va b natural sonlarning EKUBi 30 ga, ko'paytmasi 36000 ga teng bo'lsa, shu sonlarning EKUKini toping.
A) 1800 B) 1000
C) 1200 D) 900

26. (v17-124-17) a va b natural sonlarning umumiy bo'luvchilari soni 6 ga teng bo'lsa. 3a + b va a sonlarning umumiy bo'luvchilari nechta?
A) 4
B) bir qiymatli aniqlab bo'lmaydi
C) 6
D) 1

27. (v17-125-15) 312, 156, 234 sonlarining eng kichik umumiy karralisining eng katta umumiy bo'luvchisiga nisbatini toping.
A) 12 B) 24 C) 26 D) 39

28. (v18-1-28) $\begin{cases}2m-n=3\\EKUB(m,n)=3\end{cases}$ bo'lsa, m va n natural sonlari toping.
A) 6 va 9 B) 6 va 3
C) 3 va 9 D) 6 va 12

29. (v18-1-30) $\begin{cases}EKUB(m,n)=30\\m-n=9\end{cases}$ bo'lsa, m va n natural sonlarni toping.
A) m = 15; n = 6 B) m = 6; n = 15
C) m = 30; n = 45 D) m = 1; n = 30

30. (v18-1-31) $\begin{cases}a^2+b^2=13\\EKUK(a;b)=6\end{cases}$ bo'lsa, a va b natural sonlarni toping.
A) a = 2; b = 3 B) a = 3; b = 2
C) aniqlab bo'lmaydi D) a = 1; b = 6

31. (v19/20-106-6) a va b sonlar o'zaro tub sonlardir. Bu sonlarning eng kichik umumiy karralisi 500 ga teng bo'lsa, a + b ni toping.
A) 129 B) 125 C) 14 D) 100

32. (v19/20-110-15) a va b sonlar o'zaro tub sonlardir. Bu sonlarning eng kichik umumiy karralisi 800 ga teng bo'lsa, a – b ni toping.
A) 32 B) 7 C) 57 D) 25

33. (v19/20-116-3) Quyida berilgan sonlardan qaysilari 6, 8 va 12 larning umumiy karralisi bo'la oladi?
a) 140; b) 96; c) 24; d) 16; e) 192.
A) b, c, e B) d C) a D) a, c

34. (v20/21-105-14) Agar biri ikkinchisiga bo'linmaydigan a va b sonlar uchun $EKUB(a; b) = 17$ va $a + b = 136$ bo'lsa, $EKUK(a; b)$ ni toping.
A) 255 B) 265
C) 285 D) 136

35. (v20/21-107-26) 18 va 54 sonlarining eng kichik umumiy karralisini toping.
A) 18 B) 54
C) 324 D) 27

36. (v20/21-111-7) Ushbu 13! + 14! sonining natural bo'luvchilari sonini toping.
A) 4928 B) 2464
C) 1232 D) 2664

37. (v20/21-113-25) Sakkizta natural bo'luvchiga ega ikki xonali sonlar nechta?
A) 6 ta B) 4 ta
C) 10 ta D) 5 ta

38. (v20/21-116-24) A va B sonlarining EKUBi va EKUKini toping: $A = 2\cdot3^2\cdot5\cdot17$; $B = 2^2\cdot5^2\cdot17^2$.
A) 2 va 17 B) 170 va 260100
C) 34 va 260100 D) 170 va 28900

39. (v20/21-117-26) $7^{16} + 7^{14}$ yig'indini nechta natural bo'luvchisi bor?
A) 30 B) 255 C) 90 D) 100

40. (v20/21-120-17) 1001 ning tub bo'luvchilari yig'indisini toping.
A) 31 B) 32
C) 1002 D) 1001

41. (v20/21-120-20) 540540 sonini tub ko'paytuvchilarga ajratganda hosil bo'lgan ko'paytmaning ko'paytmalari darajalarining yig'indisini toping.
A) 11 B) 8
C) 10 D) 9

42. (v20/21-120-21) 720 ning tub bo'lmagan bo'luvchilari sonini toping.
A) 27 B) 25
C) 26 D) 28

43. (v20/21-120-22) 1860 va 2790 sonlarining eng katta umumiy bo'luvchisini toping.
A) 5580 B) 930
C) 315 D) 180

44. (v20/21-120-23) 1905 va 1950 sonlarining eng kichik umumiy karralisini toping.
A) 247650 B) 15
C) 19500 D) 19050

45. (v20/21-120-24) 1210 va 2662 sonlarining umumiy bo'luvchilari yig'indisini toping.
A) 399 B) 398
C) 157 D) 278

46. (v20/21-120-27) 1398999 va 1655958 sonlarining eng katta umumiy bo'luvchisini toping.
A) 9517 B) 28551
C) 3209 D) 19763

47. (v20/21-121-15) 196 sonining natural bo'luvchilari yig'indisini toping.
A) 392 B) 398
C) 202 D) 399

8. Sonning oxirgi raqami

1. (96-5-11) 7^{100} ning oxirgi raqamini toping.
A) 3 B) 5 C) 7 D) 9
E) 1

2. (97-1-2) $17\cdot28\cdot41\cdot35 - 24\cdot12\cdot87$ ayirma qanday raqam bilan tugaydi?
A) 0 B) 2 C) 4 D) 6
E) 8

3. (97-11-2) $15\cdot25 - 37\cdot43 + 34\cdot48\cdot77$ yig'indining oxirgi raqamini toping.
A) 4 B) 9 C) 0 D) 5
E) 7

4. (00-2-14) Ikkita toq sonning yig'indisi 5 ga bo'linadi. Bu sonlar kublarining yig'indisi qanday raqam bilan tugaydi?
A) 6 B) 5 C) 4 D) 0
E) 8

5. (00-3-8) $1\cdot2\cdot3\cdot4\cdot\ldots\cdot26\cdot27 - 1\cdot3\cdot5\cdot7\cdot\ldots\cdot25\cdot27$ ayirmaning oxirgi raqamini toping.
A) 4 B) 3 C) 5 D) 6
E) 8

6. (v6-3-14) $22\cdot43\cdot98 + 16\cdot27\cdot38\cdot19$ yig'indining oxirgi raqamini toping.
A) 6 B) 8 C) 2 D) 4

7. (v6-15-14) $43\cdot15\cdot25\cdot37 + 34\cdot48\cdot77$ yig'indining oxirgi raqamini toping.
A) 9 B) 4 C) 5 D) 0

8. (v9-10-12) $3^{16} + 2^{11}$ yig'indining oxirigi raqamini toping.
A) 5 B) 9 C) 7 D) 3

9. (v12z-131-16) $123^7 + 177^8$ qanday raqam bilan tugaydi?
A) 5 B) 0 C) 8 D) 7

10. (v12z-133-11) $2012^{2011} + 2008^{2012}$ yig'indining oxirgi raqamini toping.
A) 3 B) 5 C) 7 D) 4

11. (v14-101-24) $|8^{14} - 7^{22}|$ ayirmaning oxirgi raqamini toping.
A) 2 B) 3 C) 5 D) 1

12. (v15-101-7) Ifoda qiymatining oxirgi raqamini toping: $2\cdot2014^{2015} - 3\cdot2013^{2014}$.
A) 5 B) 0 C) 3 D) 1

13. (v15-102-26) Ifoda qiymatining oxirgi raqamini toping: $5 - (2015^{2013} - 2014^{2014}) + 7$.
A) 6 B) 2 C) 4 D) 8

14. (v15-103-11) Ifoda qiymatining oxirgi raqamini toping: $2012^{2013} + 2013^{2014} - 2014^{2015}$.
A) 7 B) 3 C) 1 D) 5

15. (v20/21-101-25) $17^{319}\cdot29^{137} + 43^{211}$ ifodaning oxirgi raqamini toping.
A) 6 B) 5
C) 4 D) 3

16. (v20/21-102-26) Ushbu $7^{1235} + 3^{5483}$ sonining oxirgi raqamini toping.
A) 9 B) 0
C) 4 D) 8

17. (v20/21-120-25) $1983^{1987^{1989}}$ sonining oxirgi raqamini toping.
A) 1 B) 9
C) 7 D) 3

18. (v20/21-125-27) Ushbu $7^{2008} + 3^{2010}$ yig'indining oxirgi raqamini toping.
A) 8 B) 0
C) 2 D) 6

19. (v20/21-127-25) Ushbu $(2017^{2016} + 2015)^{2014}$ son qanday raqam bilan tugaydi?
A) 1 B) 4
C) 5 D) 6

20. (v20/21-130-18) Ushbu ifoda natijasining oxir-gi raqamini toping: $(3^{937} - 9^{378}) \cdot 7^{793}$.
A) 8 B) 6
C) 4 D) 2

21. (v21-106-25) $(2021^{2020} - 2019^{2018})^{2017}$ ning oxirgi raqamini toping.
A) 2 B) 0 C) 4 D) 1

9. Butun sonlar ko'paytmasida nollar sonini topish

1. (00-2-9) $1 \cdot 2 \cdot 3 \cdot \ldots \cdot 50$ ko'paytma nechta nol bilan tugaydi?
A) 8 B) 10 C) 9 D) 14
E) 12

2. (00-6-1) 10 dan boshlab 75 dan katta bo'lmagan barcha natural sonlarni ko'paytirish natijasida hosil bo'lgan sonning oxirida nechta nol qatnashadi?
A) 15 B) 16 C) 17 D) 18
E) 14

3. (v7-108-25) 55 dan katta bo'lmagan barcha natural sonlarning ko'paytmasi nechta nol bilan tugaydi?
A) 12 B) 14 C) 11 D) 13

4. (v15-105-1) $4^{10} \cdot 15^3 \cdot 25^8$ ko'paytma necha xonali son bo'ladi?
A) 23 B) 21
C) 20 D) 22

5. (v15-110-11) $1 \cdot 2 \cdot 3 \ldots \cdot 30$ ko'paytmani tub ko'paytuvchilarga ajratganda ko'paytmada 2^n, 3^m va 7^k lar ishtirok etsa, n + m + k ni toping.
A) 40 B) 50 C) 46 D) 44

6. (v15-116-28) $2^{10} \cdot 5^9 \cdot 4^6 \cdot 25^4$ ko'paytma necha xonali son bo'ladi?
A) 17 B) 20
C) 19 D) 18

7. (v16-114-7) 500! soni nechta nol bilan tugaydi?
A) 120 B) 125 C) 124 D) 100

8. (v17-117-2) $8^{18} \cdot 5^{55}$ ko'paytma necha xonali son?
A) 18 B) 36 C) 54 D) 55

9. (v18-1-32) $A = 16^3 \cdot 125^4 + 100^6$ yig'indi nechta nol bilan tugaydi?
A) 10^{10} B) 10^{12}
C) 10^{13} D) 10^{14}

10. (v20/21-121-16) $6^7 \cdot 12 \cdot 32^2 \cdot 125^4$ soni necha xonali?
A) 18 B) 19
C) 17 D) 16

11. (v20/21-130-16) Uch xonali sonlarning nech-tasi 0 bilan tugaydi?
A) 90 tasi B) 100 tasi
C) 96 tasi D) 99 tasi

12. (v20/21-145-13) $15 \cdot 2^{19} \cdot 5^{15}$ ko'paytma nechta nol bilan tugaydi?
A) 19 B) 17 C) 20 D) 16

2-bob. BUTUN VA RATSIONAL SONLAR

10. Butun sonlar ustida amallar

1. (00-4-38) Agar a ∈ N bo'lsa, quyidagi ifodalardan qaysi birining qiymati har doim butun son bo'ladi?
A) $\frac{a^2+1}{4}$ B) $\frac{a^2+a}{6}$
C) $\frac{a(a^2-1)}{6}$ D) $\frac{a-3}{5}$
E) $\frac{a^2-2}{3}$

2. (02-1-37) a ning qanday qiymatida 9 – a va 15 – a lar qarama-qarshi sonlar bo'ladi?
A) 9 B) 10 C) 12 D) 15
E) 16

3. (v8-105-1) $-5\frac{3}{4}$ ga teskari sonni toping.
A) $-\frac{23}{4}$ B) $5\frac{3}{4}$ C) $\frac{4}{23}$ D) $-\frac{4}{23}$

4. (v8-107-1) $4\frac{2}{3}$ ga teskari sonni toping.
A) $\frac{3}{14}$ B) $-4\frac{2}{3}$
C) $-\frac{3}{14}$ D) $\frac{14}{3}$

5. (v12z-108-21) Koordinatalari –1,2 va 6,5 bo'lgan sonlar orasida nechta butun son bor?
A) 6 B) 9 C) 7 D) 8

6. (v15-102-25) (–12):((+3) + (–15)):(–5) ni hisoblang.
A) –5 B) 0,2
C) –0,2 D) 1

7. (v15-107-27) x va y sonlar ayirmasining uchlanganini yozing va shu ifodaning x = –0,37, y = –0,42 bo'lgandagi son qiymatini toping.
A) 0,12 B) 0,15
C) –0,79 D) –0,15

8. (v15-111-14) (24 – (–3)):((+6) – (–3)) ni hisoblang.
A) 3 B) –7 C) 7 D) –3

9. (v15-116-23) ((+29) – (–1)):((+8) – (–2)) ni hisoblang.
A) –3 B) $\frac{28}{6}$
C) 3 D) –5

10. (v15-123-7) (–35):7 – 725:(–25) – (–91):(–7) ifodaning qiymati 3 dan qancha katta?
A) 11 B) 29 C) 18 D) 8

11. (v16-119-28) $f(x) = x \cdot (x + 1)$ bo'lsa, $f(1) + f(2) + f(3) + \ldots + f(33)$ yig'indining qiymatini toping.
A) 8900 B) 10200
C) 12900 D) 13090

12. (v17-101-29) $\frac{3a+6b-5}{4a-2b-5} = 4$ bo'lsa, 26a – 28b – 45 ni toping.
A) 16 B) 15 C) –15 D) –16

13. (v17-102-23) To'g'ri javobni ko'rsating. Bu yerda [a] – a sonning butun qismi.
A) agar a, b ∈ Q bo'lsa, [a + 6] = [o] + [6]
B) agar a, b ∈ R bo'lsa, [a + 6] = [a] + [6]
C) agar a, b ∈ Z bo'lsa, [a + 6] < [a] + [6]
D) agar a, b ∈ R bo'lsa, [a + 6] ≥ [a] + [6]

14. (v17-114-20) $\frac{18-3n}{n}$ (n ∈ N) ifodaning barcha natural qiymatlarining o'rta arifmetik qiymatini toping.
A) 7 B) 7,5 C) 8 D) 8,5

15. (v17-121-15) $\left[\frac{1000}{8^2}\right] \cdot 8$ ni hisoblang. Bu yerda [a] – a sonning butun qismi.
A) 100 B) 120 C) 125 D) 140

16. (v17-125-10) Qaysi son yarmining $\frac{4}{9}$ qismidan 3 ni ayirsa, 7 ga teng bo'ladi?
A) 36 B) 45 C) 54 D) 72

17. (v18-1-33) Agar $\overline{abc}$, $\overline{bca}$, $\overline{cab}$ uch xonali natural sonlar yig'indisi 777 ga teng bo'lsa, a + b + c ni toping.
A) 7 B) 6 C) 8 D) 2

18. (v18-1-34) $4{,}8 = x + \frac{y}{5}$ tenglikda x va y sonlar 5 dan kichik natural sonlar bo'lsa, y ning qiymatini toping.
A) 1 B) 3 C) 4 D) 0

19. (v18-1-35) x, y, z butun sonlar bo'lib, y < 0 va $\frac{2}{3x} = -\frac{3}{4y} = \frac{4}{5z}$ bo'lsa, x, y, z sonlarini o'sish tartibida joylashtiring.
A) x < y < z B) z < y < x
C) y < x < z D) y < z < x

20. (v18-1-36) Ketma-ket kelgan ikkita musbat juft sonlar kvadratlarining ayirmasi 116 ga teng. Ushbu sonlardan kichigini toping.
A) 26 B) 30 C) 28 D) 32

21. (v18-1-37) a, b, c musbat butun sonlar uchun x = 3a + 2 = 5b + 4 = 7c + 6 tengliklar bajarilsa, x uch xonali sonning eng katta qiymatini toping.
A) 999 B) 944 C) 945 D) 976

22. (v18-1-38) Hisoblang:
$(2^2 + 6^2 + 10^2 + 14^2 + 18^2) -$
$- (1 + 5^2 + 9^2 + 13^2 + 17^2)$.
A) 144 B) 95 C) 104 D) 128

23. (v18-1-39) Juft sonning o'zidan keyin keluvchi juft sonning uchlangani bilan yig'indisi 70 dan kichik. Ushbu shartni qanoatlantiruvchi juft sonlardan eng kattasini toping.
A) 12 B) 16 C) 14 D) 8

24. (v21-121-16) Hisoblang:
3·3! + 4·4! + 5·5! + 6·6!.
A) 5034 B) 5040 C) 5036 D) 5039

11. Oddiy kasrlar ustida amallar

1. (96-6-8) $\frac{2}{3}$ va $\frac{5}{6}$ sonlari orasida maxraji 30 ga teng bo'lgan nechta kasr son bor?
A) 1 B) 2 C) 4 D) 5
E) 3

2. (98-10-53) $a = \frac{5}{11}$, $b = \frac{6}{13}$ va $c = \frac{7}{15}$ sonlarni o'sish tartibida joylashtiring.

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

3. (98-12-14) $m=\frac{1107}{1109}$ va $n=\frac{2216}{2220}$ sonlari uchun quyidagi munosabatlardan qaysi biri to'g'ri?
A) $m<n$ B) $m>n$
C) $m=n$ D) $n=m+1$
E) $\frac{2m+2}{2220}$

4. (99-4-6) Agar kasrning surati $6\frac{1}{3}$ marta kamaytirilsa, maxraji esa $4\frac{1}{2}$ marta orttirilsa, u qanday o'zgaradi?
A) $1\frac{11}{27}$ marta ortadi
B) $1\frac{11}{27}$ marta kamayadi
C) $28\frac{1}{2}$ marta ortadi
D) $28\frac{1}{2}$ marta kamayadi
E) $\frac{27}{32}$ marta kamayadi

5. (99-4-10) $a=\frac{7}{36}$, $b=\frac{11}{34}$, $c=\frac{7}{32}$ va $d=\frac{9}{25}$ sonlarni kamayish tartibida joylashtiring.
A) $a>b>c>d$ B) $b>a>d>c$
C) $d>a>b>c$ D) $a>c>b>d$
E) $d>b>c>a$

6. (99-6-59) $\frac{65}{6}$ va $\frac{39}{8}$ kasrlar butun qismlarining o'rta arifmetigini toping.
A) 7 B) 6 C) 8 D) 5 E) 4

7. (99-7-14) $\frac{2}{1+\frac{1}{1+2^{-1}}}-\frac{2}{1+\frac{1}{1-2^{-1}}}$ ni hisoblang.
A) $\frac{7}{15}$ B) $\frac{1}{2}$ C) $\frac{11}{18}$ D) $\frac{8}{15}$
E) $\frac{1}{3}$

8. (99-9-21) [1; 3] oraliqdagi maxraji 3 ga teng bo'lgan barcha qisqarmaydigan kasrlarning yig'indisini toping.
A) $8\frac{1}{3}$ B) $8\frac{2}{3}$ C) $7\frac{1}{3}$ D) 9
E) 8

9. (00-2-4) $\frac{1}{15}+\frac{1}{35}+\frac{1}{63}+\frac{1}{99}+\frac{1}{195}$ ni hisoblang.
A) $\frac{4}{15}$ B) $\frac{7}{15}$ C) $\frac{17}{45}$ D) $\frac{11}{15}$
E) $\frac{2}{15}$

10. (00-2-6) $\frac{11}{25}$ va $4\frac{6}{11}$ sonlariga teskari sonlar ko'paytmasi nechaga teng?
A) $\frac{1}{2}$ B) 1 C) $\frac{3}{4}$ D) 2
E) $\frac{1}{3}$

11. (00-6-16) $\frac{1}{2\cdot5}+\frac{1}{5\cdot8}+\frac{1}{8\cdot11}+\frac{1}{11\cdot14}+\ldots+\frac{1}{14\cdot17}$ ni hisoblang.
A) $\frac{15}{34}$ B) $\frac{5}{17}$ C) $\frac{5}{34}$ D) $\frac{16}{173}$
E) $\frac{15}{136}$

12. (00-9-10) $\frac{1}{15}+\frac{1}{35}+\frac{1}{63}+\frac{1}{99}+\ldots+\frac{1}{255}$ ni hisoblang.
A) $\frac{7}{51}$ B) $\frac{2}{15}$ C) $\frac{2}{25}$ D) $\frac{3}{35}$
E) $\frac{7}{40}$

13. (02-7-55) $\cfrac{1}{2+\cfrac{1}{3+\cfrac{1}{1+\frac{1}{2}}}}$ ning qiymatini toping.
A) $\frac{11}{25}$ B) $\frac{17}{25}$ C) $\frac{1}{4}$ D) $\frac{3}{4}$
E) $\frac{13}{25}$

14. (03-2-33) $(1-\frac{1}{4})(1-\frac{1}{9})(1-\frac{1}{16})\cdot\ldots\cdot(1-\frac{1}{2000^2})$ ko'paytmaning qiymatini hisoblang.
A) $\frac{1999}{2000}$ B) $\frac{10}{1999}$
C) $\frac{2001}{2000}$ D) $\frac{1999}{4000}$
E) $\frac{2001}{4000}$

15. (03-6-4) $\frac{2}{7}$, $\frac{4}{11}$, $\frac{6}{13}$ va $\frac{8}{19}$ sonlariga bo'linganda, bo'linma butun son chiqadigan eng kichik natural sonni toping.
A) 6 B) 12 C) 18 D) 24
E) 48

16. (03-8-29) $1+\frac{1}{10\cdot11}+\frac{1}{11\cdot12}+\frac{1}{12\cdot13}+\frac{1}{13\cdot14}+\frac{1}{14\cdot15}+\frac{1}{15\cdot16}$ ni hisoblang.
A) $1\frac{3}{80}$ B) 1,16 C) $1\frac{3}{40}$ D) $1\frac{7}{80}$
E) $1\frac{13}{80}$

17. (v7-124-1) $\frac{84}{95}\cdot1\frac{3}{14}:1\frac{1}{5}:4\cdot4\frac{3}{4}$ ni hisoblang.
A) $1\frac{3}{8}$ B) $1\frac{1}{16}$
C) $1\frac{5}{7}$ D) $2\frac{1}{8}$

18. (v12z-123-33) Ifodaning qiymatini toping: $-\frac{5}{7}\cdot\frac{3}{5}:(-\frac{27}{70})\cdot(\frac{9}{10})$.
A) -1 B) $1\frac{1}{2}$
C) 2 D) 1

19. (v12z-125-3) Hisoblang: $\frac{264\cdot345-436}{127+345\cdot131}$.
A) -1 B) -2 C) 1 D) 2

20. (v12z-128-29) $\frac{3}{4}$ va $\frac{8}{9}$ sonlari orasida maxraji 108 ga teng bo'lgan nechta kasr son bor?
A) 15 B) 16
C) 14 D) 18

21. (v12z-134-18) Hisoblang: $\left(1+\frac{1}{3}\right)\cdot\left(1+\frac{1}{4}\right)\cdot\left(1+\frac{1}{5}\right)\cdot\ldots\cdot\left(1+\frac{1}{2n}\right)$.
A) $\frac{1}{n}$ B) $\frac{2n+1}{6n}$
C) $\frac{2n+1}{3}$ D) $\frac{2n+1}{6}$

22. (v12z-140-18) Ko'paytmani hisoblang $\left(1-\frac{1}{2}\right)\cdot\left(1-\frac{1}{3}\right)\cdot\left(1-\frac{1}{4}\right)\cdot\left(1-\frac{1}{5}\right)\cdot\left(1-\frac{1}{6}\right)\cdot\left(1-\frac{1}{7}\right)\cdot\left(1-\frac{1}{8}\right)$.
A) $\frac{7}{8}$ B) $\frac{3}{4}$ C) $\frac{1}{8}$ D) $\frac{1}{2}$

23. (v13-103-21) $\frac{5}{3\cdot6\cdot9}+\frac{5}{3\cdot9\cdot12}+\frac{5}{3\cdot12\cdot15}+\ldots+\frac{5}{3\cdot27\cdot30}$ ni hisoblang.
A) $\frac{27}{2}$ B) $\frac{1}{27}$ C) $\frac{2}{27}$ D) $\frac{4}{27}$

24. (v13-147-11) $\left(\frac{1}{4}+\frac{1}{6}\right)\cdot\left(\frac{2}{5}-\frac{1}{2}\right)$ ning $\frac{8}{3}$ qismini toping.
A) $-\frac{1}{3}$ B) $-\frac{1}{9}$ C) $\frac{1}{9}$ D) $\frac{1}{3}$

25. (v13-157-27) $\frac{1}{2}+\frac{1}{24}+\frac{1}{48}+\frac{1}{80}+\frac{1}{120}+\frac{1}{168}$ ni hisoblang.
A) $\frac{33}{56}$ B) $\frac{15}{28}$
C) $\frac{125}{333}$ D) $\frac{33}{76}$

26. (v13-160-30) $\dfrac{\frac{1}{2}}{\frac{\frac{1}{3}}{\frac{1}{4}+\frac{1}{4}+\frac{1}{4}}+\frac{\frac{1}{3}}{\frac{1}{4}+\frac{1}{4}+\frac{1}{4}}}=\dfrac{m}{n}$ tenglikda m va n lar o'zaro tub sonlar bo'lsa, m + 2n ni toping.

A) 41 B) 40 C) 38 D) 42

27. (v13-162-14) $\frac{1}{4}$ va $\frac{2}{3}$ sonlari orasida joylashgan, maxraji 24 ga teng qisqarmas kasrlar yig'indisini toping.

A) $1\frac{7}{24}$ B) 1 C) $\frac{17}{24}$ D) $1\frac{5}{24}$

28. (v13-163-11) $a=\frac{15}{32}$, $b=\frac{21}{24}$ va $c=\frac{33}{38}$ sonlarini o'sish tartibida joylashtiring.

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

29. (v13-168-11) $\left(1+\frac{2}{3}\right)\cdot\left(1+\frac{2}{4}\right)\cdot\left(1+\frac{2}{5}\right)\cdot\ldots\cdot\left(1+\frac{2}{98}\right)$ ni hisoblang.

A) 625 B) 825 C) 1 D) 980

30. (v14-102-29) $\dfrac{\frac{1}{\frac{1}{10}-\frac{1}{12}}}{\frac{1}{\frac{1}{8}-\frac{1}{6}}+\frac{1}{\frac{1}{5}-\frac{1}{6}}}$ ni hisoblang.

A) 1 B) $\frac{1}{2}$ C) 12 D) 10

31. (v15-108-1) Agar $\frac{1}{1}+\frac{1}{2}+\frac{1}{3}+\frac{1}{4}+\frac{1}{5}+\frac{1}{6}=\frac{m}{n}$ tenglamadagi m va n sonlari o'zaro tub natural sonlar bo'lsa, m + n ni toping.

A) 56 B) 69 C) 49 D) 94

32. (v15-108-5) $-7:(-15)\cdot 795-(-99-(-13)\cdot(-5)):(-17)+416\frac{15}{17}-25$ ifodaning qiymatini toping.

A) $-753\frac{4}{17}$ B) $12\frac{7}{17}$
C) $753\frac{4}{17}$ D) $-752\frac{7}{17}$

33. (v15-125-8) $\dfrac{2-4+6-8+10-12+14}{3-6+9-12+15-18+21}$ ni hisoblang.

A) 1 B) $\frac{2}{3}$ C) $-\frac{2}{3}$ D) –1

34. (v17-113-3) Hisoblang:

$\dfrac{\frac{1}{2}+\frac{2}{3}+\frac{3}{4}}{\frac{4}{3}+\frac{3}{4}+1}:\left(1-\frac{14}{37}\right)$.

A) $\frac{23}{37}$ B) 2 C) 1 D) $\frac{23}{11}$

35. (v17-122-26) Hisoblang:

$\dfrac{\frac{1}{3}-2-5\cdot\left(2-\frac{1}{3}\right)}{2-\frac{1}{3}+3\cdot\left(\frac{1}{3}-2\right)}$.

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

36. (v17-128-8) x = 4 dagi $\dfrac{7x+2}{2}-1{,}5-\dfrac{4x-1}{3}-\dfrac{0{,}75x}{6}$ ning qiymatini toping.

A) 8 B) 6 C) $\frac{49}{6}$ D) $\frac{50}{6}$

37. (v18-1-41) Hisoblang:

$\frac{1}{2}+\frac{2}{3}+\frac{3}{2}+\frac{4}{3}+\ldots+\frac{15}{2}+\frac{16}{3}$.

A) 72 B) 24 C) 65 D) 56

38. (v18-1-42) $a=1\cdot2+2\cdot3+3\cdot4+\ldots+40\cdot41$, $b=5\cdot4+10\cdot6+15\cdot8+\ldots+200\cdot82$ bo'lsa, $\frac{a}{b}$ ning qiymatini toping.

A) $\frac{1}{12}$ B) $\frac{1}{6}$ C) $\frac{1}{10}$ D) $\frac{1}{18}$

39. (v18-1-43) Hisoblang:

$\left(1\frac{1}{7}\right)\cdot\left(1\frac{1}{8}\right)\cdot\left(1\frac{1}{9}\right)\ldots\left(1\frac{1}{69}\right)$.

A) 7 B) $\frac{10}{7}$ C) $\frac{69}{7}$ D) 10

40. (v18-1-44) $a\cdot b\cdot c=4$ bo'lsa, $\left(\frac{1}{a}-b\cdot c\right)\cdot\left(\frac{2}{b}-a\cdot c\right)\cdot\left(\frac{3}{c}-a\cdot b\right)$ ko'paytmaning qiymatini toping.

A) $\frac{2}{3}$ B) $-\frac{3}{2}$ C) 1 D) $-\frac{5}{3}$

41. (v19/20-107-18) Surat va maxraji 40 dan katta bo'lmagan turli tub sonlardan iborat bo'lgan nechta oddiy kasr mavjud?

A) 132 B) 66 C) 55 D) 110

42. (v19/20-108-1) To'g'ri berilgan integrallash formulalarini tanlang:

1) $\int sin^2x\,dx=\frac{1}{2}x-\frac{1}{4}sin2x+C$;

2) $\int ctg^2x\,dx=-ctgx-x+C$;

3) $\int tg^2x\,dx=-tgx-x+C$.

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

43. (v19/20-111-25) Hisoblang: $\dfrac{2019+\frac{2}{15}}{2018+\frac{17}{15}}$.

A) $\frac{2019}{2018}$ B) $\frac{2}{17}$ C) $\frac{30}{17}$ D) 1

44. (v19/20-113-20)

$4-\frac{8}{3}+\frac{16}{9}-\frac{32}{27}+\ldots+4\times\left(-\frac{2}{3}\right)^{n-1}+\ldots$

yig'indini hisoblang.

A) $\frac{5}{12}$ B) $-\frac{5}{12}$ C) –2,4 D) 2,4

45. (v19/20-118-9) Surat va maxraji 30 dan katta bo'lmagan turli tub sonlardan iborat bo'lgan nechta oddiy kasr mavjud?

A) 100 B) 60 C) 80 D) 90

46. (v19/20-118-13) $\left(1-\dfrac{1-\frac{1}{2}}{1+\frac{1}{4}}\right):\left(3-\dfrac{1}{1-\frac{3}{5}}\right)$ hisoblang.

A) $\frac{5}{6}$ B) $\frac{2}{3}$ C) $\frac{12}{10}$ D) 1

47. (v19/20-119-18) $a=-\frac{1}{2}$ bo'lsa, $(a-3)^2-a(5a-6)$ ifodaning qiymatini toping.

A) 4 B) 6 C) 9 D) 8

48. (v19/20-125-4) Surat va maxraji 25 dan katta bo'lmagan turli tub sonlardan iborat bo'lgan nechta oddiy kasr mavjud?

A) 72 B) 80 C) 56 D) 60

49. (v20/21-106-9) Hisoblang:

$\dfrac{\left(1-\frac{1}{2}\right)\left(1-\frac{1}{3}\right)\left(1-\frac{1}{4}\right)\ldots\left(1-\frac{1}{100}\right)}{\left(1+\frac{1}{2}\right)\left(1+\frac{1}{3}\right)\left(1+\frac{1}{4}\right)\ldots\left(1+\frac{1}{100}\right)}$.

A) $\frac{1}{2}$ B) $\frac{50}{101}$
C) $\frac{99}{101}$ D) $\frac{1}{5050}$

50. (v20/21-108-1) Hisoblang:

$\frac{1}{24}+\frac{1}{8}+\frac{1}{48}+\frac{1}{80}$.

A) 0,1 B) 0,2
C) 0,3 D) 0,4

51. (v20/21-108-2)

$\frac{2}{5\cdot7}+\frac{2}{7\cdot9}+\frac{2}{9\cdot11}+\ldots+\frac{2}{73\cdot75}$.

A) $\frac{16}{75}$ B) $\frac{28}{75}$
C) $\frac{1}{5}$ D) $\frac{14}{75}$

52. (v20/21-116-25) Oddiy kasrlar ustida to'rt amalga doir misolni hisoblang:

$\frac{7}{10}+\left(1\frac{1}{3}-\frac{2}{9}\right):1\frac{2}{9}+2\frac{1}{2}\cdot\left(\frac{1}{3}+\frac{1}{6}\right)$.

A) 3,22 B) $2\frac{189}{220}$
C) $2\frac{209}{220}$ D) 2,125

53. (v20/21-119-14) Hisoblang:

$\left(1-\frac{1}{2}\right)\left(1-\frac{1}{3}\right)\left(1-\frac{1}{4}\right)\ldots\left(1-\frac{1}{2016}\right)\left(1-\frac{1}{2017}\right)$.

A) $\frac{1}{2017}$ B) 2017 C) $\frac{2016}{2017}$ D) 2016

54. (v20/21-119-18) Hisoblang:

$\frac{1}{15}+\frac{1}{35}+\frac{1}{63}+\frac{1}{99}+\frac{1}{143}+\frac{1}{195}$.

A) $\frac{4}{15}$ B) $\frac{7}{15}$ C) $\frac{17}{45}$ D) $\frac{2}{15}$

55. (v20/21-119-29) Hisoblang: $1+\cfrac{1+\cfrac{1}{3}}{1+\cfrac{\cfrac{1}{3}}{\cfrac{1}{3}}}$.

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

56. (v20/21-120-28) Qisqartiring: $\frac{46464646}{69696969}$.

A) $\frac{59}{87}$ B) $\frac{58}{69}$ C) $\frac{2}{3}$ D) $\frac{464}{969}$

57. (v20/21-124-27) Hisoblang: $\left(1+\frac{1}{2}\right)\cdot\left(1+\frac{1}{3}\right)\cdot\left(1+\frac{1}{4}\right)\cdot\ldots\cdot\left(1+\frac{1}{2018}\right)$.

A) $\frac{2019}{2}$ B) $\frac{1}{2018}$ C) $\frac{2019}{4036}$ D) $\frac{3}{2018}$

58. (v20/21-125-15) Agar $\frac{65}{31}+\frac{98}{32}-\frac{26}{33}=a$ bo'lsa, $\frac{3}{31}+\frac{2}{32}+\frac{7}{33}$ ni toping.

A) $4-a$ B) $6-a$ C) $a-6$ D) $a-4$

59. (v20/21-128-16) Hisoblang: $\cfrac{\frac{1}{26}-\frac{1}{11}+\frac{3}{34}}{\frac{2}{33}-\frac{1}{39}-\frac{1}{17}}-\cfrac{\frac{1}{26}-\frac{1}{9}-\frac{1}{28}}{\frac{1}{42}+\frac{2}{27}-\frac{1}{39}}$.

A) –3 B) 0 C) 3 D) 1

60. (v20/21-128-17) $\frac{1}{31}$ kasrning o'nli yozuvida verguldan keyingi 2402017-raqamni toping.

A) 0 B) 8 C) 6 D) 1

61. (v20/21-130-19) Yig'indini hisoblang: $\frac{1}{1\cdot2}+\frac{1}{2\cdot3}+\frac{1}{3\cdot4}+\ldots+\frac{1}{19\cdot20}$.

A) $\frac{19}{20}$ B) $\frac{21}{20}$ C) $\frac{18}{19}$ D) $\frac{20}{19}$

62. (v20/21-133-24) Hisoblang: $\cfrac{2020}{2019}+\cfrac{\cfrac{2019}{2020}-1}{\cfrac{2019}{2020}}+1$.

A) $\frac{2020}{2019}$ B) 0 C) 1 D) 2

63. (v20/21-136-5) Maxraji 28 teng bo'lgan, $\frac{1}{4}$ dan katta va $\frac{6}{7}$ dan kichik bo'lgan barcha qisqarmas kasrlarning yig'indisini toping.

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

64. (v20/21-136-17) $\frac{3}{4}+\frac{34}{44}+\frac{334}{444}+\frac{3334}{4444}$ ifodaning qiymati qaysi oraliqda yotadi?

A) (1; 2) B) (2; 3) C) (3; 4) D) (0; 1)

65. (v20/21-143-11) Eng kichik sonini ko'rsating:

A) $\frac{3}{4}$ B) $\frac{5}{21}$ C) $\frac{23}{42}$ D) $\frac{53}{84}$

66. (v21-106-26) $\frac{2n+1}{2n-1}=1$ ifodaning 60% birga teng. n ning qiymatini toping.

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

67. (v21-111-16) Hisoblang: $\cfrac{2021+\frac{2}{13}}{2020+\frac{15}{13}}$.

A) 1 B) $\frac{2}{15}$ C) $1\frac{1}{3}$ D) $1\frac{1}{2}$

68. (v21-119-22) Hisoblang: $\left(\frac{0}{1!}+\frac{1}{2!}+\frac{2}{3!}+\frac{3}{4!}+\ldots+\frac{6}{7!}\right)+\frac{6!}{2}$.

A) $360\frac{13}{14}$ B) $359\frac{13}{14}$ C) $358\frac{13}{14}$ D) $359\frac{11}{14}$

69. (v21-120-30) n ($n\in Z$) ning qaysi qiymatlarida $2+\frac{1}{n-\frac{1}{4}}=\frac{18}{7}$ tenglik to'g'ri bo'ladi?

A) 1 B) 2 C) 7 D) 3

70. (v21-123-9) Hisoblang: $3+3\cdot\left(1-\frac{1}{2}\right)\cdot\left(1-\frac{1}{3}\right)\cdot\left(1-\frac{1}{4}\right)\cdot\ldots\cdot\left(1-\frac{1}{8}\right)$.

A) $3\frac{1}{9}$ B) $3\frac{1}{8}$ C) $3\frac{1}{3}$ D) $3\frac{2}{9}$

12. Kasrli ifodalar

1. (97-4-10) n(n ∈ N) ning $\frac{5n^4+4n^2+8}{n^2}$ kasr butun son bo'ladigan barcha qiymatlarini toping.

A) 1 B) 1; 2 C) 2 D) 1; 2; 4 E) 2; 4

2. (97-8-57) n(n ∈ N) ning $\frac{5n^3+6n^2+7n}{n}$ natural son bo'ladigan barcha qiymatlarini toping.

A) 1; 2; 3 B) n(n ∈ N) C) 1; 2; 3; 6 D) 1; 2; 5 E) 1; 2; 4; 8

3. (00-4-25) Agar A, B, C va D sonlarning nisbati 2:3:4:5 kabi bo'lsa, $\frac{A+B}{C+D}$ ning qiymatini aniqlang.

A) $\frac{1}{2}$ B) $\frac{3}{4}$ C) $\frac{5}{9}$ D) $\frac{9}{5}$ E) aniqlab bo'lmaydi

4. (02-1-39) Agar $\frac{x}{y}=2$ bo'lsa, x^2-4y^2 nimaga teng?

A) 4 B) 8 C) 0 D) –8 E) –4

5. (02-3-10) Agar $a=4^{-1}$; $b=4^{2a}$ va $c=4^b$ bo'lsa, $\frac{ac}{b}$ ifodaning qiymati nechaga teng bo'ladi?

A) 2 B) 4 C) 8 D) 1 E) 0,5

6. (02-12-26) Agar $\frac{1}{n}+\frac{1}{m}=\frac{1}{7}$ va $m+n=-4$ bo'lsa, mn ning qiymatini toping.

A) 20,5 B) –20,5 C) 21 D) –28 E) 28

7. (03-6-5) Agar $\frac{29}{31}+\frac{38}{41}+\frac{47}{51}=a$ bo'lsa, $\frac{2}{31}+\frac{3}{41}+\frac{4}{51}$ quyidagilardan qaysi biriga teng?

A) $3-a$ B) $4-a$ C) $5-a$ D) $3-\frac{a}{2}$ E) $4-\frac{a}{2}$

8. (v6-1-15) Agar $\frac{38}{11}+\frac{47}{51}=a$ bo'lsa, $\frac{3}{41}+\frac{4}{51}$ quyidagilardan qaysi biriga teng?

A) $4-a$ B) $3-a$ C) $3-\frac{a}{2}$ D) $2-a$

9. (v7-105-25) $\frac{18n^2-162}{n^2}$ ifoda natural son bo'ladigan n ning barcha natural qiymatlari nechta?

A) Ø B) 3 C) 6 D) 2

10. (v7-121-27) n ning nechta butun qiymatida $\frac{n^2-5n-2}{n+1}$ kasr butun son bo'ladi?

A) 2 B) 6 C) 4 D) 3

11. (v8-114-14) $\frac{3n-4}{n-5}$ ifoda n ning nechta natural qiymatida butun son bo'ladi?

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

12. (v11-147-28) $\frac{x-20(x-19)}{x-20}$ ni soddalashtiring.

A) –19 B) 20 C) $x-19$ D) $x-20$

13. (v11-150-36) Agar $\frac{4a+3b+4c-d}{a+b+c+d}=4$ bo'lsa, $\frac{b-10d}{b}$ ning qiymatini toping.

A) 7 B) 9 C) 2 D) 3

14. (v12z-130-15) $\frac{24-8n}{n}$ ifoda n ning nechta natural qiymatida natural son bo'ladi?
A) 6 B) 2 C) 5 D) 3

15. (v12z-138-12) $\frac{n^2-30}{n}$ ifoda natural son bo'ladigan n ning barcha natural qiymatlari yig'indisini toping.
A) 61 B) 54 C) 44 D) 50

16. (v12c-151-6) $\frac{n^3-n^2-12}{n}$ $(n \in N)$ kasrning natural sonlardan iborat barcha qiymatlari yig'indisini toping.
A) 159 B) 146 C) 170 D) 168

17. (v13-149-1) Ratsional ifodani kanonik ko'rinishga keltiring. $\dfrac{1-\dfrac{1-\dfrac{1-x}{1+2x}}{1+2\dfrac{1-x}{1+2x}}}{1+2\dfrac{1-\dfrac{1-x}{1+2x}}{1+2\dfrac{1-x}{1+2x}}}$

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

18. (v13-159-28) $n \in N$ 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 soni 6 ga bo'linadi
B) n soni 3 ga bo'linadi
C) n soni 2 ga bo'linadi
D) $n > 84$

19. (v13-166-18) Agar $\frac{a}{b}=\frac{c}{a}$ bo'lsa, $a^2 - b\cdot c$ ning qiymatining toping.
A) $2a^2$ B) 0 C) 1 D) 2bc

20. (v15-101-15) Agar $\frac{79}{41}+\frac{148}{51}+\frac{49}{61}=n$ bo'lsa, $\frac{3}{41}+\frac{5}{51}+\frac{12}{61}$ ni n orqali ifodalang.
A) 3 – n B) 6 + n C) 3 + n D) 6 – n

21. (v15-126-10) Hisoblang: $\dfrac{1\cdot2\cdot3+3\cdot6\cdot9+5\cdot10\cdot15}{2\cdot4\cdot6+6\cdot12\cdot18+10\cdot20\cdot30}$.
A) 1 B) $\frac{1}{8}$ C) $\frac{1}{4}$ D) $\frac{1}{2}$

22. (v17-104-15) $\frac{1}{2}+\frac{1}{2+4}+\frac{1}{2+4+6}+\ldots+\frac{1}{2+4+6+8+\ldots+24}$ yig'indini hisoblang.
A) $\frac{13}{14}$ B) $\frac{45}{64}$ C) $\frac{11}{12}$ D) $\frac{12}{13}$

23. (v17-107-21) $\frac{(a-3)^2}{a}$ ifoda natural qiymatlar qabul qiladigan a ning barcha natural qiymatlarining yig'indisini toping.
A) 22 B) 10 C) 9 D) 3

24. (v17-113-30) a = 4, b = 3, c = 2 bo'lsa, $\dfrac{a-(2a-(3b-2(4c-2a))-3(b-c))^{-1}}{0{,}5a-\frac{1}{2}\left(\frac{2b}{3}-0{,}5a\right)+\left(a-\left(1\frac{1}{2}a-\frac{b}{3}\right)\right)^2}$ ni hisoblang.
A) 8 B) $\frac{1}{8}$ C) $\frac{2}{3}$ D) $\frac{1}{4}$

25. (v17-117-21) $\frac{(a-3)^2}{a}$ ifoda natural qiymatlar qabul qiladigan a ning eng katta va eng kichik natural qiymatlari nisbatini toping.
A) 3 B) 10 C) 9 D) 2

26. (v17-124-11) $\dfrac{2:4^{-2}+(3^{-2})^3\cdot(\frac{1}{9})^{-3}}{5^{-3}\cdot25^2+(0{,}7)^0\cdot(\frac{1}{2})^{-2}}$ ning qiymatini toping.
A) $\frac{1}{8}$ B) $\frac{1}{7}$
C) $\frac{1}{5}$ D) $\frac{2}{7}$

27. (v17-129-14) Agar x = –2 bo'lsa, $\frac{(x-b)(x-c)}{(a-b)(a-c)}+\frac{(x-a)(x-c)}{(b-a)(b-c)}+\frac{(x-a)(x-b)}{(c-a)(c-b)}$ ning qiymatini toping.
(Bu yerda $(a-b)(a-c)(b-c) \neq 0$)
A) 0 B) 1
C) a, b, c ga bog'liq D) 2

28. (v19/20-128-6) $a\cdot b\cdot c = 5$ bo'lsa, $\left(\frac{2}{a}-b\cdot c\right)\cdot\left(\frac{4}{b}-a\cdot c\right)\cdot\left(\frac{3}{c}-a\cdot b\right)$ ko'payt maning qiymatini toping.
A) $\frac{2}{3}$ B) $-\frac{5}{3}$ C) 1 D) $-\frac{6}{5}$

29. (v20/21-119-19) Agar $\frac{29}{31}+\frac{38}{41}+\frac{47}{51}=a$ bo'lsa, $\frac{2}{31}+\frac{3}{41}+\frac{4}{51}$ ni *a* orqali ifodalang.
A) 2 – a B) 4 – a
C) 3 + a D) 3 – a

30. (v20/21-119-24) Hisoblang: $\dfrac{5\cdot4+10\cdot6+15\cdot8+\ldots+200\cdot82}{1\cdot2+2\cdot3+3\cdot4+\ldots+40\cdot41}$.
A) 6 B) 8 C) 10 D) 12

31. (v20/21-131-25) Agar $\frac{8a+5b}{a-b}=3$ bo'lsa, $\frac{5a+3b}{10a+b}$ ning qiymatini toping.
A) 0,(6) B) 0,(3) C) 0,(5) D) 1

32. (v21-108-24) Agar $N=1+\dfrac{1}{2+\dfrac{1}{2+\frac{1}{2\ldots}}}$ bo'lsa, $N^2 + 2N + 2$ ifodaning qiymatini toping.
A) $4\sqrt{2}$ B) $4+2\sqrt{2}$
C) $1+\sqrt{2}$ D) $2\sqrt{2}$

13. Sonning natural va butun ko'rsatkichli darajasi. Daraja xossalari

1. (96-1-24) $\frac{9^2\cdot3^5}{81^2}$ ni hisoblang.
A) 1 B) 3 C) $\frac{1}{81}$ D) 9
E) 27

2. (96-2-14) $(-2\frac{1}{2})^3$ ni hisoblang.
A) $8\frac{1}{8}$ B) $2\frac{1}{8}$ C) $31\frac{1}{4}$ D) $-8\frac{1}{8}$
E) $-15\frac{5}{8}$

3. (96-3-9) Quyidagi ifodalardan qaysi biri –1 ga teng?
A) $((-1)^2)^3$ B) $(-(-1)^2)^3$
C) $((-1)^3)^2$ D) $(-(-1)^3)^3$
E) $-((-1)^5)^3$

4. (96-6-25) $\frac{0{,}5^5\cdot32^2}{4^3}$ ni hisoblang.
A) 2 B) $\frac{1}{2}$ C) 4 D) $\frac{1}{4}$
E) 8

5. (97-2-9) Quyidagi ifodalardan qaysi biri 1 ga teng?
A) $(-(-1)^2)^3$ B) $((-1)^3)^5$
C) $-((-1)^5)^4$ D) $((-1)^3)^4$
E) $-((-1)^2)^3$

6. (97-4-18) $\frac{110^6\cdot77^4}{55^8\cdot154^2}$ ni hisoblang.
A) 30 B) $30\frac{9}{25}$ C) $31\frac{1}{25}$ D) $31\frac{9}{25}$
E) 31

7. (97-9-78) $\frac{72^6\cdot24^4}{36^8\cdot8^3}$ ni hisoblang.
A) 24 B) 32 C) 16 D) 36
E) 28

8. (98-11-1) $(-\frac{2}{3})^2\cdot(-0{,}75)^3\cdot(1{,}5)^4\cdot(\frac{4}{3})^3$ ni hisoblang.
A) 1,75 B) 2,75
C) 2,5 D) 2,25
E) 1,5

9. (98-12-68) $0{,}3^{-3}+(\frac{3}{7})^{-1}+(-0{,}5)^{-2}\cdot\frac{3}{4}+$ $+(-1)^{-8}\cdot6$ ni hisoblang.
A) $51\frac{5}{9}$ B) $42\frac{4}{9}$ C) $34\frac{2}{3}$ D) $48\frac{10}{27}$
E) $52\frac{2}{27}$

10. (99-6-5) $(-\frac{16x^{31}}{9y^3})^3:(\frac{8x^{23}}{3y^2})^4$ ni soddalashtiring.
A) $-\frac{y}{x}$ B) $-\frac{x}{y}$ C) $\frac{x}{9y}$ D) $\frac{y}{9x}$
E) $\frac{x}{9y}$

11. (00-10-12) $\frac{5\cdot 2^{k-2}+10\cdot 2^{k-1}}{10^{k+2}}$ ni soddalashtiring.
A) $4^{-1}\cdot 5^{-k}$ B) $4^{-2}\cdot 5^{-k}$ C) $4\cdot 5^{-k}$ D) $2^{-1}\cdot 5^{-k}$ E) $2\cdot 5^{-k}$

12. (00-10-74) $\frac{2^{m+1}+2^{-m+1}}{(4^m+1)(3^{m+2}+3^{m+1})}$ kasrni qisqartiring.
A) $0{,}5\cdot 6^{-m}$ B) $(\frac{2}{3})^m$ C) 6^{-m-1} D) 3^m E) 2^m

13. (01-3-30) $\frac{2^{5n+3}\cdot 2^{3n-4}}{2^{4n+1}}$ ni soddalashtiring.
A) 2^{4n-1} B) 2^{n-2} C) 2^{2n-2} D) 2^{4n+1} E) 2^{4n+2}

14. (01-5-2) $\frac{2^{-2}\cdot 5^3\cdot 10^{-4}}{2^{-3}\cdot 5^2\cdot 10^{-5}}$ ni hisoblang.
A) 100 B) 0,01 C) 2 D) 5 E) 10

15. (01-11-30) $\frac{4^{a+1}-2^{2a-1}}{2^{2a}}$ ning qiymati 9 dan qancha kam?
A) 4 B) 3,5 C) 3 D) 4,5 E) 5,5

16. (03-6-53) $((-17)^{-4})^{-6}:((-17)^{-13})^{-2}-\left(\frac{1}{17}\right)^2$ ni hisoblang.
A) $\frac{1}{289}$ B) $\frac{1}{17}$ C) 1 D) 0 E) $\frac{16}{17}$

17. (v4-104-18) $(\frac{3}{5})^{-2}+12\cdot 3^{-3}+(\frac{9}{10})^{-1}$ ni hisoblang.
A) $4\frac{1}{3}$ B) 0 C) 2 D) $3\frac{2}{3}$ E) $2\frac{2}{9}$

18. (v4-108-18) $(\frac{2}{3})^{-3}+4\frac{1}{2}\cdot 6^{-2}-(1\frac{3}{5})^{-1}$ ni hisoblang.
A) $13\frac{3}{4}$ B) $14\frac{3}{4}$ C) $15\frac{3}{4}$ D) $6\frac{3}{8}$ E)

19. (v4-122-18) $\frac{3\cdot 7^{15}-19\cdot 7^{14}}{(7^{16}+3\cdot 7^{15})\cdot(5\cdot 343)^{-1}}$ ni hisoblang.
A) $\frac{1}{7}$ B) 3 C) 7 D) $\frac{1}{49}$ E) 49

20. (v7-107-16) $4^{13}+4^{13}+4^{13}+4^{13}$ yig'indining yarmini hisoblang.
A) 2^{24} B) 2^{25} C) $8\cdot 4^{12}$ D) 4^{48}

21. (v7-112-16) $\frac{(-3)^{17}\cdot(-4)-2\cdot(-3)^{16}}{9^7\cdot 15}$ sonining uchdan bir qismini toping.
A) 3 B) 6 C) 9 D) 2

22. (v7-116-16) $\frac{2^8\cdot 10^{10}\cdot 50^5}{(80+20)^{10}}$ ni hisoblang.
A) 16 B) $\frac{1}{32}$ C) $\frac{1}{64}$ D) 8

23. (v9-11-22) $(0{,}75)^3\cdot\left(\frac{4}{6}\right)\cdot\left(\frac{8}{6}\right)^2\cdot 4\frac{1}{8}$ ni hisoblang.
A) 1,25 B) –2,75 C) –1,75 D) $2\frac{1}{16}$

24. (v12z-124-3) Hisoblang: $\frac{28^4}{7^3\cdot 2^9}$.
A) 3,5 B) 3 C) 4,5 D) 4

25. (v12z-137-13) $\frac{17\cdot 4^{16}-4\cdot 8^{10}}{4^{18}}$ ni hisoblang.
A) 16 B) 2 C) 4 D) 1

26. (v13-158-33) $31\cdot 52-93\cdot 4+57\cdot 25-19\cdot 35+2\cdot(-10)^3$.
A) –1000 B) 1000 C) 4000 D) 0

27. (v13-170-8) $\frac{2^{19}\cdot 27^3+15\cdot 4^9\cdot 9^4}{6^9\cdot 2^{10}+12^{10}}$ ni hisoblang.
A) $\frac{1}{3}$ B) 2 C) 1 D) $\frac{1}{2}$

28. (v14-101-28) $(\frac{2}{3})^{-1}-\frac{3}{4}+(6-4\cdot(\frac{5}{16})^0)^{-2}$ ni hisoblang.
A) 2,5 B) 1,2 C) 2 D) 1

29. (v14-108-14) $4^{10}+4^{10}+4^{10}+4^{10}$ yig'indining $\frac{1}{8}$ qismini toping.
A) 2^{19} B) 8^{20} C) 2^{20} D) 16^{12}

30. (v14-111-11) 7^8-21^5 ayirmani 3430 ga bo'ling.
A) 4900 B) 500 C) 490 D) 5000

31. (v15-105-6) x ning qanday qiymatlarida ifoda ma'noga ega?
$(999+(1-2+3-4+5-6+\ldots-100))^x$
A) x = 0 B) x < 0 C) x ∈ R D) x > 0

32. (v15-106-4) $\frac{2^{15}\cdot 54^7}{9^4\cdot(2^{17})\cdot 3^{-6}}$ ifodaning qiymatini toping.
A) $3^{19}\cdot 2^5$ B) $3^{16}\cdot 2^8$ C) $3^{13}\cdot 2^8$ D) $3^{20}\cdot 2^8$

33. (v15-115-7) $1^{25}+(-1)^{52}$ ni hisoblang.
A) –1 B) 0 C) 1 D) 2

34. (v17-107-4) Hisoblang: $\frac{(3^{15}+3^{13})\cdot 2^9}{(3^{14}+3^{12})\cdot 1024}$.
A) 1,5 B) 2,5 C) 3,5 D) 4

35. (v17-107-18) Soddalashtiring:
$\frac{16^3\cdot 3^{21}}{2^8\cdot 5^6}:\frac{18^{10}}{2^7\cdot 5^8}$.
A) 50 B) 120 C) 150 D) 300

36. (v17-109-9) Taqqoslang: $a=40^{15}$ va $b=25^{15}+15^{15}$.
A) a < b B) a + 20 < b C) a = b D) a > b

37. (v17-115-27) Agar $a=7^{200}$ va $b=2^{700}$ bo'lsa, quyidagi munosabatlardan qaysi biri o'rinli bo'ladi?
A) a < b B) a = b + 1 C) a > b D) a = b

38. (v17-121-5) Hisoblang:
$\frac{25\cdot(180\cdot 6^7-108\cdot 6^6)}{216^3-36^4}$.
A) 85 B) 125 C) 135 D) 145

39. (v18-1-45) Ifodaning qiymatini toping.
$(512^9)^4:(64^9)^6$.
A) 2 B) 1 C) 4 D) 8

40. (v18-1-46) $A=8\cdot 10^4$, $B=2{,}5\cdot 10^{-7}$ bo'lsa, A·B ning qiymatini toping.
A) 0,2 B) 0,02 C) 0,002 D) 2

41. (v18-1-48) Agar $27{,}3\cdot 10^n=0{,}0000273$ bo'lsa, n ni toping.
A) –6 B) –7 C) –5 D) –4

42. (v19/20-102-2) Ifodaning qiymatini toping:
$\frac{\left(\frac{1}{18}\right)^5\cdot 64\cdot\left(\frac{1}{27}\right)^{-4}+\left(\frac{1}{6}\right)^{-2}}{\left(\frac{2}{3}\right)^{-2}}$.
A) 12 B) 18 C) 24 D) 48

43. (v19/20-103-7) a natural soni uchun $a^2-1-8^{27}(2^{79}+1)$ bo'lsa, $\frac{a-1}{16^{19}}$ toping.
A) 8 B) 32 C) 4 D) 16

44. (v19/20-108-25) Ifodaning qiymati 40 dan qancha kam?
$\left(2^{-3}+\left(\frac{3}{4}\right)^{-4}\cdot\left(\frac{1}{2}\right)^2\right):\left(\left(\frac{1}{6}\right)^0-12\cdot 3^{-3}\right)\cdot 18-9\frac{3}{20}$
A) 60,5 B) 19,5 C) 20,5 D) –20,5

45. (v19/20-119-5) $\left(a+\left(1+\left(\frac{3-a}{a+1}\right)^{-1}\right)^{-1}\right)^{-1}$ ifodaning $a=-\frac{1}{3}$ dagi qiymatini toping.
A) –2 B) 2 C) 1 D) –1

46. (v19/20-125-10) Ifodaning oxirgi raqamini aniqlang: $3^{279}\cdot 7^{298}-3^{178}\cdot 7^{197}$.
A) 6 B) 1 C) 3 D) 0

47. (v20/21-107-30) Hisoblang:
$\frac{(80+20)^5}{100^{10}}\cdot 50^5$.
A) 512 B) 1000 C) $\frac{1}{32}$ D) $\frac{1}{128}$

48. (v20/21-119-8) Ushbu $4^{12}+4^{12}+4^{12}+4^{12}$ yig'indining nimchoragini toping.
A) 2^{25} B) 2^{23} C) 2^{24} D) 4^{12}

49. (v20/21-119-13) Hisoblang: $\frac{9^2\cdot 3^5}{81^2}$.
A) 1 B) 3 C) $\frac{1}{81}$ D) 27

50. (v20/21-119-15) Hisoblang:
$\frac{5(3\cdot 7^{15}-19\cdot 7^{14})}{7^{16}+3\cdot 7^{15}}$.

A) 7 B) 49
C) $\frac{1}{7}$ D) $\frac{1}{49}$

51. (v20/21-119-16) Hisoblang: $\frac{110^6 \cdot 77^4}{55^6 \cdot 154^2}$.

A) 30 B) $31\frac{9}{25}$
C) $30\frac{9}{25}$ D) $31\frac{1}{25}$

52. (v20/21-119-17) Hisoblang:
$\frac{1000^{10}}{(700-200)^{12}} \cdot 500^2$.

A) 512 B) 1000
C) 2048 D) 1024

53. (v20/21-120-9) Ushbu $a = 2^{22}$, $b = 22^2$, $c = 2^{2^2}$ sonlarini o'sish tartibida yozing.
A) b, a, c B) c, a, b
C) c, b, a D) b, c, a

54. (v20/21-120-11) Hisoblang:
$(27^{10} - 5 \cdot 81^4 \cdot 3^{12} + 4 \cdot 9^8 \cdot 3^8) : 41 \cdot 3^{24}$.
A) 9 B) 8
C) $\frac{320}{41}$ D) $\frac{1138}{41}$

55. (v20/21-120-13) Hisoblang:
$(6 \cdot 10^{40}) : (10^{38} - 7 \cdot 10^{37})$.
A) 8000 B) 80000
C) 800 D) 2000

56. (v20/21-125-5) 3^{2^4} soni $(3^2)^4$ sonidan necha marta katta?
A) 1 B) 3^4
C) 3^8 D) 3^{16}

57. (v20/21-125-25) Soddalashtiring:
$\frac{7 \cdot 3^{n+1} - 2 \cdot 3^{n-1}}{3^n + 4 \cdot 3^{n-1}}$.

A) $7\frac{4}{7}$ B) $12\frac{1}{5}$
C) $8\frac{5}{7}$ D) 13

58. (v20/21-127-24) Agar $a = -1$ va $b = -2$ bo'lsa, qaysi tenglik noto'g'ri?
A) $a^b = -a$ B) $(a \cdot b)^b = \frac{1}{2b}$
C) $(a-b)^a = a^b$ D) $\left(\frac{b}{a}\right)^a = -b$

59. (v20/21-129-19) Hisoblang:
$\frac{2^{-2} + 2^0}{\left(\frac{1}{2}\right)^{-2} - 5(-2)^{-2} + \left(\frac{2}{3}\right)^{-2}}$.

A) 4 B) 2
C) 2^{-2} D) 2^{-1}

60. (v20/21-130-13) Hisoblang: $\frac{12^5 \cdot 45^7}{24^3 \cdot 3^8 \cdot 15^8}$.

A) 2,5 B) 0,4
C) 1,2 D) 7,5

61. (v20/21-131-2) Agar $y = -3$, $(-y^5)^3 \cdot (y^3)^4 : (-y^8)^5$ ifodaning qiymatini toping.
A) 27 B) $-\frac{1}{27}$ C) $\frac{1}{3}$ D) -9

62. (v20/21-131-10) Ifodani soddalashtiring:
$-\frac{9a^4b^3}{16c^3d^2} \cdot \left(-2\frac{2}{3} \cdot \frac{c^3d}{a^3b^2}\right)$.

A) $\frac{3ab}{2d}$ B) $-\frac{3ab}{2d}$
C) $-\frac{3a^2b}{2d}$ D) $\frac{3a^2b}{2d}$

63. (v20/21-131-29) Ifodani soddalashtiring:
$\frac{15a^4b^3}{32c^3d^3} \cdot \left(-2\frac{2}{3} \cdot \frac{c^2d}{a^3b}\right)$.

A) $-\frac{5ab^2}{8cd^2}$ B) $-\frac{5ab^2}{4cd^2}$
C) $\frac{5ab^2}{4cd^2}$ D) $\frac{5ab^2}{8cd^2}$

64. (v20/21-132-14) y = 4 bo'lsa,
$\frac{y^{16} \cdot (y^{-4})^{-3}}{(y^{-5})^{-5} \cdot (y^2)^3}$ ifodaning qiymatini toping.

A) $\frac{1}{4}$ B) $\frac{1}{64}$ C) 4 D) -4

65. (v20/21-133-14)
Hisoblang: $\frac{9^{15} + 9^{15} + 9^{15} + 9^{15} + 9^{15}}{27^{10} + 27^{10} + 27^{10}}$.

A) $\frac{5}{3}$ B) 4 C) 2 D) 1

66. (v20/21-134-3) Soddalashtiring ($b \neq 0$):
$\left(\underbrace{(-4b)^3 \cdot (-4b^3) \cdot \ldots \cdot (-4b)^3}_{15\ раз}\right) :$
$: \left(\underbrace{(-4b)^2 \cdot (-4b)^2 \cdot \ldots \cdot (-4b)^2}_{22\ раза}\right)$.

A) $-4b$ B) $-16b^2$ C) 1 D) $4b^2$

67. (v20/21-134-7) Soddalashtiring:
$\frac{b^3 \cdot (b^4)^7}{(b^9)^3}$.

A) b^4 B) b^5 C) b^3 D) b^7

68. (v20/21-136-19) Agar $a = -\frac{1}{5}$ bo'lsa,
$((a^{-1})^{-5} \cdot (a^{-2})^2 \cdot a^{-2})^2 : a$ ni hisoblang.
A) $\frac{1}{125}$ B) $\frac{1}{25}$ C) $-\frac{1}{125}$ D) $-\frac{1}{5}$

69. (v20/21-137-9) Hisoblang:
$0{,}7 \cdot \frac{5^a \cdot 4^b}{5^{a-1} \cdot 2^{2b} + 5^a \cdot 2^{2b-1}}$.

A) 1 B) 0,7 C) 2 D) 0,3

70. (v20/21-141-10) Ifodani soddalashtiring:
$-\frac{3a^4b^3}{20c^3d^2} \cdot \left(-2\frac{2}{3} \cdot \frac{cd}{a^2b^2}\right)$.

A) $-\frac{2a^2b}{5c^2d}$ B) $\frac{2a^2b}{5c^2d}$
C) $-\frac{a^2b}{5c^2d}$ D) $\frac{a^2b}{5c^2d}$

71. (v21-101-14) Hisoblang:
$\left(-1\frac{7}{9}\right)^{-6} \cdot \left(\left(\frac{3}{4}\right)^{-4}\right)^2$.

A) $\frac{81}{64}$ B) $\frac{81}{256}$
C) $\frac{256}{81}$ D) $\frac{216}{81}$

72. (v21-108-27) $\frac{y^7 \cdot x^3}{(y^{-3})^{-2}} \cdot \frac{y^3}{x^4 \cdot y^3}$ ifodaning
$x = \frac{1}{2}$, $y = \frac{1}{3}$ dagi qiymatlarni toping.

A) $\frac{2}{3}$ B) $\frac{3}{2}$ C) $\frac{1}{9}$ D) $\frac{4}{9}$

73. (v21-126-20) Soddalashtiring:
$\frac{(3xy)^3 \cdot (3x^{-1}y^{-1})^2}{27x^4y^3}$.

A) $9(xy)^{-2}$ B) $9x^2y^{-3}$
C) $9x^{-3}y^{-2}$ D) $9(xy)^{-3}$

74. (v21-127-3) Hisoblang: $32^{-\frac{3}{5}} \cdot (0{,}5^2)^{-2}$.

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

75. (v21-129-29) Soddalashtiring:
$\frac{7^{n+1} + 7^n}{8^{n+1}} \cdot \frac{2^n}{28^{-n}}$.

A) 7^{-2n} B) 7^{2n}
C) 25^n D) $\frac{7^n}{2^n}$

14. Aralash kasrlar va ular ustida amallar

1. (96-4-6) $5\frac{5}{7} : 2\frac{2}{5} \cdot 5\frac{1}{4} : 1\frac{1}{6} \cdot \frac{2}{3}$ ni hisoblang.

A) $7\frac{1}{7}$ B) $8\frac{1}{7}$ C) $6\frac{6}{7}$ D) $5\frac{5}{7}$
E) $4\frac{5}{6}$

2. (97-3-9) $(5\frac{3}{4} - 4\frac{8}{9}) \cdot 2 + 67\frac{1}{2} : 2\frac{1}{7}$ ni hisoblang.

A) $24\frac{1}{3}$ B) $33\frac{2}{9}$
C) $36\frac{1}{9}$ D) $31\frac{1}{3}$
E) $28\frac{2}{3}$

3. (97-11-3) $(3\frac{17}{36} - 5\frac{7}{12}) : \frac{2}{9} - \frac{3}{26} \cdot 4\frac{1}{2}$ ni hisoblang.

A) 9 B) $8\frac{1}{2}$ C) -9 D) 16
E) $-9\frac{1}{2}$

4. (99-4-11) $7\frac{5}{13} \cdot 2 - 1\frac{2}{5} \cdot 6 + 4 \cdot 2\frac{4}{13} - 3 \cdot 1\frac{1}{5}$ ni hisoblang.

A) $11\frac{2}{5}$ B) 12 C) 13,5 D) $11\frac{8}{13}$
E) 14

5. (03-11-54) $\left(6\frac{1}{2}-8\frac{3}{4}\right):\frac{1}{8}+11\frac{3}{7}$ ni hisoblang.

A) $-7\frac{3}{7}$ B) $6\frac{3}{7}$ C) $-6\frac{4}{7}$ D) $-7\frac{5}{7}$ E) $-6\frac{5}{7}$

6. (03-11-58) $10-2\frac{1}{2}:3\frac{3}{4}+\left(2\frac{1}{2}-1\frac{1}{3}\right)$ ni hisoblang.

A) $16\frac{2}{3}$ B) $17\frac{1}{3}$ C) $15\frac{2}{3}$ D) $16\frac{1}{3}$ E) 17

7. (v4-113-16) $\left(4\frac{2}{5}\cdot 6\frac{1}{3}-1\frac{5}{6}\cdot 4,4\right)\cdot\frac{5}{22}$ ni hisoblang

A) 4,2 B) 0,45 C) 0,4 D) 4,4 E) 4,5

8. (v6-12-15) $5\frac{4}{19}\cdot 3\frac{4}{7}+1\frac{15}{19}:\frac{7}{25}-2\frac{1}{3}$ ni hisoblang.

A) $23\frac{1}{3}$ B) $23\frac{2}{3}$ C) $24\frac{1}{3}$ D) $22\frac{2}{3}$

9. (v7-107-1) $8\frac{3}{4}+\frac{5}{12}:\left(\frac{1}{3}\cdot 2\frac{1}{2}-\frac{7}{8}\right)$ ni hisoblang.

A) $-1\frac{1}{4}$ B) $-6\frac{3}{4}$ C) $-8\frac{3}{4}$ D) $9\frac{1}{4}$

10. (v7-108-1) $\frac{15}{56}\cdot 1\frac{1}{7}:\frac{2}{15}\cdot 24\frac{1}{2}:7\frac{1}{2}$ ni hisoblang.

A) 11 B) $10\frac{1}{2}$ C) $7\frac{1}{2}$ D) 21

11. (v7-126-1) $\left(2\frac{17}{36}-4\frac{7}{12}\right):\frac{2}{9}-\frac{3}{26}\cdot 4\frac{1}{3}$ ni hisoblang.

A) $8\frac{1}{2}$ B) -9 C) -10 D) 9

12. (v7-129-1) $\left(\frac{5}{9}-1\frac{1}{6}\cdot\frac{1}{2}\right):\frac{5}{9}+\frac{17}{60}$ ni hisoblang.

A) $\frac{17}{60}$ B) $\frac{3}{20}$ C) $\frac{37}{60}$ D) $\frac{7}{30}$

13. (v7-130-1) $2\frac{16}{17}\cdot 3\frac{2}{5}:\frac{11}{12}\cdot 2\frac{1}{5}:2\frac{2}{3}$ ni hisoblang.

A) $24\frac{3}{17}$ B) 9 C) $29\frac{1}{9}$ D) 27

14. (v8-130-16) $\left(4\frac{5}{8}\cdot 4\frac{1}{5}\cdot\frac{8}{37}-3\frac{3}{5}\right)^{-1}$ ni hisoblang.

A) $1\frac{2}{5}$ B) $1\frac{3}{5}$ C) $1\frac{2}{3}$ D) $1\frac{3}{4}$

15. (v9-4-35) $5\frac{1}{4}\cdot 6\frac{3}{4}-4\frac{5}{8}\cdot 5\frac{3}{8}$ ni hisoblang.

A) $11\frac{27}{64}$ B) $11\frac{9}{64}$ C) $10\frac{19}{64}$ D) $10\frac{37}{64}$

16. (v11-138-22) $\left(4\frac{1}{10}-3\frac{4}{15}\right)\cdot\frac{5}{6}+4\frac{1}{10}:1\frac{1}{5}$.

A) $3\frac{5}{9}$ B) $4\frac{1}{9}$ C) $5\frac{2}{3}$ D) $2\frac{3}{5}$

17. (v11-148-7) $4\frac{1}{3}-5\frac{2}{3}$ ayirmaga teskari sonni toping.

A) $-\frac{2}{3}$ B) 1,5 C) $-0,75$ D) $\frac{2}{3}$

18. (v12z-138-31)

$$\left[\left(8\frac{1}{6}-7\frac{2}{3}\right)\cdot\frac{1}{3}+\left(2\frac{1}{3}+1\frac{1}{2}\right)\cdot\frac{2}{23}\right]\cdot 1\frac{5}{9}$$

ifodaning qiymati nechaga teng?

A) $1\frac{1}{9}$ B) $1\frac{2}{7}$ C) $\frac{7}{9}$ D) 1

19. (v12z-139-30) Hisoblang:

$$\frac{\left(\frac{1}{5}+\frac{20}{18}\right)+\left(\frac{4}{5}+\frac{121}{33}\right)-\left(\frac{1}{9}+\frac{8}{3}\right)}{\left(\frac{26}{24}-\frac{2}{7}\right)-\left(\frac{1}{12}-\frac{17}{19}\right)+\frac{18}{14}+\frac{2}{19}}.$$

A) 1 B) $\frac{1}{3}$ C) $\frac{1}{2}$ D) $1\frac{11}{9}$

20. (v13-164-15)

$$\frac{12\frac{4}{5}\cdot 3\frac{3}{4}-4\frac{4}{11}\cdot 4\frac{1}{8}}{11\frac{2}{3}:4\frac{4}{7}}$$

ifodaning qiymatini toping.

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

21. (v13-166-2)

$$25+\left(\left(12\frac{1}{2}+28\frac{6}{7}\right)-\left(\frac{19}{21}+34\frac{5}{21}\right)\right)-$$

$$-\left(103\frac{4}{9}-72\frac{5}{18}\right)$$ ni hisoblang.

A) $\frac{3}{36}$ B) $\frac{2}{12}$ C) $\frac{5}{13}$ D) $\frac{3}{63}$

22. (v19/20-103-8)

$$\frac{3\frac{1}{2}-\frac{7}{0,3}:10}{1\frac{1}{6}}$$ hisoblang.

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

23. (v19/20-109-9) 7,2 foizi

$$\frac{3+4,2:0,1}{\left(1:0,3-2\frac{1}{3}\right)\cdot 0,3125}$$ ga teng sonni toping.

A) 1000 B) 2000 C) 1440 D) 1500

24. (v19/20-121-22) Hisoblang: $\frac{\frac{0,5}{1+0,2}}{1-1\frac{1}{12}}$.

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

25. (v19/20-127-6) Hisoblang: $\frac{\frac{0,5}{1+0,2}}{1-1\frac{1}{12}}$.

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

26. (v20/21-103-25) To'g'ri kasr surat va maxrajining kvadratlari yig'indisi 53. Agar shu kasr va unga teskari kasrning yig'indisi $3\frac{11}{14}$ bo'lsa, berilgan kasrning to'ldiruvchisini toping.

A) $\frac{3}{14}$ B) $\frac{2}{7}$ C) $\frac{7}{2}$ D) $\frac{5}{7}$

27. (v20/21-108-5) Hisoblang:

$$10-2\frac{1}{2}:3\frac{3}{4}+\left(2\frac{1}{3}-1\frac{1}{3}\right)\cdot 6.$$

A) $16\frac{2}{3}$ B) $17\frac{1}{3}$ C) $15\frac{2}{3}$ D) $16\frac{1}{3}$

28. (v20/21-116-26) $5\frac{1}{25}$ ning $\frac{25}{42}$ qismini toping.

A) 3 B) 3,6 C) 25,42 D) 2,25

29. (v20/21-119-20) Hisoblang:

$$\frac{42}{95}\cdot 1\frac{3}{14}:\frac{3}{5}:2\cdot 4\frac{3}{4}.$$

A) $3\frac{2}{5}$ B) $1\frac{8}{9}$ C) $2\frac{3}{5}$ D) $2\frac{1}{8}$

30. (v20/21-119-21) Hisoblang:

$$\left(12\frac{1}{9}-10\frac{2}{5}\right):38\frac{1}{2}+2\frac{8}{9}\cdot 18.$$

A) $24\frac{1}{15}$ B) $52\frac{2}{45}$ C) $38\frac{3}{5}$ D) 47

31. (v20/21-119-22) Hisoblang:

$$\left(1992\frac{3}{5}-1990\frac{2}{3}\right)\cdot 1\frac{1}{29}.$$

A) $\frac{14}{435}$ B) 2 C) $2\frac{1}{58}$ D) $\frac{57}{29}$

32. (v20/21-119-23) Hisoblang:

$$6\frac{3}{4}\cdot 5\frac{1}{4}-4\frac{5}{8}\cdot 5\frac{3}{8}.$$

A) $10\frac{37}{64}$ B) $11\frac{27}{64}$ C) $10\frac{19}{64}$ D) $10\frac{39}{64}$

33. (v20/21-125-29) Hisoblang:

$$3\frac{2}{3}:\left(-\frac{11}{12}\right)+\left(-\frac{8}{15}\right):\left(-\frac{16}{25}\right)-\left(-\frac{7}{9}\right):2\frac{1}{3}.$$

A) $-2\frac{5}{6}$ B) $5\frac{1}{6}$ C) $2\frac{5}{6}$ D) $-5\frac{1}{6}$

34. (v20/21-126-27) Hisoblang:

$$\left(8\frac{3}{4}+6\frac{1}{2}\right):7\frac{5}{8}+\left(4\frac{3}{10}-3\frac{4}{15}\right):1\frac{1}{30}.$$

A) $2\frac{7}{30}$ B) $3\frac{2}{3}$
C) 4 D) 3

35. (v20/21-130-23) Amallarni bajaring:
$6\frac{2}{3}\cdot 5\frac{1}{3}-6\frac{1}{3}\cdot 5\frac{2}{3}$.
A) $\frac{1}{3}$ B) $-\frac{1}{3}$
C) $-\frac{5}{9}$ D) $\frac{5}{9}$

36. (v20/21-134-6) $\left(8\frac{2}{15}-6\frac{3}{5}\right):1\frac{3}{20}$ ni hisoblang.
A) 2 B) 1 C) $\frac{3}{4}$ D) $\frac{4}{3}$

37. (v20/21-143-3) Hisoblang:
$2019\frac{89}{840}-2015\frac{15}{112}+\frac{39}{1260}$.
A) $4\frac{1}{336}$ B) $4\frac{1}{112}$
C) $4\frac{1}{60}$ D) $3\frac{111}{112}$

38. (v20/21-145-18) $\left(5\frac{5}{24}-3\frac{3}{8}\right):3\frac{2}{3}$ ni hisoblang.
A) 1,5 B) 0,5 C) 2 D) 1

39. (v21-115-10) Hisoblash natijasini yuzinchi aniqlikka qadar yaxlitlang:
(0,749 + 4,5672 – 4,8449):0,3.
A) 1,57 B) 1,58 C) 1,56 D) 1,5

40. (v21-117-10) Hisoblang:
$1\frac{5}{6}+2\frac{1}{12}(1{,}15-1{,}23:0{,}6)$.
A) $-\frac{5}{12}$ B) $-\frac{47}{48}$ C) $-\frac{1}{24}$ D) $3\frac{17}{24}$

41. (v21-123-6) Hisoblang:
$(1{,}68:1{,}6-2{,}1)\cdot\left(-1\frac{2}{3}\right)-2\frac{1}{6}$.
A) $-\frac{5}{12}$ B) $-1\frac{1}{6}$
C) $-3\frac{1}{6}$ D) $-1\frac{7}{12}$

15. O'nli kasrlar va ular ustida amallar

1. (96-1-3) $\frac{6{,}8\cdot 0{,}04\cdot 1{,}65}{3{,}3\cdot 5{,}1\cdot 0{,}16}$ ning qiymatini toping.
A) 6 B) $\frac{1}{2}$ C) $\frac{2}{3}$ D) $\frac{1}{6}$
E) $\frac{5}{12}$

2. (96-1-5) $(2{,}5-2\frac{1}{3})\cdot 5{,}2:2\frac{3}{5}$ ni hisoblang.
A) $\frac{2}{5}$ B) $\frac{1}{3}$ C) 3 D) $\frac{3}{7}$
E) $2\frac{1}{3}$

3. (96-9-4) $3{,}104\cdot 10^{-4}+1{,}81\cdot 10^{-3}$ yig'indi quyidagi sonlarning qaysi biriga teng?
A) $3{,}285\cdot 10^{-3}$ B) $3{,}285\cdot 10^{-2}$
C) $4{,}914\cdot 10^{-2}$ D) $4{,}914\cdot 10^{-3}$
E) $4{,}024\cdot 10^{-5}$

4. (97-6-7) $0{,}8+0{,}2:\left(\frac{7}{15}-1\frac{1}{6}+\frac{9}{20}\right)$ ni hisoblang.
A) 0 B) 1 C) 1,6 D) –0,
E) –1

5. (97-8-1) $5{,}8-\frac{3}{7}\cdot 2{,}2\cdot\left(-2\frac{1}{3}\right)$ ni hisoblang.
A) 3,6 B) –8 C) 8 D) –3,6
E) 6

6. (98-2-1) $\frac{1}{\left(4\frac{2}{5}\cdot 6\frac{1}{3}-2\frac{1}{3}\cdot 4{,}4\right)\cdot\frac{5}{22}}$ ni hisoblang.
A) 0,4 B) 4,5 C) 4,2 D) 4,4
E) 0,45

7. (98-9-1) $\frac{\frac{5}{19}\left(3\frac{4}{5}\cdot 5\frac{1}{3}+4\frac{2}{3}\cdot 3{,}8\right)}{0{,}005}$ ni hisoblang.
A) 2010 B) 1800
C) 2120 D) 2000
E) 2200

8. (98-12-60) $\left(1\frac{1}{9}\cdot 0{,}27-3\frac{1}{3}\cdot 0{,}15\right)-$ $-1500\cdot(-0{,}1)^3$ ni hisoblang.
A) 1,3 B) 1,4 C) 1,5 D) 1,6
E) 1,7

9. (00-6-3) $\left(1\frac{2}{3}\cdot 2{,}2+1\right):2\frac{1}{5}-\frac{5}{11}$ ning qiymatini toping.
A) 1 B) 1,6
C) $2\frac{1}{3}$ D) 0,6
E) $1\frac{2}{3}$

10. (02-10-1) $\left(\frac{810}{162}+\frac{675}{225}\right)\cdot\left(\frac{810}{162}-\frac{675}{225}\right)+$ $+\frac{1{,}11+0{,}19-1{,}3\cdot 2}{2{,}06+0{,}54}$ ni hisoblang.
A) 15,5 B) 15 C) 14,5 D) 16
E) 16,5

11. (02-10-2)
$\frac{(9{,}126:0{,}65+0{,}46)\cdot 7{,}18+1{,}45\cdot 28{,}2}{3{,}45^2-0{,}55^2}$ ni hisoblang.
A) 12,5 B) 12
C) 11,5 D) 13
E) 13,5

12. (02-11-1) $\left(5\frac{4}{45}-4\frac{1}{15}\right)\cdot 22{,}5-$ $-\frac{4{,}25:0{,}85+0{,}5}{(5{,}56-4{,}06):3}$ ni hisoblang.
A) 10,5 B) 12 C) 13,5 D) 16
E) 18

13. (03-3-4) $\frac{12\frac{4}{5}\cdot 3{,}75-4\frac{4}{11}\cdot 4{,}125}{2\frac{2}{7}:\frac{4}{35}}$ ni hisoblang.
A) 0,5 B) 1,5 C) 0,6 D) 0,3·
E) 0,2

14. (v4-101-25) $\frac{0{,}04^{-2}\cdot 125^4\cdot 0{,}2^{-1}}{4\cdot 25^8}$ ni hisoblang.
A) $\frac{1}{4}$ B) $1\frac{1}{2}$ C) 0,5 D) 0,2
E) 1,25

15. (v4-102-25) $\frac{2{,}21\cdot 5{,}95+1{,}51}{6{,}42\cdot 5{,}95-8{,}88}$ ni hisoblang.
A) $1\frac{1}{2}$ B) $\frac{62}{41}$ C) 1 D) $-\frac{62}{41}$
E) $\frac{1}{2}$

16. (v4-104-16) $\frac{7{,}4+\frac{13}{17}\cdot 0{,}15\cdot 1\frac{4}{13}\cdot 6\frac{2}{3}}{0{,}2\cdot 4{,}3-0{,}16}$ ni hisoblang.
A) 12 B) 11 C) 10 D) 6
E) 8

17. (v4-129-16) $\frac{1{,}28\cdot 6{,}4\cdot 0{,}32}{0{,}512}-\frac{11}{50}$ ni hisoblang.
A) 3,92 B) 4,82 C) 4,92 D) 3,82
E) 4,9

18. (v6-6-2) 453,21 sonini standart shaklda yozing.
A) $4{,}5321\cdot 10^2$ B) $4{,}5\cdot 10^3$
C) $4{,}5321\cdot 10^3$ D) $4{,}53\cdot 10^2$

19. (v6-8-2) $\frac{6{,}5\cdot 0{,}04\cdot 6{,}8}{5{,}2\cdot 5{,}1\cdot 0{,}16}$ ning qiymatini toping.
A) $\frac{1}{2}$ B) $\frac{5}{12}$ C) $\frac{1}{6}$ D) $\frac{2}{3}$

20. (v6-13-15) $\frac{19{,}5:4\frac{1}{2}+3\frac{1}{3}\cdot 1{,}9}{\frac{62}{75}-0{,}16}$ ni hisoblang.
A) 16 B) $4\frac{1}{2}$
C) 12 D) 7,45

21. (v7-101-13) $\frac{0{,}28}{0{,}84}+\frac{0{,}23}{0{,}03}-\frac{0{,}9}{0{,}05}$ ifodaning qiymatini toping.
A) –10 B) 25
C) 10 D) $\frac{32}{3}$

22. (v7-105-1) $\frac{0{,}202-0{,}004}{\frac{8}{9}\cdot 81\cdot 0{,}125}$ ni hisoblang.
A) 0,99 B) 0,099
C) 0,022 D) 0,0099

23. (v7-105-5) $\frac{0{,}05\cdot 0{,}9-0{,}05}{0{,}2^2-2\cdot 0{,}06+0{,}3^2}$ ning qiymatini hisoblang.
A) –2 B) 0,2 C) 0,25 D) –0,5

24. (v7-107-13) $\frac{0{,}005\cdot 0{,}081\cdot 3{,}2}{0{,}09\cdot 0{,}0025\cdot 6{,}4}$ ning qiymatini toping.
A) 0,3 B) 3 C) 0,9 D) 30

25. (v7-108-13) 4,2·13,5 – 8,7·4,2 – – 5,8·8,7 + 13,5·5,8 ni hisoblang.
A) 52 B) 42 C) 48 D) 50

26. (v7-109-1) $\left(3{,}5-3\frac{1}{3}\right)\cdot 10{,}4:5\frac{1}{5}$ ni hisoblang.
A) $\frac{1}{3}$ B) $\frac{2}{5}$ C) $\frac{3}{7}$ D) 1

27. (v7-110-13) 173·3,6 + 2,7·64 + + 2,7·36 + 17,3·64 ning qiymatini toping.
A) 1800 B) 3000 C) 1600 D) 2000

28. (v7-114-13) 0,34·0,00025 ko'paytma quyidagi sonlardan qaysi biriga teng emas?
A) $850\cdot 10^{-7}$ B) $8{,}5\cdot 10^{-5}$
C) $8{,}5\cdot 10^{-6}$ D) $85\cdot 10^{-6}$

29. (v7-116-1) $\left(11\frac{2}{3}-7{,}4\right):5\frac{1}{3}+1\frac{2}{5}$ ni hisoblang.
A) 2,2 B) $2\frac{1}{2}$ C) 2 D) 3,2

30. (v7-118-13) (0,2·0,05 – 0,05):0,125 + 0,96 ni hisoblang.
A) –2,45 B) 0,64 C) 0,43 D) 3,95

31. (v7-120-13) $\frac{0{,}26}{0{,}00026}+\frac{0{,}24}{0{,}0015}-\frac{0{,}7}{0{,}0014}$ ni hisoblang.
A) 340 B) 540 C) 1340 D) 660

32. (v7-121-1) $\frac{26}{15}+2\cdot(0{,}63:0{,}6-1{,}6)$ ni hisoblang.
A) $-1\frac{1}{6}$ B) $\frac{19}{30}$ C) $-1\frac{4}{15}$ D) $-\frac{4}{15}$

33. (v8-104-16) $\frac{400-21{,}5\cdot 18{,}5}{1{,}5\cdot 1\frac{1}{10}+3{,}4\cdot 1\frac{1}{2}}$ ni hisoblang.
A) $\frac{1}{3}$ B) $\frac{3}{10}$ C) $\frac{5}{7}$ D) $\frac{3}{7}$

34. (v8-109-1) $3{,}701\cdot 10^{-3}+3{,}305\cdot 10^{-4}$ yig'indi quyidagi sonlarning qaysi biriga teng?
A) $5{,}906\cdot 10^{-7}$ B) $4{,}0215\cdot 10^{-3}$
C) $4{,}0315\cdot 10^{-3}$ D) $3{,}4751\cdot 10^{-3}$

35. (v8-109-16) $\frac{0{,}64\cdot 4{,}5-4{,}5}{1{,}05-\frac{3}{5}}$ ni hisoblang.
A) 0,36 B) –3,6 C) –0,36 D) –4,8

36. (v8-110-1) $\frac{1{,}65\cdot 0{,}04\cdot 0{,}85}{0{,}16\cdot 0{,}68\cdot 3{,}3}$ ning qiymatini toping.
A) $\frac{1}{2}$ B) $\frac{5}{32}$ C) $\frac{1}{6}$ D) $\frac{2}{3}$

37. (v8-114-16) $\frac{\frac{5}{11}\cdot 0{,}006\cdot 2\frac{1}{5}+1\frac{1}{8}\cdot 1{,}004\cdot\frac{8}{9}}{25\cdot 0{,}0009+0{,}0001\cdot 25}$ ni hisoblang.
A) 0,4 B) 40 C) 40,4 D) 20

38. (v8-115-1) $\frac{2{,}6\cdot 0{,}21\cdot 1{,}8}{7{,}2\cdot 7{,}8\cdot 0{,}28}$ ning qiymatini toping.
A) $\frac{2}{5}$ B) $\frac{1}{24}$ C) $\frac{1}{12}$ D) $\frac{1}{16}$

39. (v9-25-12) $\frac{0{,}075-0{,}075\cdot 6{,}4}{0{,}175-\frac{39}{200}}$ ni hisoblang.
A) 20,25 B) 4,05 C) 20,1 D) 40,5

40. (v11-150-33) $\frac{3{,}2\cdot 1{,}4\cdot 5{,}4}{4{,}2\cdot 7{,}2\cdot 1{,}2}$ ning qiymatini toping.
A) $\frac{2}{3}$ B) $\frac{1}{24}$ C) $\frac{1}{12}$ D) $\frac{2}{5}$

41. (v12z-115-19)
$6\frac{1}{2}+1\frac{1}{6}+1\frac{5}{6}(1{,}854:1{,}8-1{,}5\cdot 2{,}02)$ ni hisoblang.
A) –4 B) $-2\frac{5}{6}$ C) 4 D) $-2\frac{1}{2}$

42. (v12z-119-4) $(1{,}5)^3:\frac{\left(\frac{3}{2}\right)^3\cdot(3{,}375)^{-1}}{(2{,}25)^{-2}\cdot\left(\frac{2}{3}\right)^{-1}}$ ni hisoblang.
A) $3\frac{3}{8}$ B) 1 C) $\frac{4}{9}$ D) $\frac{8}{27}$

43. (v12z-126-8) $2\cdot(0{,}4)^{-3}:\left[\left(\frac{1}{25}\right)^{-1{,}5}:(0{,}125)^{-2/3}\right]$ ni hisoblang.
A) $\frac{1}{2}$ B) 1 C) 31,25 D) $29\frac{3}{4}$

44. (v12c-114-35) Hisoblang:
$\frac{(2{,}479:0{,}67+0{,}34)\cdot 3{,}25+1{,}05\cdot 23{,}4}{7{,}95^2-5{,}05^2}$.
A) 3 B) 1 C) 1,5 D) 2

45. (v12c-145-23)
$16\cdot 0{,}99\cdot 25\cdot 2{,}5+411+57\cdot 5\cdot 0{,}4\cdot 25\cdot\frac{4}{19}$ ni hisoblang.
A) 2001 B) 2002 C) 1999 D) 2000

46. (v13-137-5) (5 – 1,1409:0,3): :(4,2:12 – 0,21 · $\frac{2}{3}$) ni hisoblang.
A) 0,(57) B) 5,7 C) 0,5(7) D) 0,57

47. (v13-169-11) $\frac{0{,}725+0{,}6+\frac{7}{40}+\frac{11}{20}}{0{,}128\cdot 6\frac{1}{4}-0{,}0345:\frac{3}{25}}\cdot 0{,}25$ ni hisoblang.
A) 4 B) 1 C) 1/2 D) 2

48. (v14-102-27) $0{,}3\cdot 10^{-4}+0{,}2\cdot 10^{-5}+0{,}001\cdot 10^{-2}$ ni hisoblang.
A) $42\cdot 10^{-5}$ B) $42\cdot 10^{-6}$
C) $0{,}42\cdot 10^{-5}$ D) $4{,}2\cdot 10^{-6}$

49. (v14-105-1) $\frac{58{,}4\cdot 31{,}2-27{,}2}{31{,}2+58{,}4\cdot 30{,}2}$ ni hisoblang.
A) 1 B) $\frac{1}{2}$ C) 2 D) $\frac{1}{4}$

50. (v14-107-12) $\left(0{,}125-\frac{\frac{1}{18}+\frac{1}{8}}{\frac{1}{18}}\right):$
$:\left(\frac{2}{9}+\frac{\frac{7}{45}}{\frac{2}{15}-\frac{1}{18}}\right)+\frac{1}{2+\frac{6}{13}}\cdot$
A) $\frac{1}{2}$ B) 0 C) –1 D) 1

51. (v15-110-20) (((–4,75) + (–3,25)): :0,48 + (–0,3)):(–0,028) ni hisoblang.
A) –15 B) 15 C) –5 D) 5

52. (v15-127-14) ((+3,28) – (–1,52)):(–24) + + $\left(-1\frac{3}{10}\right)\cdot(-0{,}04)$ ni hisoblang.
A) –0,148 B) 0,252
C) –0,072 D) 0,072

53. (v16-129-20) $\left(+3\frac{1}{11}\right)\cdot\left(-1\frac{5}{17}\right)-$
$\left((-3)\cdot\left(-5\frac{1}{3}\right)-(-1):\left(-\frac{1}{16}\right)\right)+$
+ (–5,12):(–1,28)·(–8,3 + 0,35 – 2,05 + 7) ni hisoblang.
A) –32 B) –16 C) –4 D) –8

54. (v17-106-23) Hisoblang:
$\left(\frac{0{,}11}{0{,}2}+\frac{0{,}2}{0{,}11}\right)\cdot\frac{22}{52{,}1}$.
A) 0,01 B) 0,1 C) 0,2 D) 1

55. (v17-115-14) Hisoblang:
$\frac{\left(5\frac{4}{45}-4\frac{1}{6}\right):5\frac{8}{15}}{\left(4\frac{2}{3}+0{,}75\right)\cdot 3\frac{9}{13}}$.
A) $\frac{1}{60}$ B) $-\frac{1}{120}$
C) $\frac{1}{120}$ D) $\frac{3}{4}$

56. (v17-127-12) Hisoblang:
7,5 + 9,8 + 12,1 + ... + 53,5 + 55,8 + 58,1.
A) 754,4 B) 754 C) 754,6 D) 752,4

57. (v19/20-127-5) x = (0,6 + 0,06)· ·(0,6 – 0,06) + (0,8 + 0,08)·(0,8 – 0,08) bo'lsa, eng kichik sonni aniqlang.
A) $\sqrt{x}$ B) x^2 C) x^3 D) $\sqrt[3]{x}$

58. (v20/21-102-27) Amallarni bajaring:
$52:\left(\frac{6:(0{,}4-0{,}2)}{2{,}5\cdot(0{,}8+1{,}2)}+\frac{(34{,}06-33{,}81)\cdot 4}{6{,}84:(28{,}57-25{,}15)}\right)$ – 8.

A) 16 B) 4
C) 10 D) 0

59. (v20/21-116-27) $\frac{78}{3000}$ o'nli kasr ko'rinishida yozing.
A) 0,78 B) 0,26
C) 0,378 D) 0,026

60. (v20/21-116-28) O'nli kasrlar ustida to'rt amalga doir misolni hisoblang:
(9:4,5·2,2 + 4,6):0,9.
A) 100 B) 10 C) 0,9 D) 90

61. (v20/21-117-5) Hisoblang.
$\left(+3\frac{1}{11}\right)\cdot\left(-1\frac{5}{17}\right)-\left((-3)\cdot\left(-5\frac{1}{3}\right)-(-1):\left(-\frac{1}{16}\right)\right)+$
$(-5,12):(-1,28)\cdot(-8,3+0,35-2,05+7)$.
A) –4 B) –8 C) –16 D) –32

62. (v20/21-124-5) Sonni standart ko'rinishda yozing: 0,0000015·0,00016.
A) $24\cdot10^{-11}$ B) $0,24\cdot10^{-9}$
C) $240\cdot10^{-12}$ D) $2,4\cdot10^{-10}$

63. (v20/21-125-9) Hisoblang:
$\frac{0,19}{0,0019}-\frac{0,5}{0,025}-\frac{0,1}{0,0008}$.
A) 715 B) 875
C) –45 D) –95

64. (v20/21-128-9) Ushbu $0,00000004^2\cdot0,00000026$ songa teng sonni toping.
A) $4,16\cdot10^{-23}$ B) $4,16\cdot10^{-24}$
C) $4,96\cdot10^{-6}$ D) $416\cdot10^{-24}$

65. (v20/21-130-15) Ko'paytmaning natijasini aniqlang: 0,0000028·0,000625.
A) $1,75\cdot10^{-10}$ B) $1,75\cdot10^{-9}$
C) $1,75\cdot10^{-11}$ D) $1,75\cdot10^{-8}$

66. (v20/21-136-26) Sonning standart shaklini ko'rsating: $0,0025\cdot0,04\cdot0,16\cdot10^8$.
A) $16\cdot10^2$ B) $1,6\cdot10^3$
C) $0,16\cdot10^4$ D) $16\cdot10^{-1}$

67. (v20/21-138-14) $0,00015\cdot0,0040\cdot0,065\cdot10^6$ ko'paytmasining kiymatini toping.
A) 3,9 B) 0,39 C) 0,039 D) 39

68. (v20/21-138-24) Sonning standart shaklini ko'rsating: $0,0031\cdot0,04\cdot0,015\cdot10^5$.
A) $0,186\cdot10^{-5}$ B) $18,6\cdot10^{-4}$
C) $186\cdot10^{-3}$ D) $1,86\cdot10^{-5}$

69. (v21-107-7) $[-2,83]+2\cdot\{3,56\}$ hisoblang. Bu yerda $[x]$ va $\{x\}$ x sonining butun va kasr qismlari.
A) –1,75 B) 1,75 C) 2 D) 4

70. (v21-108-29)
$A=3\frac{11}{13}\cdot0,26+\frac{2,4\cdot2,73}{24\cdot0,273}+\frac{7,83:31,6}{78,3:316}$.
A:3 ning qiymatini toping.
A) 1 B) $\frac{1}{3}$ C) 0 D) 2

71. (v21-115-6) Hisoblang:
$19,8\cdot15-19,8\cdot13+13,2\cdot15-13,2\cdot13$.
A) 65 B) 64 C) 66 D) 62

72. (v21-119-27) 480000 sonni standart shakliga keltiring.
A) $4,8\cdot10^6$ B) $4,8\cdot10^5$
C) $0,48\cdot10^7$ D) $0,48\cdot10^5$

16. Cheksiz davriy o'nli kasrlar

1. (96-8-61) Quyidagi oddiy kasr ko'rinishida berilgan sonlardan qaysilarini chekli o'nli kasr ko'rinishiga keltirib bo'lmaydi?
1) $\frac{14}{625}$; 2) $\frac{3}{64}$; 3) $\frac{32}{75}$; 4) $\frac{11}{375}$.
A) 1, 2 B) 3, 4 C) 1, 3 D) 2, 4
E) 1, 4

2. (98-1-10) a = 2,(4); b = 2,5 – $\frac{1}{8}$ va c = 1,2:0,5 sonlarini kamayish tartibida joylashtiring.
A) a > b > c B) a > c > b
C) b > a > c D) c > a > b
E) c > b > a

3. (98-8-10) a = 3,(6); b = 3,91 – $\frac{1}{4}$ va c = 4,68:1,3 sonlarni o'sish tartibida joylashtiring.
A) b < a < c B) a < c < b
C) c < b < a D) a < b < c
E) c < a < b

4. (98-11-3) $\frac{0,8(3)-0,4(6)}{0,(3)}$ ni hisoblang.
A) 1,1 B) $1\frac{1}{3}$ C) 3 D) 0,3
E) $\frac{2}{3}$

5. (99-1-1) $\frac{(16+81)\cdot(1+\frac{61}{36}):36}{[0,(4)+\frac{1}{0,(4)}]^2}\cdot0,4$ ni hisoblang.
A) 0,4 B) 0,(4) C) 14,4 D) 36
E) $\frac{1}{36}$

6. (99-10-1) $\frac{0,48\cdot0,75+0,52:1\frac{1}{3}}{(0,(3)+0,(6)):0,012}$ ni hisoblang.
A) 1 B) 0,08 C) 0,008 D) 0,009
E) 0,09

7. (00-7-1) $\frac{0,(2)\cdot0,625\cdot4,5+1,8\cdot0,175\cdot0,(5)}{\frac{6}{7}\cdot2\frac{1}{3}-1\frac{1}{6}\cdot\frac{6}{7}}$ ni hisoblang.
A) 0,9 B) 0,7 C) 0,8 D) 0,6
E) 0,5

8. (00-10-3) $\frac{3,(73)-0,2(19)}{3\frac{513}{990}}$ ni hisoblang.
A) $\frac{3}{7}$ B) $\frac{3}{5}$ C) $\frac{3}{4}$ D) $\frac{2}{3}$ E) 1

9. (01-1-3) 3,2(62) – 1,(15) ni hisoblang.
A) 2,2(47) B) 2,247
C) 2,(12) D) 2,(1)
E) 2,01

10. (01-7-1) $(1\frac{3}{4}:1,125-1,75:0,(6))\cdot1\frac{5}{7}+2,8(3)$ ni hisoblang.
A) $2\frac{1}{7}$ B) 2 C) $2\frac{2}{7}$ D) 1
E) $2\frac{6}{7}$

11. (01-7-3) a = 2,7(2), b = $2\frac{1}{7}$, c = π – 3,14 va d = $\sin\frac{\pi}{3}$ sonlardan qaysilari irratsional sonlar?
A) a, c, d B) b, c, d
C) c, d D) a, c
E) hammasi

12. (02-10-3) $0,4(3)+0,6(2)\cdot2\frac{1}{2}-\frac{\frac{1}{2}+\frac{1}{3}}{0,5(8)}:\frac{50}{53}$ ni hisoblang.
A) 0,4(8) B) 0,5
C) $\frac{4}{9}$ D) $\frac{5}{9}$
E) $\frac{49}{90}$

13. (02-11-2) $3\frac{127}{495}$ ni cheksiz davriy o'nli kasr ko'rinishida yozing.
A) 3,(127) B) 3,(254)
C) 3,2(54) D) 3,2(56)
E) 3,25(4)

14. (02-12-20) $\left(\frac{81\cdot3}{567}+\frac{22}{77}\right)\cdot24,5-\frac{2}{3}:0,(3)$ ni hisoblang.
A) 16,5 B) 14,5 C) 15,5 D) 16,5
E) 13,5

15. (03-7-42) $\frac{\frac{2}{9}+3,6(1)}{1,91(6)-1\frac{5}{6}}$ ni hisoblang.
A) 46 B) 51 C) $\frac{23}{72}$ D) 42
E) 1

16. (v4-123-21) a = 1 – 0,48(1), b = $\frac{47}{90}$ va c = 0,5(3). a, b va c sonlar uchun quyidagi munosabatlardan qaysi biri o'rinli?
A) c < b < a B) a < c < b
C) a < b < c D) b < a < c
E) b < c < a

17. (v6-6-8) 0,4(5) soni quyidagi sonlardan qaysi biriga teng?
A) $\frac{5}{11}$ B) $\frac{4}{90}$ C) $\frac{45}{90}$ D) $\frac{41}{90}$

18. (v6-7-8) Quyidagi sonlardan qaysi biri 0,8(1) ga teng?
A) $\frac{73}{90}$ B) $\frac{9}{11}$ C) $\frac{81}{90}$ D) $\frac{70}{90}$

19. (v6-9-8) 0,(8) + 0,(3) – $\frac{5}{9}$ ning qiymatini hisoblang.
A) $1\frac{1}{9}$ B) $1\frac{2}{9}$ C) $\frac{2}{3}$ D) 0,(11)

20. (v7-109-13) Quyidagi oddiy kasr ko'rinishida berilgan sonlardan qaysilarini chekli o'nli kasr ko'rinishiga keltirib bo'lmaydi:

1) $\frac{7}{32}$; 2) $\frac{10}{55}$; 3) $\frac{11}{160}$; 4) $\frac{20}{35}$?

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

21. (v7-111-13) Quyidagi oddiy kasr ko'rinishida berilgan sonlardan qaysilarini chekli o'nli kasr ko'rinishiga keltirib bo'lmaydi:

1) $\frac{15}{35}$; 2) $\frac{4}{125}$; 3) $\frac{11}{80}$; 4) $\frac{20}{55}$?

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

22. (v12z-129-30) Hisoblang:

$(1{,}75\cdot\frac{8}{9}-1\frac{3}{4}:0{,}(6)):\frac{7}{12}+2{,}8(3)$.

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

23. (v12z-133-32) $\frac{2{,}1\cdot(0{,}(3)+0{,}(6))}{(4\frac{2}{5}\cdot6\frac{1}{3}-5\frac{19}{21}\cdot4{,}4)\cdot\frac{5}{22}}$ ni hisoblang.

A) 4,5 B) 0,45 C) 4,9 D) 4,2

24. (v12c-111-31) $\frac{2\frac{4}{13}\cdot0{,}4(3)+4:1{,}(3)}{\frac{3}{8}+0{,}125}-$ $-\sqrt{\sqrt{256}}$ ni hisoblang.

A) 0 B) –2 C) 2 D) 4

25. (v12c-152-28) $\frac{(0{,}(5)+0{,}(1))}{1{,}5^{-1}}\cdot10-$ $-2\frac{1}{2}:3\frac{3}{4}+\left(2\frac{1}{2}-1\frac{4}{9}\right)\cdot3$ ni hisoblang.

A) $12\frac{1}{2}$ B) 9 C) $16\frac{1}{3}$ D) $15\frac{2}{3}$

26. (v13-122-11) $\frac{\left(\frac{1}{2}+0{,}(3)\right)-\left(\frac{1}{4}-\frac{1}{5}\right)}{\left(\frac{1}{6}+\frac{1}{4}\right)+\left(\frac{1}{10}-\frac{1}{8}\right)}$ ni hisoblang.

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

27. (v13-145-5) 1,1(6) + 0,12(3) ni hisoblang.

A) 19 B) $2\frac{7}{90}$

C) $1\frac{29}{100}$ D) $\frac{7}{30}$

28. (v13-161-27) $\frac{0{,}8333\ldots-0{,}4(6)}{1\frac{5}{6}}\cdot$ $\cdot\frac{1{,}125+1{,}75-0{,}41(6)}{0{,}59}$ ni hisoblang.

A) $\frac{5}{6}$ B) $\frac{4}{5}$ C) $\frac{7}{6}$ D) $\frac{6}{5}$

29. (v14-104-17) Amallarni bajaring:

$\frac{(0{,}(6)+\frac{1}{3}):0{,}25}{(0{,}12(3):0{,}0925)}+12{,}5\cdot0{,}64$.

A) 8 B) 11 C) 3 D) 7

30. (v14-108-24) 4,6(6) soni $2\frac{5}{14}$ marta orttirilgan bo'lsa, u qanchaga ortgan?

A) 5,(3) B) 5,3 C) 6,3 D) 6,(3)

31. (v14-109-3) –0,(44) ning teskarisiga qarama-qarshi bo'lgan sonning kvadrat ildizini toping.

A) $\frac{2}{3}$ B) $-\frac{2}{3}$

C) 1,5 D) –1,5

32. (v17-112-20) Hisoblang:

$0{,}(2)+\frac{1}{1{,}(9)+2\frac{1}{2}}$.

A) $\frac{1}{9}$ B) $\frac{4}{9}$

C) $\frac{5}{9}$ D) $\frac{2}{3}$

33. (v17-113-8) Hisoblang:

$\frac{\frac{5}{11}-0{,}1}{0{,}(21)}:\frac{10-(-3)}{7}$.

A) 0,1 B) 0,4 C) 0,7 D) 0,9

34. (v17-117-16) $5\frac{1}{2}+0{,}5x-\frac{3x}{4}+$ $+2(x+0{,}(3)-1)$ ifodaning x = –2 dagi qiymatini toping.

A) –2,(6) B) –5,(6)
C) 2,(6) D) 0,(6)

35. (v19/20-124-15) Agar $\frac{1}{3a}=2{,}0(30)$ bo'lsa, a ni toping.

A) $\frac{1}{4}$ B) $\frac{1}{3}$

C) $\frac{11}{67}$ D) $\frac{1}{609}$

36. (v20/21-102-2) Ushbu

$\left[\frac{(5{,}666\ldots-4{,}833\ldots):3{,}1818\ldots}{(2{,}666\ldots+5{,}41666\ldots):7{,}(461538)}\right]^{-1}-$ $-2{,}13636\ldots$ ifodaning qiymatini hisoblang.

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

37. (v20/21-131-1) O'zaro teskari bo'lgan sonlarni ko'rsating:

1) $\frac{14}{\sqrt{7}}$ va $\frac{1}{2\sqrt{7}}$; 2) $\frac{3\sqrt{6}}{2}$ va $\frac{\sqrt{6}}{9}$;

3) $\left(3\sqrt{2}-3\right)\left(3\sqrt{2}+3\right)$;

4) $\left(5-2\sqrt{6}\right)\left(5+2\sqrt{6}\right)$.

A) hammasi B) faqat 2
C) 1, 2 va 4 D) 1 va 4

38. (v20/21-137-26) 0,9(5) soni 0,(43) sonidan necha marta katta?

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

3-bob. ALGEBRAIK IFODALAR

17. Ko'phadning standart korinishi. Ko'phadlar ayirmasi va yig'indisi. Ko'phadlar ustida amallar

1. (97-3-5) $2\frac{1}{3}\cdot(\frac{6}{7}m+3)-1\frac{2}{3}\cdot(\frac{3}{5}-3)$ ni soddalashtiring.

A) m – 2 B) 4
C) m + 12 D) $\frac{2}{3}m+2$
E) 4 + m

2. (98-1-14) a(b – c) + b(c – a) – c(b – a) ni soddalashtiring.

A) –2ac B) 2ab C) 0 D) 2
E) 2bc – 2ac

3. (98-3-11) x^3+2nx^2+mx+5 ko'phad x^2-1 ga qoldiqsiz bo'linadi. m + n ni toping.

A) 5 B) $\frac{7}{2}$ C) $-\frac{7}{2}$ D) –7
E) –6

4. (98-7-20) Agar $a:b=-\sqrt{5}$ bo'lsa, a^2-5b^2 ni hisoblang.

A) 0 B) $\sqrt{5}$ C) 5 D) –5
E) $-\sqrt{5}$

5. (01-8-12) (a + 3b)(a + b + 2) – (a + b)·(a + 3b + 2) ni ko'phad shaklida tasvirlang.

A) 2a – b B) a – 2b
C) 4a + 2b D) 4b
E) 6ab

6. (02-8-4) $x^{2001}+3x^{2000}+3x+13$ ko'phadni x + 3 ga bo'lganda qoldiq necha bo'ladi?

A) 4 B) 3 C) 5 D) 2
E) 1

7. (02-8-5) $x^6+x^4-3x^2+5$ ko'phadni $x^2-\sqrt{3}$ ga bo'lgandagi qoldiqni toping.

A) 8 B) 7 C) 6 D) 9
E) 5

8. (v4-102-19) (a + 3b)(a + b – 1) – – (a + b)·(a + 3b – 1) ni ko'phad shaklida tasvirlang.

A) 4a + 2b B) 6ab
C) 2a – b D) 4b
E) –2b

9. (v6-1-4) 2x(x – 1) – (2x + 1)(x – 2) ko'phadni standart shaklga keltiring.

A) $2x^2-3x$ B) $4x^2-1$
C) –x + 1 D) x + 2

10. (v6-4-4) $(4x-3)^2-x(-4x+5)$ ko'phadni standart shakliga keltiring.

A) $12x^2-25x+9$ B) $20x^2-29x+9$
C) $8x^2-x+7$ D) $20x^2-25x+9$

11. (v6-8-4) Agar $P=\frac{1}{2}x-\frac{1}{2}y-(x+2y)$ va $Q=\frac{1}{2}x+\frac{1}{2}y-(x+5y)$ bo'lsa, P – Q ni toping.

A) 4y B) 2y
C) $\frac{10}{3}y$ D) –4y

12. (v7-110-2) $a(b + c - bc) - b(c + a - ac) - c(b + a)$ ni soddalashtiring.
A) $2ac - 2bc$ B) $-2abc$
C) $ab - ac$ D) $-2bc$

13. (v9-11-12) Agar bo'luvchi $x - 9$ ga, bo'linma $x - 6$ ga va qoldiq -4 ga teng bo'lsa, bo'linuvchini toping.
A) $15x + 50$ B) $15x + 50$
C) $-15x - 50$ D) $15x - 50$

14. (v9-19-27) Agar bo'luvchi $x - 6$ ga, bo'linma $x + 4$ ga va qoldiq -9 ga teng bo'lsa, bo'linuvchini toping.
A) $x^2 - 2x - 33$ B) $x^2 + 2x - 33$
C) $x^2 + 2x + 33$ D) $x^2 - 2x + 33$

15. (v9-25-18) Agar bo'luvchi $x + 3$ ga, bo'linma $x + 6$ ga va qoldiq -8 ga teng bo'lsa, bo'linuvchini toping.
A) $x^2 + 9x - 10$ B) $x^2 - 9x + 10$
C) $x^2 + 9x + 10$ D) $x^2 - 9x - 10$

16. (v9-30-25) Agar bo'luvchi $x - 7$ ga, bo'linma $x + 2$ ga va qoldiq -4 ga teng bo'lsa, bo'linuvchini toping.
A) $x^2 - 5x + 18$ B) $x^2 - 5x - 18$
C) $x^2 + 5x + 18$ D) $x^2 + 5x - 18$

17. (v11-147-19) $x^7 - 4x^5 + 2x^3 - x + 5$ ko'pxadni $x - 1$ ga bo'lgandagi qoldiq nimaga teng?
A) 2 B) 3 C) 4 D) 5

18. (v11-148-14) $P(x - 1) = x^2 - 6x + 8$ bo'lsa, $P(x)$ ko'phad quyidagilardan qaysi biriga qoldiqsiz bo'linadi?
A) $x - 5$ B) $x - 4$ C) $x - 1$ D) $x - 2$

19. (v11-150-16) Ifodani soddalashtiring:
$(x + y - 3)(x - y + 3) + (x + y + 3)(y - x - 3)$.
A) $-6x + 6y - 18$
B) $12y$
C) $2x^2 - 2y^2 + 6y + 6x$
D) $12x$

20. (v12z-108-3) Agar $mx^3 - 2x^2 + nx + 2$ ko'phad $x^2 - x - 2$ ga qoldiqsiz bo'linsa, $m \cdot n$ ni toping.
A) 1 B) 2 C) -1 D) -2

21. (v12z-115-1) Agar $mx^3 + nx^2 - x + 2$ ko'phad $x^2 - 1$ ga qoldiqsiz bo'linsa, $m \cdot n$ ni toping.
A) -1 B) -2 C) 3 D) 2

22. (v12z-125-21) Agar $x^3 + mx^2 + nx + 2$ ko'phad $x^2 - 3x + 2$ ga qoldiqsiz bo'linsa $m \cdot n$ ni toping.
A) -3 B) 2 C) 1 D) 3

23. (v12z-132-17) x ning qanday qiymatida $P(x) = x^3 + 4x^2 - 12x + 36$ ko'phadning qiymatini biror sonning kvadrati shaklida tasvirlash mumkin?
A) -3 B) 2 C) 3 D) -2

24. (v12z-137-27) Agar $x^3 - 2x^2 + mx + n$ ko'phad $x^2 - x - 2$ ga qoldiqsiz bo'linsa $m \cdot n$ ni toping.
A) -1 B) -2 C) 1 D) 2

25. (v12c-122-4) $x^4 + mx^3 + nx^2 + 8x + 3$ ko'phad $x - 1$ ga qoldiqsiz bo'linsa, $m + n$ ning qiymatini aniqlang.
A) 12 B) -13 C) -12 D) 13

26. (v13-136-18) Agar $d:c = -\sqrt{7}$ bo'lsa, $d^2 - 7c^2$ ni hisoblang.
A) 0 B) 7 C) $\sqrt{7}$ D) -7

27. (v13-150-15) $x^3 + 6x^2 + 11x + 6$ ko'phad quyidagilardan qaysi biriga bo'linmaydi?
A) $x + 1$ B) $x + 2$ C) $x + 6$ D) $x + 3$

28. (v13-157-6) $x^{2013} + 1$ ko'phadni $x - 1$ ga bo'lgandagi qoldiqni toping.
A) 2 B) 1 C) 0 D) 3

29. (v13-168-25) 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 D) $x + 2$

30. (v14-109-28) $\sqrt{11} + 9$ soni $x^2 + mx + n$ ko'phadning ildizi bo'lsa, m va n butun sonlar yig'indisini toping.
A) 58 B) 52 C) 54 D) 56

31. (v14-112-3) $8x - 3x^2 + x^3 - 2$ ko'phadni $x^2 - x + 1$ ko'phadga bo'lgandagi qoldiqni toping.
A) $x - 2$ B) $2 - x$ C) $-5x$ D) $5x$

32. (v15-102-24) $P(x)$ ko'phadni $x^2 - 5x + 6$ ga bo'lganda, qoldiq $3x - 4$ bo'ldi. $P(x)$ ko'phadni $x - 3$ ga bo'lgandagi qoldiqni toping.
A) $x + 3$ B) -4 C) 5 D) 4

33. (v15-105-27) $x^3 - 2ax^2 + 4bx - 48$ ko'phad $(x - 2) \cdot (x - 6)$ ga qoldiqsiz bo'linsa, a va b toping.
A) 4; 11 B) 6; 11 C) 6; 8 D) 4; 8

34. (v15-110-17) $f(x - 1) + f(x + 2) = 2(x^2 + 7)$ ekani ma'lum bo'lsa, $f(x)$ ko'phadni toping.
A) $f(x) = 2x^2 + 1$ B) $f(x) = x^2 - 4$
C) $f(x) = x^2 - x + 5$ D) $f(x) = x^2 + 3x + 7$

35. (v15-115-27) $x^4 + 8x^3 + ax^2 + bx + 1$ ko'phad biror ko'phadning kvadrati bo'lsa, a va b koeffitsiyentlarning barcha qiymatlari yig'indisini toping.
A) 48 B) 26 C) 27 D) 32

36. (v17-101-6) $P(x) = x^4 - 2x^2 + x + 1$ ko'phadni $Q(x) = x^2 - x - 1$ ko'phadga bo'lganda $x = 2$ dagi bo'linmani toping.
A) 6 B) 5 C) 7 D) 4

37. (v17-106-20) $P(x) = (3x - 1)^{2017} \cdot (2x - 1)^{2016} + (4x - 3)^2 \cdot (6x - 5)^2 + 2$ ko'phad koeffitsiyentlarining yig'indisni toping.
A) $2^{2017} + 1$ B) 16
C) 9 D) $2^{2017} + 3$

38. (v17-120-20) $3x^5 - x^4 - 3x + 1 = (x^2 + 1)(3x^3 + Ax^2 + Bx + C)$ bo'lsa, $A + B + C$ ni toping.
A) 2 B) -3 C) 4 D) 3

39. (v17-120-28) $(x^3 + 2x - 4)^{18} \cdot (x^2 - 3x + 1)^6$ ko'paytma koeffitsiyentlari yig'indisini toping.
A) -4 B) 4 C) 0 D) 1

40. (v17-120-29) Ildizlari $-\frac{2}{3}$ va $\frac{13}{6}$ ga teng, oxirgi koeffitsiyent esa -26 ga teng bo'lgan ikkinchi darajali ko'phadni toping.
A) $9x^2 + 27x - 26$ B) $18x^2 + 27x - 26$
C) $9x^2 - \frac{27}{2}x - 26$ D) $9x^2 - 27x - 26$

41. (v17-127-6) $P(x) = (3x + 1)^{2017} \cdot (8x + 1)^{2016} + (4x - 1)^3 \cdot (2x - 1)^2 + x - 1$ ko'phadning ozod hadini toping.
A) 1 B) -2 C) -1 D) 0

42. (v18-1-50) $x^4 + x^3 + 3x^2 + 2x + 2$ ko'p hadning $x - 1$ ga bo'lgandagi qoldig'ini toping.
A) 9 B) 8 C) 6 D) 2

43. (v18-1-51) $x^3 - 3x^2 + 5x + 7$ ko'p hadning $2x + 1$ ga bo'lgandagi qoldig'ini toping.
A) 9 B) 2 C) $\frac{29}{8}$ D) $\frac{27}{8}$

44. (v19/20-113-6)
$4x^2 + 8x + 3 = a(x + b)^2 + c$ ayniyat bo'lsa, $a + b + c$ ning qiymatini toping.
A) 6 B) 4 C) 5 D) 3

45. (v19/20-115-2) Birhad va ko'phadlar uchun quyidagi tasdiqlarning qaysi biri noto'g'ri?
A) agar ko'phad tarkibida faqat 2 ta harf ishtirok etsa, ikki noma'lumli ko'phad deyiladi.
B) ko'phadning darajasi deb, shu ko'phad tarkibidagi birhadlarning darajalari yig'indisiga aytiladi
C) ko'phadning darajasi deb, shu ko'phad tarkibidagi birhadlarning eng katta darajasiga aytiladi
D) birhadning darajasi deb, uning tarkibidagi barcha harflar darajalarining yig'indisiga aytiladi.

46. (v19/20-126-9) $f(x, y)$ ko'phad (yoki birhad) bo'lib, ixtiyoriy x, y uchun $f(x, y) = f(y, x)$ shart bajarilsa, $f(x, y)$ nimaga teng bo'lishi mumkin?
A) $2x^2 + y^2$ B) $x^2 - y^2$
C) $x^2 + 2y^2$ D) $3xy$

47. (v20/21-115-18) Agar $x^4 + (m + n)x^3 + (m - n)x^2 + (m^2 + 2n - 1)x + m + 2n + 4$ ko'phad $x^2 - 2x + 1$ ko'phadga qoldiqsiz bo'linsa, mn ning mumkin bo'lgan qiymatlari ko'paytmasini toping.
A) 0 yoki 23 B) -1 yoki -34
C) 25 yoki -43 D) 0 yoki 253

48. (v20/21-117-25) $7x - 2x^2 + x^3 - 1$ ko'phadni $x^2 - x + 1$ ko'phadga bo'lgandagi qoldiqni toping.
A) $x - 2$ B) $5x$ C) $-5x$ D) $2 - x$

49. (v20/21-121-2) $P(x)$, $Q(x)$ va $R(x)$ ko'phadlar orasida $P(x + 1) = Q(x)R(x)$ munosabat o'rinli. Agar $P(x)$ ko'phadning koeffitsiyentlari yig'indisi $R(x)$ ko'phadning ozod hadidan yetti marta katta bo'lsa, $Q(x)$ ko'phadning ozod hadini toping.
A) $\frac{1}{7}$ B) -7
C) 7 D) 49

50. (v20/21-122-23) Agar $2x^3 - 5x^2 + ax + b$ ko'phad $x^2 - 4$ ko'phadga qoldiqsiz bo'linsa, $ab(a - b)$ ni toping.
A) -4480 B) 4480
C) 1205 D) 2345

51. (v20/21-132-2) $ax^3 + 2bx^2 + 5x$ ko'phad $x^2 - 6x + 5$ ko'phadga qoldiqsiz bo'linsa, a va b ning qiymatini toping.
A) 1; 2 B) 2; 3 C) -1; 4 D) 1; -3

52. (v20/21-138-21) $P(x) = (2x^2 - 2x + 1)^{1999} \cdot (x^2 - 2x^2)^{2019}$ ko'phadning koeffisientlari yig'indisini toping.
A) 0 B) -2 C) 1 D) -1

53. (v20/21-144-12) $P(x) = (x^{2019} - x - 1)^{25} + (x^{2019} - x + 1)^{25}$ ko'phadda x ning toq darajalari oldidagi koeffitsientlari yig'indisini toping.
A) –2 B) 0 C) –1 D) 1

54. (v21-108-10) $\frac{2-5x-2y+5xy}{10x^3-9x^2+2x}$ ifodani soddalashtiring.
A) $\frac{y-1}{2x-1}$ B) $\frac{y(5x-1)}{2x-1}$
C) $\frac{y+1}{2x-1}$ D) $\frac{y+1}{2x+1}$

55. (v21-109-25) $P(x) = ax^3 + 2bx^2 - 3x$ ko'pxad $Q(x) = 2x^2 + 8x - 3$ ko'pxadga qoldiqsiz bo'linadi. $a \cdot b$ ning qiymatini toping.
A) 4 B) 8 C) 16 D) 32

56. (v21-111-7) $\frac{P-Q+7b}{2a-b}$ ifodani soddalashtiring. Bu yerda $Q = -3a^2 + b^2$.
A) 2a + b B) 2a – b
C) $4a^2 + b^2$ D) $4a^2 - b^2$

57. (v21-115-16) $\frac{7a^7+6a^6+7a+6}{(7a+6)(a^4-a^2+1)} = 5$ bo'lsa, a ning barcha qiymatlarini toping.
A) ±2 B) 0 C) 2 D) –2

18. Qisqa ko'paytirish formulalari

1. (96-2-21) $\frac{x^2-3xy}{9y^2-x^2}$ kasrni qisqartiring.
A) $\frac{x}{x+3y}$ B) $-\frac{x}{x+3y}$
C) $\frac{x}{x-3y}$ D) $-\frac{x}{x-3y}$
E) $\frac{y}{x+3y}$

2. (96-3-10) $(x^4 - x^2y^2 + y^4)(x^2 + y^2)$ ko'paytma o'xshash hadlar ixchamlashgandan keyin nechta qo'shiluvchidan iborat bo'ladi?
A) 3 B) 4 C) 2 D) 5
E) 6

3. (96-5-6) $(1-\frac{1}{5^2})(1-\frac{1}{6^2})\cdot\ldots\cdot(1-\frac{1}{103^2})$ ni hisoblang.
A) $\frac{64}{103}$ B) $\frac{67}{103}$ C) $\frac{69}{103}$ D) $\frac{415}{515}$
E) $\frac{416}{515}$

4. (98-11-7) $(2k + 1)^2 - (2k - 1)^2$ ifoda, $k \in N$ da qaysi raqamlarga qoldiqsiz bo'linadi?
A) 2; 4; 8 B) 2
C) 4 D) 8
E) 4; 8

5. (98-12-9) $\frac{(5,2^2-4,8^2)\cdot(16,7^2-6,7^2)}{(12^2-11,4^2)\cdot(6,4^2-3,6^2)}$ ni hisoblang.
A) $2\frac{8}{21}$ B) $\frac{21}{50}$ C) $1\frac{8}{21}$ D) $\frac{7}{50}$
E) $7\frac{1}{7}$

6. (99-1-4) $0,8(0,2 + 1)(0,2^2 + 1)(0,2^4 + 1)\cdot(0,2^8 + 1) + (5^{-2})^8$ ni hisoblang.
A) 1 B) $0,2^{16}$ C) $2\cdot0,2^{16} + 1$ D) 2
E) 3

7. (99-6-6) $(202^3 - 54^2 + 256 - 352):(4^2\cdot10^2)$ni hisoblang.
A) 4 B) 1 C) 2 D) 5
E) 10

8. (99-7-2) $889^3 + 3000\cdot889\cdot111 + 111^3 + 889 + 111$ ni hisoblang.
A) 10001000 B) 1001000
C) 1001001000 D) 1000001000
E) 1001011000

9. (00-5-8) $(1+\frac{1}{2})(1+\frac{1}{2^2})(1+\frac{1}{2^4})\cdot\ldots\cdot(1+\frac{1}{2^{16}})(1+\frac{1}{2^{32}})$ ni hisoblang.
A) $1-\frac{1}{2^{64}}$ B) $2(1-\frac{1}{2^{64}})$
C) $4(1-\frac{1}{2^{32}})$ D) $4(1+\frac{1}{2^{32}})$
E) $\frac{1}{2^{64}}$

10. (00-6-18) $4y(5x - y) - (5x - 2)\cdot(5x + 2)$ ning eng katta qiymatini toping.
A) 10 B) 5 C) 4 D) 2
E) mavjud emas

11. (00-10-6) $\frac{x^{16}-x^8+1}{x^{24}+1}$ kasrni qisqartiring.
A) $[(x^2)^4 + 1]^{-1}$ B) $[(x^2)^3 + 1]^{-1}$
C) $[(x^2)^{-4} + 1]^{-1}$ D) $[(x^2)^{-3} + 1]^{-1}$
E) $[(x^3)^{-2} + 1]^{-1}$

12. (00-10-48) $\frac{x^3-1}{x^4+x^2+1}$ kasrni qisqartiring.
A) $\frac{x-1}{x^2-x+1}$ B) $\frac{x}{x+2}$
C) $\frac{x+1}{x^2-x+1}$ D) $\frac{x-1}{x^2-x-1}$
E) $\frac{x+2}{x^2-x-1}$

13. (02-1-10) $\sqrt[3]{a} = \sqrt[3]{c} - \sqrt[3]{b}$ bo'lsa, $(a + b - c)^3$ ni toping.
A) –27abc B) –81abc
C) $-81a^2b^2c^2$ D) $-27abc^2$
E) 81abc

14. (02-3-11) $\frac{2,71^4-1,29^4}{(2,71+1,29)^2-2,71\cdot2,58}$ ni hisoblang.
A) 5,68 B) 4,84 C) 5,28 D) 6,14
E) 5,58

15. (02-5-7) Agar $a^4 + \frac{1}{a^4}$ bo'lsa, $a - \frac{1}{a} = \sqrt{7}$ ning qiymatini hisoblang.
A) 81 B) 79 C) 49 D) 63
E) 77

16. (02-6-5) Agar $a = \sqrt{7} + \sqrt{6}$, $b = \sqrt{7} - \sqrt{6}$ bo'lsa, $2a^2 - 5ab + 2b^2$ ni hisoblang.
A) 47 B) 2 C) 55 D) 49
E) 3

17. (02-8-1) $a = \frac{25}{a} - b$ va $b = \frac{144}{b} - a$ bo'lsa, $|a + b|$ ni hisoblang.
A) 13 B) 12 C) 5 D) $\sqrt{119}$
D) 14

18. (02-9-6) Agar $a + \frac{1}{a} = 3$ bo'lsa, $\frac{a^4+1}{2a^2}$ ning qiymati nimaga teng?
A) 3,5 B) 4 C) 5,5 D) 7
E) 10

19. (03-3-5) $\frac{4(0,8^2-0,8\cdot1,7+1,7^2)}{1,6^3+3,4^3}$ ni hisoblang.
A) 1,2 B) 0,2 C) 1,5 D) 0,5
E) 0,4

20. (03-5-11) Agar $2a^2 + 2b^2 = 5ab$ va $b > a > 0$ bo'lsa, $\frac{a+b}{a-b}$ kasrning qiymati nechaga teng?
A) –3 B) 3 C) 2 D) 4
E) –2

21. (v4-108-19) $16(2q - 1)(2q + 1) + p^2 - 16pq + 4$ ning eng kichik qiymatini toping.
A) –11 B) –8 C) –10 D) –13
E) –12

22. (v7-101-17) $\frac{(8,7^2-11,3^2)(13^2-12,6^2)}{(4,2^2-5,8^2)(2,3^2-0,3^2)}$ ni hisoblang.
A) 0,32 B) 32 C) 6,4 D) 3,2

23. (v7-101-28) $\frac{2,72^4-0,72^4}{3,44^2-2,72\cdot1,44}$ ni hisoblang.
A) 6,88 B) 5,68 C) 6,84 D) 5,28

24. (v7-102-5) $\frac{x^2+4xy}{-16y^2+x^2}$ kasrni qisqartiring.
A) $-\frac{x}{x+4y}$ B) $\frac{x}{x+4y}$
C) $\frac{y}{4y-x}$ D) $\frac{x}{x-4y}$

25. (v7-106-17) $\frac{4,5^2-1,5^2}{0,3\cdot0,5-0,3}$ ni hisoblang.
A) –120 B) –200 C) –2 D) 200

26. (v7-108-5) $(1 - 3a)^2 - (1 + 3a)(3a - 1)$ ni soddalashtiring.
A) –6a + 2 B) $18a^2 - 6a$
C) $9a^2 - 3a$ D) –3a + 2

27. (v7-108-17) $a = 2^5 + 2^{-5}$ va $b = 2^5 - 2^{-5}$ bo'lsa, $a^2 - b^2 - 2$ nimaga teng?
A) 2 B) 0 C) $\frac{1}{4}$ D) $\frac{1}{2}$

28. (v7-109-17) $\frac{3,6\cdot(1,7^3-1,5^3)}{5,1^2+5,1\cdot4,5+4,5^2}$ ni hisoblang.
A) 0,08 B) 0,45 C) 0,06 D) 0,3

29. (v7-110-17) $\frac{0,4^2-1}{2,8\cdot0,4-2,8}$ ni hisoblang.
A) $-\frac{1}{2}$ B) $\frac{1}{2}$ C) 5 D) –5

30. (v7-112-5) $(b-c)(b^2+bc+c^2)$ ifodaning $b=\sqrt[3]{5}$ va $c=\sqrt[3]{3}$ bo'lgandagi qiymatini hisoblang.
A) 8 B) 2 C) –8 D) –2

31. (v7-113-17) $\sqrt{a}-\sqrt{b}=3$ va $a-b=24$ bo'lsa, $\sqrt{a}+\sqrt{b}$ nimaga teng?
A) 4 B) 6 C) 8 D) 5

32. (v7-118-17) Agar $a=6+\sqrt{3}$ va $b=6-\sqrt{3}$ bo'lsa, $\frac{a^3-b^3}{a^2-b^2}:\frac{a^2+ab+b^2}{a^3+3a^2b+3ab^2+b^3}$ ning qiymatini hisoblang.
A) 198 B) 144 C) 169 D) 196

33. (v9-28-20) $a^2+\frac{9}{a^2}=31$ bo'lsa, $a-\frac{3}{a}$ nimaga teng?
A) ±5 B) ±4 C) 3 D) –3

34. (v11-139-5) $2a+\frac{3}{a}=6$ bo'lsa, $4a^2+\frac{9}{a^2}=?$
A) 24 B) 36 C) 48 D) 64

35. (v11-146-13) Agar $a+a^{-1}=b$ bo'lsa a^3+a^{-3} ni toping.
A) $b(b^2-3)$ B) b^2+3
C) b^2-3 D) $b(b^2+3)$

36. (v12z-102-8) $\frac{1}{2^2-1}+\frac{1}{4^2-1}+\frac{1}{6^2-1}+\ldots+\frac{1}{100^2-1}$ ifodaning qiymati quyidagilardan qaysi biriga teng?
A) $\frac{99}{100}$ B) $\frac{50}{101}$ C) $\frac{100}{101}$ D) $\frac{99}{200}$

37. (v12z-102-24) Soddalashtiring: $(a^2+b^2)^3-(a^3+b^3)^2-(a^2b-ab^2)^2$.
A) $2a^4b^2+2a^2b^4$ B) $4a^2b^2$
C) 0 D) $2a^4b^2-2a^2b^4$

38. (v12z-117-13) Hisoblang:
$\frac{73^2-27^2}{73^2+2\cdot73\cdot27+27^2}$.
A) 0,4 B) 0,46 C) 4,6 D) 0,6

39. (v12z-131-11) Ifodaning qiymatini toping:
$\frac{23{,}64^3-12{,}64^3}{23{,}64^2+23{,}64\cdot12{,}64+12{,}64^2}$.
A) 11 B) 12 C) 11,5 D) 10

40. (v12c-149-33) Agar $2a+\frac{2}{a}=8$ bo'lsa, $\frac{a^6+1}{a^3}$ ning qiymatini toping.
A) 52 B) 18 C) 48 D) 24

41. (v12c-157-20) Agar $a+a^{-1}=7$ bo'lsa, a^3+a^{-3} ni hisoblang.
A) 322 B) 398 C) 364 D) 343

42. (v13-138-34) $\frac{2{,}5^2-3{,}2^2}{\frac{1}{\frac{1}{3}-\frac{3}{19}}}-\frac{1{,}31^2+2{,}62\cdot2{,}69+2{,}69^2}{((13-9):2)^2}$ ni hisoblang.
A) –4 B) –4,7 C) 4,7 D) 3,3

43. (v13-148-10) Agar $a=b+c$ bo'lsa, $a^3-a^2c-abc-b^2c-b^3$ ifodaning qiymatini toping.
A) –1 B) 0 C) 2 D) 1

44. (v13-151-28) Agar $a^2+b^2=1$ bo'lsa, $a^6+3a^2b^2+b^6$ ni toping.
A) 2 B) ab C) a + b D) 1

45. (v14-112-21) $\frac{0{,}25\cdot4{,}5^2-2{,}75^2}{\sqrt{1{,}5^2-3\cdot0{,}25+0{,}25^2}}$ ni hisoblang.
A) 2 B) 4 C) 5 D) –2

46. (v15-107-26) $a+\frac{1}{a}=2{,}5$ bo'lsa, $\frac{a^4-a^2}{3a}$ ning qiymatini toping.
A) 1,5 va 2,5 B) 0,125
C) 2 va –0,125 D) 1,5

47. (v15-109-7) $(9^2-1^2)(8^2-2^2)(7^2-3^2)\cdot\ldots\cdot(1^2-9^2)$ ko'paytmani hisoblang.
A) 480000 B) 10000
C) 86420000 D) 0

48. (v15-110-12) Agar $a-\frac{15}{a}=\frac{1}{4}$ bo'lsa, $\frac{a^2}{9}+\frac{25}{a^2}$ ni toping.
A) $3\frac{45}{144}$ B) $3\frac{45}{150}$
C) $3\frac{49}{150}$ D) $3\frac{49}{144}$

49. (v15-112-13) Agar $\frac{a}{2}+\frac{6}{a}=4$ bo'lsa, $(4^{-1}a)^2+(3a^{-1})^2$ ni toping.
A) 3 B) 2,5 C) 2 D) 3,5

50. (v15-121-20) $a+\frac{1}{a}=2{,}5$ bo'lsa, $a^5+a^{-5}-\frac{1}{32}+3$ ning qiymatini toping.
A) 35 B) 32 C) 33 D) 34

51. (v16-109-3) Agar $\frac{1}{2a}+\frac{a}{1{,}5}=\frac{4}{3}$ bo'lsa, $\frac{0{,}5^3}{a^2}+\frac{a^2}{4{,}5}$ ni toping.
A) $\frac{8}{9}$ B) $\frac{5}{9}$ C) $\frac{7}{9}$ D) $\frac{4}{9}$

52. (v17-113-4) Agar $a=12{,}7$ va $b=-2{,}7$ bo'lsa, $a^3+a^2b-ab^2-b^3$ ni hisoblang.
A) 1560 B) 1540 C) 154 D) 1440

53. (v17-124-2) $t^2+t-1=0$ bo'lsa, $\left(t-\frac{1}{t}\right)^2$ ning qiymatini toping.
A) 2 B) 1 C) –2 D) –1

54. (v17-129-3) $\left(\left(a^2+b^2+ab\right)\cdot\left(b-\frac{b^2}{a+b}\right)\right):\frac{a^3-b^3}{a^2-b^2}$ ifodaning $a=15$, $b=17$ dagi qiymatini toping.
A) 32 B) 2 C) 255 D) 225

55. (v19/20-124-21) Agar $x=\frac{4}{3}$ bo'lsa, $(x-2)^3+3\cdot(x-2)^2+3\cdot(x-2)+1$ ifodaning qiymatini toping.
A) $-\frac{1}{27}$ B) $\frac{8}{27}$ C) $-\frac{4}{27}$ D) $\frac{1}{27}$

56. (v20/21-103-23) Agar $x+y=a$ va $x^2+y^2=a^2$ bo'lsa, $x^{10}+y^{10}$ ni toping.
A) a^7 B) a^3
C) a^{10} D) a^5

57. (v20/21-104-25) Agar $a-\frac{3}{a}=b$ va $b-\frac{5}{b}=a$ bo'lsa, $(a-b)^2$ ni toping.
A) 2 B) 8
C) 15 D) 1

58. (v20/21-108-9) Ifodani soddalashtiring:
$\frac{256m^4-1}{256m^4-128m^3+32m^2-8m+1}$.
A) $\frac{4m-1}{4m+1}$ B) $\frac{4m+1}{4m-1}$
C) $\frac{16m+1}{16m-1}$ D) $\frac{16m-1}{16m+1}$

59. (v20/21-108-16) $889^3+3000\cdot889\cdot111+111^3+889+111$ ni hisoblang.
A) 10001000 B) 1001000
C) 1001001000 D) 1000001000

60. (v20/21-119-6) Hisoblang: 999^2.
A) 997001 B) 999001
C) 997991 D) 998001

61. (v20/21-119-12) Hisoblang:
$\frac{15^3-11^3}{4}:511-1$.
A) 10 B) 0 C) 5 D) 1

62. (v20/21-120-4) Hisoblang:
$(869+858)^2-4\cdot869\cdot858$.
A) 121 B) 100
C) 81 D) 25

63. (v20/21-124-13) Agar $x+\frac{1}{x}=3$ bo'lsa, $x^3+\frac{1}{x^3}$ ni toping.
A) 18 B) 21
C) 24 D) 20

64. (v20/21-127-21) Ushbu
$\left(1+\frac{2}{3}\right)\cdot\left(1+\frac{2}{4}\right)\cdot\left(1+\frac{2}{5}\right)\cdot\ldots\cdot\left(1+\frac{2}{98}\right)$
ifodaning qiymatini toping.
A) 825 B) 1
C) 625 D) 980

65. (v20/21-129-23) Hisoblang:
$\left(1-\frac{4}{1}\right)\left(1-\frac{4}{9}\right)\left(1-\frac{4}{25}\right)\left(1-\frac{4}{49}\right)\ldots\left(1-\frac{4}{199^2}\right)$.
A) $-\frac{201}{199}$ B) $\frac{201}{199}$
C) 1 D) 0

66. (v20/21-131-7) $a=11{,}6$; $b=-1{,}6$ bo'lsa $a^3+a^2b-ab^2-b^3$ ifodaning qiymatini toping.
A) 13,2·132 B) 1320
C) 132 D) 13200

67. (v20/21-132-29) Hisoblang: $\frac{18^2-19^2}{56^2-19^2}$.

A) 0,75 B) $-\frac{1}{75}$ C) $\frac{1}{75}$ D) $-\frac{5}{73}$

68. (v20/21-143-10) Hisoblang: $6{,}4^3-12\cdot6{,}4\cdot2{,}4-2{,}4^3$.

A) 8 B) 27 C) 64 D) 25,6

69. (v21-105-20) $x(x-2a)+a^2$ ifodaning $x=a+2$ dagi qiymatini toping.

A) 4 B) 0 C) 1 D) 2

70. (v21-110-21) $3\cdot(2^2+1)\cdot(2^4+1)\cdot(2^8+1)\cdot(2^{16}+1)\cdot(2^{32}+1)\cdot(2^{64}+1)-2^{128}$ soddalashtiring.

A) 0 B) –1
C) $2^{128}-1$ D) -2^{128}

71. (v21-122-14) Hisoblang: $\frac{1{,}7^2-0{,}8^2}{0{,}18-1{,}5\cdot0{,}18}$.

A) 20,5 B) 22,5 C) 20 D) 25

72. (v21-128-18) $x(x-2a)+a^2$ ifodaning $x=a-2$ dagi qiymatini toping.

A) 4 B) 0 C) 1 D) 2

19. Ko'phadlarni ko'paytuvchilarga ajratish

1. (96-4-18) $(a^2+16)^2-64a^2$ ni ko'paytuvchilarga ajrating.

A) $(a^2-8)-(a^2+4)$ B) $(a-2)^2\cdot(a+2)^2$
C) $(a-4)^2\cdot(a+4)^2$ D) $a^2\cdot(a^2-60)$
E) $(a-8)^2\cdot(a+8)^2$

2. (97-4-19) b^7x-bx^7 ni ko'pi bilan nechta ko'paytuvchiga ajratish mumkin?

A) 8 ta B) 7 ta C) 4 ta D) 9 ta
E) 6 ta

3. (97-5-16) x^4+x^2+1 ni ko'paytuvchilarga ajrating.

A) $(x^2+x+1)(x^3+x-1)$
B) $(x^2+x+1)(x^2-x+1$
C) $(x^2+x+1)(x^2-x-1)$
D) $(x^2+x+1)(-x^3+x-1)$
E) ko'paytuvchilarga ajratib bo'lmaydi

4. (97-7-18) $(a^2+4)^2-16a^2$ ni ko'paytuvchilarga ajrating.

A) $(a^2+2)(a^2-2)$ B) $(a+2)^2(a-2)^2$
C) $a^2(4+a^2)$ D) $(a^2-2)(a+2)^2$
E) $(a-4)^2(a+4)^2$

5. (97-10-18) $(x^2+9)^2-36x^2$ ni ko'paytuvchilarga ajrating.

A) $(x^2-5)(x^2+4)$ B) $(x-3)^2(x+3)^2$
C) $(x-6)^2(x+6)^2$ D) $x^2(x^2-6)$
E) $(x^3-3)(x+3)^2$

6. (98-2-9) $p^2-16pq+64q^2-12$ ning eng kichik qiymatini toping.

A) –10 B) –12 C) –11 D) –13
E) –8

7. (99-9-9) $x^{12}-1$ ni ko'paytuvchilarga ajratganda, nechta ratsional ko'paytuvchidan iborat bo'ladi?

A) 4 B) 5 C) 6 D) 8 E) 7

8. (00-1-16) $(x^4+x^2+1)(x^4+x^2+2)-12$ ifoda nechta ratsional koeffitsiyentli ko'paytuvchilarga ajraladi?

A) 4 B) 2 C) 3 D) 5
E) 6

9. (00-6-9) $b^2+ab-2a^2-b+a$ ni ko'paytuvchilarga ajrating.

A) $(a-b)(2a-b)$
B) $(a+b)(2a-b-1)$
C) $(a-b)(2a-b-1)$
D) $(b-2a)(a-b+1)$
E) $(b-a)(2a+b-1)$

10. (00-8-37) $3x^2-6xm-9m^2$ ni ko'paytuvchilarga ajrating.

A) $3(x+m)(x-3m)$ B) $(x-3m)^2$
C) $3(x-m)(x+3m)$ D) $(3x-m)^2$
E) $3(x-m)(x-3m)$

11. (00-10-77) $(x-y)^3-(z-y)^3+(z-x)^3$ ko'phadni ko'paytuvchilarga ajrating.

A) $3(x-y)(y-x)(x-z)$
B) $-3(x-y)(z-y)(x-z)$
C) $3(y-x)(y-z)(z-x)$
D) $-3(x-y)(z-y)(z-x)$
E) ko'paytuvchilarga ajralmaydi

12. (02-10-18) a^4+4b^4 ni ratsional ko'paytuvchilarga ajrating.

A) $(a^2-2ab+2b^2)(a^2+2ab+2b^2)$
B) $(a^2-2b^2)^2$
C) $(a^2+2b^2)^2$
D) $(a^2-2b^2)(a^2+2b^2)$
E) $(a^2+b^2)(a^2-4b^2)$

13. (03-5-14) $x^3-3x^2-4x+12$ ko'phad quyidagilarning qaysi biriga bo'linmaydi?

A) $x+3$ B) $x-3$
C) $x+2$ D) $x-2$
E) x^2-x-6

14. (03-8-35) $(a+b+c)(ab+bc+ac)-abc$ ni ko'paytma shaklida yozing.

A) $(a+b)(b+c)(a+c)$ B) $a^2+b^2+c^2$
C) $(a+b)(b+c)(a-c)$ D) $a^2+b^2+c^2$
E) 0

15. (v4-101-33) $(3z-x)^3+(x-2y)^3-(3z-2y)^3$ ko'phadni ko'paytiruvchilarga ajrating.

A) $3(3z-x)(x-2y)(3z-2y)$
B) To'g'ri javob keltirilmagan.
C) $-3(3z-2y)(3z-x)(x-2y)$
D) Ko'paytuvchilarga ajralmaydi.
E) $-6(3z-2y)(3z-x)(x-2y)$

16. (v6-11-3) $16-(8a-3)^2$ ni ko'paytuvchilarga ajrating.

A) $(8a-1)(7+8a)$ B) $(8a+1)(8a-7)$
C) $(8a-1)(7-8a)$ D) $(8a+1)(7-8a)$

17. (v6-15-4) $2a^2b+3a-4ab^2-6b$ ko'phadni ko'paytuvchilarga ajrating.

A) $(a-2b)(2ab+3)$
B) $(2ab-3)(a-5b)$
C) $(2a^2+b)(b-5a)$
D) $(3+2ab)(a-5b)$

18. (v7-106-15) $(a+b)(a+b+1)-(a-b)(a-b-1)$ ni ko'paytuvchilarga ajrating.

A) $4a(b+1)$ B) $2(a+b)(b+1)$
C) $2a(2b+1)$ D) $2a(b-1)$

19. (v7-107-28) $a^3-9a^2+27a-19$ ni ko'paytuvchilarga ajrating.

A) $(a+1)(a^2+8a-19)$
B) $(a-1)(a^2-8a+19)$
C) $(a-1)(a^2+8a-19)$
D) $(a+1)(a^2+8a+19)$

20. (v7-111-17) $\frac{x^4+1}{x^2-x\sqrt{2}+1}$ ni qisqartiring.

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

21. (v7-118-15) $(a+b)(a-b+1)+(a-b)(a+b-1)-2b$ ni soddalashtiring.

A) $2a-2b$ B) $2b$
C) $2a^2-ab^2$ D) $2a$

22. (v9-5-22) $(a+b-2)(a+b)-(a-b)^2+1$ ni ko'paytuvchilarga ajrating.

A) $2b(a+1)$ B) $(a+1)(2b-1)$
C) $(2a-1)(2b-1)$ D) $(2a+1)(2b+1)$

23. (v9-15-4) $25-(2e-1)^2$ ko'paytiruvchilarga ajrating.

A) $(4+2e)(6-2e)$
B) $(2e-4)(2e-6)$
C) $(4-2e)(6+2e)$
D) $(4-2e)(6-2e)$

24. (v12z-111-30) a^3-4a-a^2+4 ifoda quyidagilardan qaysi biriga qoldiqsiz bo'linadi?

A) $a+2$ B) $a+1$
C) a^2+2a D) a^2-1

25. (v12z-112-10) $x^2(y-z)+y^2(z-x)+z^2(x-y)$ ni ko'paytuvchiga ajrating.

A) $(z-y)(y+x)(x+z)$
B) $(z+y)(y+x)(x+z)$
C) $(z+y)(y-x)(x-z)$
D) $(z-y)(y-x)(x-z)$

26. (v12z-119-29) Kasrni qisqartiring: $\frac{ax-bx+ay-by}{ax+bx+ay+by}$.

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

27. (v13-126-15) $(x-4)^2-25$ ni ko'paytuvchilarga ajrating.

A) $(x-9)(x+1)$ B) $(x-5)(x+4)$
C) $(x+5)(x-4)$ D) $(x+9)(x-1)$

28. (v13-147-13) $a^4+2a^2b^2+b^4-4a^2b^2$ ni ko'paytuvchilarga ajrating.

A) $-2a^2b^2(a^2-b^4)$
B) $(a-b)^2(a+b)^2$
C) $(a^2-2b)(a^2+2b)$
D) $(a^2-b^2)(a^2-b^2)$

29. (v13-156-3) $(a^2+a+1)(a^2-a-1)-a^4$ ifodani ko'paytuvchilarga ajrating.

A) $(a+1)^2$
B) $(a-1)(a+1)(a^2+1)(a^4+1)$
C) $(a-1)(a+1)$
D) $-(a+1)^2$

30. (v13-171-16) $x(y^2-z^2)+y(z^2-x^2)+z(x^2-y^2)$ ni ko'paytuvchilarga ajrating.

A) $(x-1)(y-2)(z-3)(xyz-5)$
B) $(y-x-z)(x+y+z)(xy-z)$
C) $(x-y)(y-z)(z-x)$
D) $(2x-y)(3z-2x)$

31. (v14-111-17) $(1+a+a^2)(a^2-a-1)-a^4$ ifodani ko'paytuvchilarga ajrating.

A) $(a-1)(a+1)(a^2+1)(a^4+1)$
B) $(a+1)^2$
C) $(a-1)(a+1)$
D) $-(a+1)^2$

32. (v16-126-18) $x^3-(\sqrt{6}+1)x^2+6$ ko'phadni ko'paytuvchilarga ajrating.

A) $(x+\sqrt{6})(x^2+x+\sqrt{6})$
B) $(x-\sqrt{6})(x^2+x-\sqrt{6})$
C) $(x-\sqrt{6})(x^2-x-\sqrt{6})$
D) $(x+\sqrt{6})(x^2-x+\sqrt{6})$

33. (v17-110-21) $a^6 - 6a^3 - a^2 - 2ay - y^2 + 9$ ni ko'paytuvchilarga ajrating.
A) $(a^3 + a + y + 3)(a^3 + a + y - 3)$
B) $(a^3 + a + y - 3)(a^3 - a - y - 3)$
C) $(a^3 + a - y - 3)(a^3 + a + y + 3)$
D) $(a^3 - a + y - 3)(a^3 - a - y + 3)$

34. (v17-111-24) Ko'phadni ko'paytuvchilarga ajrating: $f(x) = x^6 + 26x^3 - 27$.
A) $(x + 3)\cdot(x - 1)\cdot(x^2 - 3x + 9)\cdot(x^2 + x + 1)$
B) $(x - 3)\cdot(x + 1)\cdot(x^2 + 3x + 9)\cdot(x^2 - x + 1)$
C) $(x + 1)\cdot(x + 3)\cdot(x^2 - x + 1)\cdot(x^2 - 3x + 9)$
D) $(x - 1)\cdot(x - 3)\cdot(x^2 + x + 1)\cdot(x^2 + 3x + 9)$

35. (v19/20-107-1) Agar $xy^2 - 2y + 2y^2 - xy$ ifodani ko'paytuvchilarga ajratish mumkin bo'lsa, eng ko'pi bilan nechta ko'paytuvchilarga ajratish mumkin.
A) 2 B) 4 C) 5 D) 3

36. (v19/20-123-20) $a^4 + 4b^4$ ifodani ko'paytuvchilarga ajrating.
A) $(a^2 - 4ab + b^2)(a^2 + 4ab + b^2)$
B) $(a^2 - 2ab + 2b^2)(a^2 + 2ab + b^2)$
C) $(a^2 + 2b^2)(a^2 - 2b^2)$
D) $(a^2 - 2ab + 2b^2)(a^2 + 2ab + 2b^2)$

37. (v19/20-126-6) $a^2 - b^2 + a + 7b - 12$ ko'phadning ko'paytuvchilaridan birini toping.
A) $a - b + 3$ B) $a + b + 4$
C) $a - b + 4$ D) $a + b + 3$

38. (v20/21-102-28) Agar $x + y = m$ va $xy = n$ bo'lsa, $x^5y^2 + x^2y^5$ ni m va n orqali ifodalang.
A) $mn^2(m^2 - 3n)$
B) $mn(m^2 - 3n)$
C) $mn^2(m^2 - 3n^2)$
D) $m^2n(m^2 - 3n)$

39. (v20/21-107-2) Hisoblang:

$$\frac{6\left(\frac{7}{12}\right)^3 + 11\left(\frac{7}{12}\right)^2 + 6\left(\frac{7}{12}\right) + 1}{6\left(\frac{7}{12}\right)^3 + 7\left(\frac{7}{12}\right)^2 - 1}.$$

A) 1 B) $\frac{5}{12}$
C) $\frac{7}{9}$ D) $\frac{11}{3}$

40. (v20/21-108-11) Soddalashtiring:

$$\frac{x^3 + 2x^2 + x}{(x+1)^2}.$$

A) x B) $x + 1$ C) $x + 2$ D) $2x$

41. (v20/21-108-14) $a = 7 - \sqrt{3}$ va $b = 7 + \sqrt{3}$ bo'lsa, $\frac{a^3 - b^3}{a^2 - b^2} : \frac{a^2 + ab + b^2}{a^3 + 3a^2b + 3ab^2 + b^3}$ ning qiymatini toping.
A) 192 B) 198
C) 196 D) 194

42. (v20/21-108-23) Agar $-3 < m < 5$ va $5 < p < 11$ bo'lsa, $\frac{(n+m)^2 - (n-p)^2}{(n+m-1)^2 - (n-p+1)^2}$ ifodaning qabul qilishi mumkin bo'lgan eng kichik butun qiymatini toping.
A) 1
B) 2
C) Bunday qiymat yo'q
D) -1

43. (v20/21-121-21) Ushbu $x^2(x + 2)^2 - 11x^2 - 22x + 24$ ko'phadni ko'paytuvchilarga ajrating.
A) $(x - 4)(x - 3)(x - 1)(x - 2)$
B) $(x - 4)(x - 1)(x + 2)(x + 3)$
C) $(x - 3)(x - 1)(x + 2)(x + 4)$
D) $(x - 2)(x - 1)(x + 3)(x + 4)$

44. (v20/21-128-4) Ushbu $x^5 + x^4 - 2x^3 + 3$ ko'phadni ko'paytuvchilarga ajrating.
A) $(x^2 + x - 1)(x^3 + 3x - 3)$
B) $(x^2 + x + 1)(x^3 - 3x + 3)$
C) $(x^2 - x - 1)(x^3 + 3x - 3)$
D) $(x^2 + x - 1)(x^3 + 3x + 3)$

45. (v20/21-128-18) Agar $a - 2b - c = 0$ bo'lsa, $a^2 - 2ab - 2bc - c^2$ ifodaning qiymatini toping.
A) $-a$ B) b C) 0 D) c

46. (v20/21-128-19) $a^2 + 2b^2 + 2c^2 + 3ab + 3ac + 5bc$ ko'phadni ko'paytuvchilarga ajrating.
A) $(a + b + c)(a + 2b + 2c)$
B) $(a + b + 2c)(a + b + c)$
C) $(a + b + 3c)(a + 2b + c)$
D) $(a + b + 2c)(a + 2b + c)$

47. (v21-107-17) $P(x) = 2x^4 - x^3 + 3x^2 - x + 4$ ko'phadni $Q(x) = x^2 - 2x - 1$ ga bo'lgandagi qoldiqni toping.
A) $10x + 3$ B) $10x - 3$
C) $10x - 7$ D) $10x - 4$

48. (v21-110-18) $x^3 + 3x^2 + 3x + 2$ ko'paytiruvchilarga ajrating.
A) $(x + 2)(x^2 + x + 1)$ B) $(x + 2)(x^2 + x - 1)$
C) $(x + 2)(x^2 - x + 1)$ D) $(x + 2)(x^2 - x - 1)$

49. (v21-123-19)

$$\frac{x^2 - 2x + 1}{x - 3} \cdot \left(\frac{(x+2)^2 - x^2}{4x^2 - 4} - \frac{3}{x^2 - x} \right)$$

ifodaning $x = -0{,}01$ dagi qiymatini toping.
A) 101 B) 102 C) 104 D) 103

50. (v21-127-20) Ko'paytiruvchilarga ajrating: $x^4 + x^3 - 11x^2 + x - 12$.
A) $(x + 1)(x^3 - x + 12)$
B) $(x - 2)(x^3 - x + 12)$
C) $(x + 1)(x^3 + x + 12)$
D) $(x + 1)(x^3 - x - 12)$

20. Algebraik kusrlar ustida amallar

1. (96-5-15) $\frac{1 - x^{-1} + x^{-2}}{1 - x + x^2}$ ni soddalashtiring.

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

2. (98-11-9) $\frac{x^6 - x^4}{x^3 + x^2}$ ni qisqartiring.

A) $x^3 - x^2 + 1$ B) $x^3 + x^2 + 1$
C) $x^3 - x^2$ D) $x^3 + x^2$
E) $x^3 + 1$

3. (00-3-16) $\left(\frac{a^2 - 4}{a^2 + 4}\right)^2 + \left(\frac{4a}{a^2 + 4}\right)^2$ ni soddalashtiring.

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

4. (01-6-9) Agar $a = 7 + \sqrt{3}$ va $b = 7 - \sqrt{3}$ bo'lsa, $\frac{a^3 - b^3}{a^2 - b^2} : \frac{a^2 + ab + b^2}{a^3 + 3a^2b + 3ab^2 + b^3}$ ning qiymatini hisoblang.
A) 192 B) 198 C) 196 D) 194
E) 190

5. (02-1-9) $\frac{m^4 - 16}{m^4 - 4m^3 + 8m^2 - 16m + 16}$ kasrni qisqartiring.
A) $(m + 2)\cdot(m - 2)^{-1}$ B) $(m - 2)\cdot(m + 2)^{-1}$
C) $(m + 2)\cdot(m - 3)^{-1}$ D) $(m - 3)\cdot(m + 2)^{-1}$
E) $(m - 2)\cdot(m - 3)^{-1}$

6. (02-3-15) $a^2b^2\left(\frac{1}{(a+b)^2} \cdot \left(\frac{1}{a^2} + \frac{1}{b^2}\right) + \frac{2}{(a+b)^3} \cdot \left(\frac{1}{a} + \frac{1}{b}\right)\right)$ ni soddalashtiring.

A) 1 B) $\frac{1}{a+b}$ C) 2 D) $\frac{2}{a+b}$
E) $\frac{1}{(a+b)^2}$

7. (03-4-10) $\left(\frac{a+x}{a} - \frac{x-y}{x}\right) \cdot \frac{a^2}{x^2 + ay} : \frac{a}{8x}$ ni soddalashtiring.
A) 10 B) 6 C) 7 D) 8
E) 9

8. (03-8-14) $\frac{x^2 - 2x\sqrt{3} - \sqrt[3]{4} + 3}{x - \sqrt{3}}$ ifodaning $x = \sqrt{3} - \sqrt[3]{2}$ bo'lgandagi qiymatini toping.
A) $\sqrt{3}$ B) $\sqrt[3]{2}$
C) 1 D) 0
E) $\frac{\sqrt{3}}{2}$

9. (03-11-71) $\frac{5a}{3(4-a)} + \frac{a+4}{8-3a} \cdot \left(\frac{a-1}{a+4} - \frac{a-3}{a-4}\right)$ ifodaning $a = -0{,}2$ bo'lgandagi qiymatini hisoblang.
A) $-\frac{7}{9}$ B) 0 C) $-\frac{5}{9}$ D) $\frac{2}{3}$
E) $-\frac{1}{18}$

10. (v6-14-3) $\frac{y^2 - x^2}{2xy} : \frac{x+y}{2x}$ ni soddalashtiring.
A) $\frac{x-y}{y(1+y)}$ B) $\frac{x-y}{y}$
C) $\frac{1}{y}$ D) $1 - \frac{x}{y}$

11. (v13-165-3) $\frac{x^2 + ax - 3x - 3a}{x^2 - ax - 3x + 3a} \cdot \frac{x^2 + 4x - ax - 4a}{x^2 + 4x + ax + 4a}$ ni hisoblang.

A) $\frac{a-x}{a+x}$ B) 0 C) 1 D) -1

12. (v13-169-1) Agar $a > 1$ va $\frac{20a}{a+1} = \sqrt{2}$ bo'lsa, $\frac{14a}{a^2-1}$ ni toping.

A) $\frac{\sqrt{2}}{2}$ B) 14 C) 2 D) 1

13. (v14-103-7) $\frac{x^{33}-1}{x^{11}+x^{22}+x^{33}}$ ni qisqartiring.

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

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

14. (v15-119-11) Kasr qisqarishi mumkin bo'lgan m ning eng katta va eng kichik qiymatlari farqini toping: $\frac{x^3-x^2-4x+4}{x^2+mx+6}$.

A) 12 B) 7 C) 17 D) 15

15. (v17-125-4) $m = 97$, $n = 41$ bo'lsa, $\left(\frac{m^2}{n^2}+\frac{n}{m}\right):\left(\frac{m}{n^2}-\frac{1}{n}+\frac{1}{m}\right)$ ifoda qiymatini toping.

A) 136 B) 138 C) 46 D) 41

16. (v17-125-27) Soddalashtiring: $n-\frac{2}{3n+1}-\frac{3n^2-0,5n-2,5}{3n+1}$.

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

17. (v19/20-101-11) Agar $|a| \neq |b| \neq |c|$ va $\frac{a}{b+c}+\frac{b}{c+a}+\frac{c}{a+b} = -2$ bo'lsa, $\left(\frac{a^2}{b+c}+\frac{b^2}{c+a}+\frac{c^2}{a+b}\right):(a+b+c)$ ning qiymatini toping.

A) 2 B) –3 C) –1 D) 0

18. (v19/20-105-11) $\frac{x^2y^2+2xy-3}{x^2y^2-1}$ karsni qisqartiring.

A) $\frac{xy+3}{xy+1}$ B) $\frac{xy+3}{xy-1}$

C) $\frac{xy-3}{xy+1}$ D) $\frac{xy-3}{xy-1}$

19. (v19/20-107-13) Ifodani qiymatini $a = 22$ bo'lganda hisoblang: $\left(\frac{1}{a+3}-\frac{6}{9-a^2}\right):\left(\frac{a^2-6a-27}{(a^2-9)(a-3)^2}+\frac{12}{a^3-9a^2+27a-27}\right)$.

A) 14,4 B) –14,4
C) 14,44 D) –14,44

20. (v19/20-109-6) Agar $|a| \neq |b| \neq |c|$ va $\frac{a}{b+c}+\frac{b}{c+a}+\frac{c}{a+b} = -1$ bo'lsa, $\left(\frac{a^2}{b+c}+\frac{b^2}{c+a}+\frac{c^2}{a+b}\right):(a+b+c)$ ning qiymatini toping.

A) –2 B) 0 C) 1 D) 2

21. (v19/20-109-17) a va b o'zaro tub sonlar. $\frac{a}{b}=\frac{15}{20}$ bo'lsa, $\frac{3a+1}{2b+2}$ ni hisoblang.

A) 5 B) 1 C) $\frac{1}{2}$ D) $\frac{1}{3}$

22. (v19/20-114-8) Ushbu $(a^2-b^2-c^2+2bc):\frac{a+b-c}{a+b+c}$ ifodaning $a = 3$, $b = \sqrt{3}$, $c = -1$ dagi qiymatini toping.

A) 2 B) 3 C) 9 D) 1

23. (v20/21-101-6) Agar $\frac{2x-3y}{3x-2y} = 5$ bo'lsa, $\frac{3x^2+y^2}{xy}$ ni toping.

A) $\frac{316}{91}$ B) $\frac{34}{91}$ C) $\frac{316}{7}$ D) $\frac{34}{7}$

24. (v20/21-120-3) Hisoblang: $\frac{x^4+x^3+x^2+x}{x^2+x}$, bunda $x = 7$.

A) 25 B) 36 C) 48 D) 50

25. (v20/21-126-1) Agar $\frac{2a-3b+5c}{3a+5b-10c} = -\frac{1}{2}$ bo'lsa, $\frac{b+c}{a-c}$ ni toping.

A) 1 B) 7
C) Aniqlab bo'maydi D) –7

26. (v20/21-135-16) Agar $\frac{x}{y}=\frac{2}{3}$ bo'lsa, $\frac{6x-3y}{3x+2y}$ ni hisoblang.

A) 0,25 B) 1 C) 3 D) 4

27. (v21-107-11) $\frac{x^2\cdot y\cdot x\cdot y^2+12\cdot x\cdot x\cdot y}{12\cdot x^2\cdot y}$ ifodaning $x = 6$, $y = 2$ dagi qiymatini toping.

A) 6 B) 3 C) 2 D) 4

28. (v21-111-18) Agar $\frac{x}{y}=\frac{3}{4}$ bo'lsa, $\frac{8x-4y}{4x+3y}$ ifodaning qiymatini toping.

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

29. (v21-115-2) $x = -1,5$ dagi $\frac{2x^2+5x+2}{8-2x^2}$ ifodaning qiymatini toping.

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

30. (v21-116-15) $\frac{12-5n}{n}$ ifoda natural son bo'lsa, barcha natural n larni yig'indisini toping.

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

31. (v21-130-6) $x=\frac{5}{3}$ va $y=\frac{2}{3}$ dagi $\frac{9x^3-9x^2+2x}{1-3x+y-3xy}$ ifodaning qiymatini toping.

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

21. Ifodalarni soddalashtirish

1. (96-4-19) $\left(\frac{5m}{m+3}-\frac{14m}{m^2+6m+9}\right):\frac{5m+1}{m^2-9}+\frac{3\cdot(m-3)}{m+3}$ ni soddalashtiring.

A) $\frac{3}{m+3}$ B) 3 C) m – 3 D) 1
E) $\frac{m-3}{m+3}$

2. (98-2-29) $\frac{x^{-3}+8}{x^{-2}-2x^{-1}+4}$ ning $x = 0,5$ dagi qiymatini hisoblang.

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

3. (98-8-21) $\frac{x}{1-x}-\frac{1-x^2}{1+x^2}\cdot\left(\frac{1}{(x-1)^2}-\frac{x}{1-x^2}\right)$ ni soddalashtiring.

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

4. (98-12-26) $\frac{x^2-x+1}{x^4+x^2+1}$ ni qisqartiring.

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

5. (01-5-6) $\frac{x}{x^2+y^2}-\frac{y(x-y)^2}{x^4-y^4}$ ni soddalashtiring.

A) $\frac{1}{x+y}$ B) $\frac{1}{x-y}$
C) x + y D) x – y
E) 2xy

6. (01-11-6) $\frac{a^3+b^3}{a^2-ab+b^2}(a-b)\cdot\frac{a^3-b^3}{a^2+ab+b^2}(a+b)$ nin $a = \sqrt{8}$ va $b = \sqrt{2}$ bo'lgandagi qiymatini hisoblang.

A) 34 B) 36 C) 32 D) 38
E) 30

7. (02-9-14) $\left(\frac{2}{1-x^2}-\frac{2}{(x-1)^2}\right)\cdot(1-x)^2-\frac{4}{1+x}$ ni soddalashtiring.

A) 4 B) –4 C) 0 D) $\frac{1-x}{1+x}$
E) $-\frac{2}{1+x}$

8. (02-9-25) $\left(\frac{1}{a+\sqrt{2}}-\frac{a^2+2}{a^3+2\sqrt{2}}\right)^{-1}\cdot\left(\frac{a}{2}-\frac{1}{\sqrt{2}}+\frac{1}{a}\right)^{-1}\cdot\frac{\sqrt{2}}{a+\sqrt{2}}$ ni soddalashtiring.

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

E) $-a\sqrt{2}$

9. (02-10-41) $\frac{abc}{bc+ac-ab} - \left(\frac{a-1}{a}+\frac{b-1}{b}-\frac{c-1}{c}\right):\left(\frac{1}{a}+\frac{1}{b}-\frac{1}{c}\right)$ ni soddalashtiring.

A) 1 B) 0 C) $\frac{1}{a}$ D) $\frac{2}{b}$

E) $\frac{1}{c}$

10. (v4-108-17) $\frac{a^2+1}{a^2-1}+\frac{1}{a+1}:\left(\frac{1}{2-a}+\frac{2}{a^2-2a}\right)$ ni soddalashtiring.

A) $\frac{2a^2-a}{a^2-1}$ B) $\frac{a}{a+1}$

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

E) $\frac{1}{a-1}$

11. (v4-111-17) $\left(2a+\frac{2ab}{a-b}\right)\left(\frac{ab}{a+b}-a\right):\frac{18a^2}{a^2-b^2}$ ni soddalashtiring.

A) $\frac{2a^2}{9}$ B) $-\frac{a^2}{9}$ C) $\frac{4a^2}{9}$ D) $-\frac{4a^2}{9}$

E) $-\frac{2a^2}{9}$

12. (v4-118-17) $\left(\frac{1}{a(a+1)}+\frac{1}{(a+1)(a+2)}\right)\cdot\frac{a^2+2a}{12}$ ni soddalashtiring.

A) $\frac{3}{4}$ B) $\frac{5}{8}$ C) $\frac{1}{6}$ D) $\frac{1}{4}$

E) $\frac{2}{6}$

13. (v6-2-4) $\frac{1-x^{-1}+x^{-2}}{1-x+x^2}-x^{-2}$ ni soddalashtiring.

A) x^2 B) 0 C) $1-\frac{1}{x}$ D) $\frac{2}{x^2}$

14. (v6-7-4) $(x^{-1}+y^{-1})\cdot\frac{x^3y^3}{(x+y)^3}$ ni soddalashtiring.

A) $\frac{x^2y^2}{(x+y)^3}$ B) $\frac{x^2y^2}{(x+y)^2}$

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

15. (v6-10-4) $(x^2+1)(x^4-x^2+1)-(x^2-1)^2+x^5+x^3+x$ ni soddalashtirgandan keyin hosil bo'lgan ko'phadning nechta hadi bo'ladi?

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

16. (v6-13-4) $(y^4-y^2+1)(y^2+1)-(y-1)(y+2)+y^4+y^3$ ni soddalashtirgandan keyin hosil bo'lgan ko'phadning nechta hadi bo'ladi?

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

17. (v6-19-4) $\frac{x^3+2x^2+x}{(x+1)^2}-x$ ni soddalashtiring.

A) x + 1 B) 2x

C) 0 D) x – 2

18. (v7-102-2) $\frac{x^3+y^3}{x^2-xy+y^2}-\frac{x^3-y^3}{x^2+xy+y^2}$ ni soddalashtiring.

A) 2y B) 2x C) –2x D) –2y

19. (v7-106-2) $\frac{x^3-8}{x^2+2x+4}-\frac{x^3+8}{x^2-2x+4}$ ni soddalashtiring.

A) 4x B) –4 C) 0 D) –2x

20. (v7-106-5) $\left(b^2-\frac{4+b^4}{b^2+1}\right):\frac{-2+b}{1+b^2}$ ni soddalashtiring.

A) b + 2 B) 1 C) $\frac{1}{b+2}$ D) b – 2

21. (v7-109-5) $\left(m^2-\frac{2+m^4}{m^2-1}\right):\frac{m^2+2}{m-1}$ ni soddalashtiring.

A) $\frac{1}{m-1}$ B) m – 1

C) 1 D) $-\frac{1}{m+1}$

22. (v7-111-5) $\left(x-\frac{2+x^2}{x-1}\right):\frac{x^2+4x+4}{-x+1}$ ni soddalashtiring.

A) $\frac{1}{x+2}$ B) –1

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

23. (v7-113-15) $\frac{x^3-2x^2}{3x+3}:\frac{x^2-4}{3x^2+9x+6}$ ni soddalashtiring.

A) $\frac{x^2(x+1)}{x+2}$ B) x^2

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

24. (v7-115-17) Agar x = 2,5 va y = –1,5 bo'lsa, $x^3-x^2y-xy^2+y^3$ ni hisoblang.

A) 16 B) 10 C) 25 D) 8

25. (v7-118-27) Agar $x=\frac{(\sqrt{8}-5)}{2}$ bo'lsa, (x + 1)(x + 2)(x + 3)(x + 4) ning qiymatini hisoblang.

A) $-\frac{7}{16}$ B) $\frac{7}{16}$ C) –1 D) 1

26. (v7-122-15) $\frac{5x+6}{x^2-4}-\frac{x}{x^2-4}:\frac{x}{x-2}+1$ ifodani soddalashtiring.

A) –1 B) 1

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

27. (v9-12-31) $\left(\frac{4a}{4-a^2}-\frac{a-2}{4+2a}\right)\cdot\frac{2}{a+2}+\frac{a+1}{2-a}$ ni soddalashtiring.

A) $\frac{2+a}{2-a}$ B) –1 C) $\frac{3+a}{2-a}$ D) 1

28. (v9-27-17) $\frac{a^{-3}+b^{-3}}{a^2-ab+b^2}\cdot a^3b^3-\frac{a^2-b^2}{a-b}$ ni soddalashtiring.

A) (a + b)² B) 0 C) a – b D) ab

29. (v12z-106-18) Agar x = 71,8 va y = 69,8 bo'lsa, $x^3-y^3-5y^2-12y-9+x^2-2xy$ ni hisoblang.

A) 4 B) 3 C) 1 D) 21

30. (v12z-107-21) Kasrni qisqartiring: $\frac{x^n(x^2-y^2)^m}{y^{2n}(x-y)^m}$.

A) $\frac{x(x-y)}{y^2}$ B) $\frac{x(x+y)^m}{y^2}$

C) $\frac{x^n(x+y)^m}{y^{2n}}$ D) $\frac{x^n(x-y)^m}{y^{2n}}$

31. (v12z-129-29) Kasrni qisqartiring: $\frac{a^3c-2a^2c^2+ac^3-ab^2c}{(a^2+c^2-b^2)^2-4a^2c^2}$.

A) $\frac{ac}{(a+c)^2+b^2}$ B) $\frac{ac+b}{(a-c)^2-b^2}$

C) $\frac{ac(a+b-c)}{(a+c)^2+b^2}$ D) $\frac{ac}{(a+c)^2-b^2}$

32. (v12z-133-13) Kasrni qisqartiring: $\frac{(x+y)^2-(a+b)^2}{(x+a)^2-(y+b)^2}$.

A) $\frac{xy-ab}{ax-by}$ B) $\frac{x+y-a-b}{x-y+a-b}$

C) $\frac{x+y-a+b}{x+a-y+b}$ D) 1

33. (v12z-135-17) $\frac{x^2-2ax+a^2-b^2}{x^2+2bx+b^2-a^2}$ ni soddalashtiring.

A) $\frac{(x+a+b)}{(x-a+b)}$ B) $\frac{(x+a-b)}{(x+a+b)}$

C) $\frac{(x+a+b)}{(x-a-b)}$ D) $\frac{(x-a-b)}{(x+a+b)}$

34. (v12z-139-16) Soddalashtiring: $\frac{(x+y)^2-(y-z)^2}{x+2y-z}$.

A) x – z B) x + z

C) x – 2y + z D) x + 2y – z

35. (v13-110-26) $\left[\frac{x^3+y^3}{xy^3}:\left(\frac{x-y}{y^2}+\frac{1}{x}\right)\right]:\frac{x(x-y)^2+4x^2y}{x+y}$ ifodani soddalashtiring.

A) $\frac{1}{x}$ B) $\frac{1}{x+y}$

C) xy D) $\frac{1}{xy}$

36. (v13-121-31) $\frac{a-2}{a^2+2a}:\left(\frac{a}{a^2-2a}-\frac{a^2+4}{a^3-4a}-\right.$

$\left.-\frac{1}{a^2+2a}\right)$ ifodani soddalashtiring.

A) a B) a + 2 C) 2 D) a – 2

37. (v13-132-6) $\frac{a^3-2a^2+5a+26}{a^3-5a^2+17a-13}$ kasrni qisqartiring.

A) $\frac{a+2}{a-1}$ B) $\frac{a-2}{a+2}$

C) $\frac{1-a}{a+2}$ D) $\frac{a+2}{a-2}$

38. (v13-143-22) $\frac{x^3-x^2-4x+4}{x^2+mx+6}$ kasr qisqarishi mumkin bo'lgan m ning eng katta va eng kichik qiymatlari farqini toping.

A) 18 B) 12 C) 15 D) 17

39. (v13-145-21) $\frac{bc-a^2}{ab}-\frac{b^2-ac}{bc}+\frac{ab-c^2}{ac}$ ifodani kasrga aylantiring.

A) –1 B) abc

C) $\frac{a^2-b^2-c^2}{abc}$ D) 0

40. (v13-152-31) Agar $x=\frac{1+\sqrt{17}}{2}$ bo'lsa, $\frac{x^3-2x^2+7x-1}{x^2-x+1}$ kasrning qiymatini toping.

A) $\sqrt{17}-1$ B) $\sqrt{17}+3$

C) $\sqrt{17}+2$ D) $\sqrt{17}$

41. (v13-158-3) $(a+1)\cdot\left(\frac{1}{a+1}+\frac{4}{a^2-4a}-\right.$

$\left.-\frac{5}{a^2-3a-4}\right):\left(1-\frac{1}{a}\right)$ ifodani soddalashtiring.

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

42. (v13-160-10) $\frac{3x}{2y+3}+\frac{x^2+3x}{4xy-3-2y+6x}$ amallarni bajaring.

A) $\frac{7x^2}{(2x-1)(2y+3)}$ B) $\frac{x^2}{(2x-1)(2y+3)}$

C) $\frac{x^2}{2y+3}$ D) $\frac{3x^2}{(2x-1)(2y+3)}$

43. (v13-161-32) $\frac{a^2-5ab+6b^2}{a^2-2ab-8b^2}:$

$:\frac{a^2-2ab-3b^2}{a^2-3ab-4b^2}$ ifodani soddalashtiring.

A) 1 B) $\frac{a-2b}{a+3b}$

C) $\frac{a-3b}{a+2b}$ D) $\frac{a-2b}{a+2b}$

44. (v13-163-18) $\frac{x-12a}{x^2-16a^2}+\frac{4x}{4ax-x^2}$ amallarni bajaring.

A) $\frac{3x^2-28a}{x^2-16a^2}$ B) $\frac{-3x-28a}{x^2-16a^2}$

C) $\frac{x-4a}{x+4a}$ D) $\frac{3x^2+28ax}{x-16a}$

45. (v13-165-22) $(2x+1-\frac{1}{1-2x}):$

$:(2x-\frac{4x^2}{2x-1})$ ifodani soddalashtiring.

A) $2x^2$ B) 2x

C) x^2 D) –2x

46. (v13-167-15) $\left(\frac{b^2}{a^2}+\frac{a^2}{b^2}-2\right)\cdot$

$\cdot\left(\frac{a+b}{b-a}+\frac{b-a}{a+b}\right)\cdot\left(\frac{\frac{1}{a^2}+\frac{1}{b^2}}{\frac{1}{b^2}-\frac{1}{a^2}}-\frac{\frac{1}{b^2}-\frac{1}{a^2}}{\frac{1}{a^2}+\frac{1}{b^2}}\right)$

ifodani soddalashtiring.

A) 1 B) 2ab

C) –8 D) ab

47. (v13-172-4) $(p-q+\frac{4q^2-p^2}{p+q}):$

$:\left(\frac{p}{p^2-q^2}+\frac{2}{q-p}+\frac{1}{p+q}\right)$ ifodani soddalashtiring.

A) q^2-p B) p^2-pq

C) q^2-pq D) pq – 1

48. (v14-102-1) $\frac{(a-b)^2+ab}{(a+b)^2-ab}:$

$:\frac{a^5+b^5+a^2b^3+a^3b^2}{(a^3+b^3+ab^2+a^2b)}\cdot(a^3-b^3)$ ni soddalashtiring.

A) ab B) $\frac{1}{a-b}$

C) a + b D) a – b

49. (v14-109-10) $\frac{(x^2-y^2)^3-(z^2-y^2)^3+(z^2-x^2)^3}{(x-y)^3-(y-z)^3-(x-z)^3}$ ifodani soddalashtiring.

A) (x – y)(y + z)(x + z)

B) (y – x)(y + z)(x + z)

C) –(x – y)(y – z)(x – z)

D) (x – y)(y – z)(x – z)

50. (v15-111-12) Ifodani soddalashtiring:

$\frac{1}{1-x}+\frac{1}{1+x}+\frac{2}{1+x^2}+\frac{4}{1+x^4}+\frac{8}{1+x^8}+\frac{16}{1+x^{16}}$.

A) $\frac{16}{x^{32}-1}$ B) $\frac{32}{x^{32}-1}$

C) $\frac{32}{1-x^{32}}$ D) $\frac{16}{1-x^{32}}$

51. (v16-122-23) a = –b, c = 1 bo'lsa, $\frac{c(a-b)^3+a(b-c)^3+b(c-a)^3}{c^2(b-a)+a^2(c-b)+b^2(a-c)}$ ifodaning qiymatini toping.

A) –1 B) –2

C) 2 D) 1

52. (v16-129-26) x = –y, z = –2 bo'lsa, $\frac{x^3+y^3+z^3-3xyz}{x^2+y^2+z^2-xy-xz-yz}$ ifodaning qiymatini toping.

A) 1 B) 2 C) –2 D) 0

53. (v17-103-28) m = 16, n = $\frac{10}{176}$ bo'lsa, $\left(\frac{(m+n)^2+2n^2}{m^3-n^3}-\frac{1}{m-n}+\frac{m+n}{m^2+mn+n^2}\right)\cdot\left(\frac{1}{n}-\frac{1}{m}\right)$ ifodaning qiymatini toping.

A) $\frac{10}{11}$ B) 1,1 C) 1,6 D) $\frac{5}{8}$

54. (v17-106-4) $\frac{1}{a(a-b)(a-c)}+\frac{1}{b(b-a)(b-c)}+$

$+\frac{1}{c(c-a)(c-b)}$ ifodani soddalashtiring.

A) $\frac{1}{abc}$ B) $\frac{abc}{2}$

C) $-\frac{1}{abc}$ D) $\frac{1}{bc}-\frac{1}{abc}$

55. (v17-110-10) a + b = 36 bo'lsa, $\frac{a^2-b^2+9a+9b}{a^2-(b-9)^2}$ ifodaning qiymati nimaga teng?

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

56. (v17-121-11) Agar x = 3 bo'lsa, $\frac{(x-b)(x-c)}{(a-b)(a-c)}+\frac{(x-a)(x-c)}{(b-a)(b-c)}+$

$+\frac{(x-a)(x-b)}{(c-a)(c-b)}$ ning qiymatini toping.

(Bu yerda (a – b)(a – c)(b – c) ≠ 0)

A) a, b, c ga bog'liq B) 0

C) 2 D) 1

57. (v18-1-52) Ifodani soddalashtiring:

$\frac{x}{y}\left(\frac{y}{x}-\frac{x}{y}\left(\frac{y^2}{x^2}-\frac{x}{y}\left(\frac{y^3}{x^3}-\frac{y^4}{x^4}\right)\right)\right)$.

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

58. (v18-1-53) a + c = 2, b = $\sqrt{3}$ bo'lganda $(a^2-b^2-c^2+2bc):\frac{a+b-c}{a+b+c}$ ifodaning qiymatini toping.

A) 1 B) $(a+c)^2+b^2$

C) $(a+c)^2-b^2$ D) $(a+c)^2$

59. (v18-1-54) a, b, c turli xil sonlar, x ixtiyoriy son bo'lsa, $\frac{(x-b)\cdot(x-c)}{(a-b)(a-c)}+\frac{(x-c)(x-a)}{(b-c)(b-a)}+$

$+\frac{(x-a)(x-b)}{(c-a)(c-b)}$ ifodani soddalashtiring.

A) 1 B) 0 C) 2 D) –1

60. (v18-1-55) Soddalashtiring:

$\frac{mn^2-m^2n}{m+n}\cdot\frac{2n-\frac{2mn}{m-n}}{2n-\frac{2mn}{m+n}}$.

A) 2mn B) mn C) n^2 D) m^2

61. (v18-1-56) $a=\frac{1}{3}$ dagi $27a^2(a-3)-(3a-3)(9a^2+18a+9)-17$ ni hisoblang.
A) 17 B) 18 C) 7 D) 20

62. (v18-1-57) Ifodani soddalashtiring: $\frac{a^4-10a^2+169}{a^2+6a+13}$.
A) $a^2-5a+13$ B) a^2+13
C) $a^2-6a+13$ D) $a^2-3a+13$

63. (v18-1-58) a ning qanday qiymatida $\frac{9x^2-6x+1}{9}=(x+a)^2$ tenglik ayniyat bo'ladi?
A) $-\frac{1}{3}$ B) -1 C) $-\frac{1}{4}$ D) $-\frac{1}{2}$

64. (v18-1-59) Ifodani soddalashtiring: $\frac{\frac{1}{a}+\frac{1}{b+c}}{\frac{1}{a}-\frac{1}{b+c}}\cdot\left(1+\frac{b^2+c^2-a^2}{2bc}\right):\frac{(a+b+c)^2}{bc}$.
A) 1 B) 0,5
C) b + c – a D) a + b + c

65. (v19/20-104-20) Ifodani soddalashtiring: $\frac{x^3+27}{2x-2}\cdot\frac{x^2-1}{x^2+4x+3}\cdot\frac{6x+12}{3x^2-9x+27}+1$.
A) 2x + 2 B) $\frac{x+3}{2}$ C) x + 3 D) x + 2

66. (v19/20-105-2) x = 18 va y = 7,5 bo'lsa, $\frac{xy+y^2}{15x}\cdot\frac{3x}{x+y}$ ifodaning qiymatini toping.
A) 3,5 B) 1,5
C) 0,5 D) 2,5

67. (v19/20-113-1) Ifodani soddalashtiring: $\frac{x^3+27}{2x-2}\cdot\frac{x^2-1}{x^2+4x+3}\cdot\frac{6x+12}{3x^2-9x+27}$.
A) x + 2 B) $\frac{x+2}{2}$ C) $\frac{x+2}{x-1}$ D) 2x + 1

68. (v19/20-113-5) Soddalashtiring: $\frac{x^2+\left(2-\sqrt{3}\right)x-2\sqrt{3}}{x^2-\left(\sqrt{3}+1\right)x+\sqrt{3}}$.
A) $\frac{x-1}{x+1}$ B) $\frac{x+1}{x-1}$
C) $\frac{x-2}{1+x}$ D) $\frac{x+2}{x-1}$

69. (v19/20-117-2) Ifodani soddalashtiring: $\frac{x^3+27}{2x-2}\cdot\frac{x^2-1}{x^2+4x+3}\cdot\frac{6x+12}{3x^2-9x+27}+2$.
A) x + 2 B) $\frac{x+4}{2}$
C) 2x + 3 D) x + 4

70. (v19/20-119-13) Agar $\frac{4ab+7bc-ac}{ab+2bc}=4$ bo'lsa, $\frac{4ab+7bc-ac}{3ab+5bc-ac}$ ning qiymatini toping.
A) $\frac{1}{4}$ B) $\frac{4}{3}$ C) $\frac{2}{3}$ D) $\frac{5}{4}$

71. (v19/20-126-14) Agar $|a|\neq|b|\neq|c|$ va $\frac{a}{b+c}+\frac{b}{c+a}+\frac{c}{a+b}=1$ bo'lsa, $\left(\frac{a^2}{b+c}+\frac{b^2}{c+a}+\frac{c^2}{a+b}\right):(a+b+c)$ ning qiymatini toping.
A) 2 B) 1 C) 0 D) 0,5

72. (v20/21-102-3) Agar $\frac{2x+m}{3x-5m}=\frac{6x+7m}{9x-11m}$ bo'lsa, $\frac{x^2-2mx+3x-6m}{x^2+2mx+3x+6m}$ ifodaning qiymatini toping.
A) 0,5 B) 1
C) 2 D) aniqlab bo'lmaydi

73. (v20/21-108-8) Soddalashtiring: $\frac{625x^4+25x^2+1}{25x^2+5x+1}-25x^2$.
A) 25x – 1 B) 1 – 25x
C) 1 – 5x D) 5x – 1

74. (v20/21-112-1) Ushbu $\left[\left(\frac{a+1}{a-1}\right)^2+3\right]:\left[\left(\frac{a-1}{a+1}\right)^2+3\right]:\frac{a^3+1}{a^3-1}-\frac{2a}{a-1}$ ifodaning qiymatini $a=3\sqrt[3]{5}-2\sqrt{7}$ da hisoblang.
A) $3\sqrt[3]{5}-2\sqrt{7}$ B) 1
C) $2\sqrt{7}-3\sqrt[3]{5}$ D) –1

75. (v20/21-124-30) Soddalashtiring: $\left(\frac{1+x}{x-1}-\frac{x-1}{1+x}\right):\left(\left(\frac{1+x}{1-x}-1\right)\cdot\left(1-\frac{1}{1+x}\right)\right)$.
A) $\frac{x}{2}$ B) $-\frac{2}{x}$ C) $\frac{2}{x}$ D) $\frac{1}{x}$

76. (v20/21-128-21) Soddalashtring: $\frac{a^3-2a^2+a+4}{a^3-a^2-2a+8}+\frac{a^3+4a^2+9a+18}{a^3+3a^2+8a+12}$.
A) $\frac{a+4}{a+2}$ B) $\frac{2a+4}{a+1}$
C) 2 D) $\frac{a+3}{a+1}$

77. (v20/21-131-18) Agar $x=-\frac{2}{3}$ bo'lsa, $(x-4)^{-1}-\frac{x+4}{2x-4}\cdot\left(\frac{x}{x^2-16}-\frac{x-4}{x^2+4x}\right)$ ifodaning qiymatini toping.
A) $-1\frac{2}{3}$ B) $1\frac{2}{3}$
C) 1,5 D) –1,5

78. (v20/21-134-15) $\frac{x^4+x^3+4x^2-3x+5}{x^2-x+1}$ kasrni qisqartiring.
A) x^2-2x+5 B) x^2+2x-5
C) x^2-2x-5 D) x^2+2x+5

79. (v20/21-134-26) Agar $x=-\frac{2}{9}$ bo'lsa, $(x-5)^{-1}-\frac{x+5}{2x-5}\cdot\left(\frac{x}{x^2-25}-\frac{x-5}{x^2+5x}\right)$ ifodaning qiymatini toping.
A) 1 B) –1 C) 4,5 D) –4,5

80. (v20/21-139-10) Agar $x=\frac{3}{5}$ bo'lsa, $\frac{x-5}{2x-5}\cdot\left(\frac{x}{x^2-25}-\frac{x-5}{x^2+5x}\right)+(x+5)^{-1}$ ifodaning qiymatini toping.
A) 1 B) $-1\frac{2}{3}$ C) –1 D) $1\frac{2}{3}$

81. (v20/21-140-19) Agar x:y:z = 2:1:3 bo'lsa, $\frac{3x+2y+z}{2x-3y-z}$ ifodaning qiymatini toping.
A) –2 B) –3 C) 1,8 D) –5,5

82. (v21-109-7) $\frac{-12x-32}{64-9x^2}$ ifodaning $x=\frac{2}{3}$ dagi qiymatini toping.
A) $1\frac{1}{2}$ B) $1\frac{2}{3}$ C) $-\frac{2}{3}$ D) $\frac{2}{3}$

83. (v21-109-8) Agar $\frac{a}{b}=\frac{b}{c}$ bo'lsa, $\frac{a^2+b^2}{b^2+c^2}$ ning qiymatini toping.
A) 1 B) $\frac{a^2}{b^2}$ C) $\frac{2a}{b}$ D) $\frac{a}{2b}$

84. (v21-111-30) $\left(\frac{m+1}{m-1}-\frac{m-1}{m+1}\right):\frac{2m}{5m-5}$ ifodaning $m=\frac{1}{7}$ dagi qiymatini toping.
A) 8,65 B) 8,75 C) 8,55 D) 8,25

85. (v21-120-5) Agar $\frac{1}{a}+\frac{1}{b}+\frac{1}{c}=\frac{1}{a+b+c}$ bo'lsa, $(a+b)(a+c)(b+c)$ ning qiymatini toping.
A) 0 B) 1 C) –1 D) 2

86. (v21-120-18) $x=-3\frac{3}{4}$, $A=\left(\frac{x+1}{x-1}-\frac{x-1}{x+1}\right):\left(\frac{x^2+1}{x^2-1}-\frac{x^2-1}{x^2+1}\right)$, [A] ning qiymatini toping. Bu yerda [A] sonning butun qismi.
A) –5 B) –4 C) 3 D) 1

87. (v21-120-20) $\frac{a^2\left(\frac{1}{b}-\frac{1}{c}\right)+b^2\left(\frac{1}{c}-\frac{1}{a}\right)+c^2\left(\frac{1}{a}-\frac{1}{b}\right)}{\frac{a}{bc}(c-b)+\frac{b}{ac}(a-c)+\frac{c}{ab}(b-a)}$ ifodaning a = 1, b = 2, c = 3 dagi qiymatini toping.
A) 6 B) 1 C) 5 D) 2

88. (v21-127-1) Agar $x=\frac{a^2-2a+1}{a-3}\cdot\left[\frac{(a+2)^2-a^2}{4a^2-4}-\frac{3}{a^2-a}\right]$ va a = –0,01 bo'lsa, x – 1 ning qiymatini toping.
A) 103 B) 100 C) 0 D) 104

89. (v21-130-18) Agar $x=\frac{a^4-(a-1)^2}{(a^2+1)^2-a^2}+\frac{a^2-(a^2-1)^2}{a^2(a+1)^2-1}+\frac{a^2(a-1)^2-1}{a^4-(a+1)^2}$ bo'lsa, x – 1 ning qiymatini toping.
A) 0 B) 2 C) 1 D) 3

4-bob. HAQIQIY SONLAR

22. Arifmetik kvadratildiz. Ildizlarning xossalari

1. (97-3-14) $\sqrt{\frac{698^3-32^3}{36}+68\cdot 32}$ ifodaning qiymatini toping.

A) $16\frac{2}{3}$ B) 85 C) 100 D) $25\frac{5}{6}$
E) 120

2. (97-6-8) $15\sqrt{\frac{3}{5}}-0{,}5\sqrt{60}+2\sqrt{3\frac{3}{4}}$ ni soddalashtiring.

A) 0 B) $\sqrt{15}$ C) $5\sqrt{3}$ D) $3\sqrt{15}$
E) $4\sqrt{5}$

3. (97-7-14) $\sqrt{\frac{59^3+41^3}{100}-59\cdot 41}$ ifodaning qiymatini toping.

A) 24 B) 100 C) 18 D) 50
E) 36

4. (98-6-5) Agar $a>0$, $b>0$ va $c<0$ bo'lsa, to'g'ri tenglikni ko'rsating.

A) $\sqrt{a^2b^2c^2}=a|b|c$ B) $\sqrt{a^2b^2c^2}=abc$
C) $\sqrt{a^2b^2c^2}=-ab|c|$ D) $\sqrt{a^2b^2c^2}=|a|bc$
E) $\sqrt{a^2b^2c^2}=-abc$

5. (98-7-16) $c=\sqrt{13}-\sqrt{12}$ va $d=\sqrt{14}-\sqrt{13}$ sonlar uchun qaysi munosabat o'rinli?

A) $c>d$ B) $c<d$
C) $c=d$ D) $c=d-1$
E) $c^2+\sqrt{27}=d^2$

6. (98-12-7) $m=\sqrt[4]{2{,}56}$, $n=3{,}4(25)$.
$p=3{,}142\ldots$ va $q=\sqrt{\sqrt{\sqrt{16}}+2}$ sonlaridan qaysilari irratsional sonlar hisoblanadi?

A) m, p B) p, q C) m, q D) p
E) hammasi

7. (98-12-16) O'zaro teskari sonlarni aniqlang:

1) $\frac{\sqrt{5}}{3}$ va $\frac{3\sqrt{5}}{5}$; 2) $3-\sqrt{2}$ va $3+\sqrt{2}$;
3) $\frac{2\sqrt{3}}{5}$ va $\frac{5\sqrt{3}}{6}$; 4) $\sqrt{2}+1$ va $\sqrt{2}-1$.

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

8. (99-10-16) $m=\sqrt[3]{3}$, $n=\sqrt{2}$ va $p=\sqrt[6]{10}$ sonlarni o'sish tartibida yozing.

A) $p<n<m$ B) $n<p<m$
C) $m<p<n$ D) $n<m<p$
E) $p<m<n$

9. (00-2-3) $\lfloor\sqrt{1}\rfloor+\lfloor\sqrt{2}\rfloor+\lfloor\sqrt{3}\rfloor+\ldots+\lfloor\sqrt{10}\rfloor$ ni hisoblang. Bunda $[a]$ – a sonning butun qismi.

A) 15 B) 19 C) 18 D) 17
E) 21

10. (01-1-5) $a=\sqrt{101}+\sqrt{103}$,
$b=\sqrt{99}+\sqrt{105}$ va $c=19{,}9$ sonlarni kamayish tartibida joylashtiring.

A) $a>b>c$ B) $c>b>a$
C) $a>c>b$ D) $c>a>b$
E) $b>a>c$

11. (02-7-46) $\sqrt{0{,}9}+\sqrt{14{,}4}-\sqrt{8{,}1}$ ni soddalashtiring.

A) $\sqrt{3{,}6}$ B) $\sqrt{0{,}36}$ C) 3,6 D) $3\sqrt{10}$
E) $6\sqrt{10}$

12. (02-9-10) $3\sqrt{3\frac{2}{3}}-\sqrt{132}+4\sqrt{2\frac{1}{16}}$ ni soddalashtiring.

A) 0 B) $2\sqrt{33}$ C) $3\sqrt{3}$ D) $4\sqrt{11}$
E) 2

13. (v7-130-16) $\frac{\sqrt{196}\cdot\sqrt{19{,}6}}{\sqrt{0{,}196}\cdot\sqrt{1{,}96}}\cdot\left(\frac{5}{7}\right)^{-2}$ ni hisoblang.

A) 100 B) 19,6 C) 10 D) 196

14. (v12z-136-18) $a=\sqrt{45\cdot 10\cdot 18}$ va $b=\sqrt[3]{16\cdot 36\cdot 81}$ sonlarining eng kichik umumiy karralisi va eng katta umumiy bo'luvchisi ayirmasini toping.

A) 54 B) 154 C) 72 D) 162

15. (v16-108-10) $\frac{1}{\sqrt{1}+\sqrt{4}}+\frac{1}{\sqrt{4}+\sqrt{7}}+\frac{1}{\sqrt{7}+\sqrt{10}}+\ldots+\frac{1}{\sqrt{2011}+\sqrt{2014}}$ ni hisoblang.

A) $\frac{1-\sqrt{2014}}{3}$ B) $\frac{1}{3}$
C) 3 D) $\frac{\sqrt{2014}-1}{3}$

16. (v16-130-13) Kasrning maxrajini irratsionallikdan qutqaring $\frac{6}{3+\sqrt[3]{3}+\sqrt[3]{9}}$.

A) $\sqrt[3]{9}-\sqrt{3}$ B) $3-\sqrt[3]{9}$
C) $3+\sqrt[3]{9}$ D) $\sqrt[3]{9}-3$

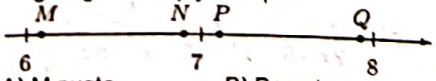
17. (v17-110-18) Hisoblang:
$\sqrt{1-\frac{1}{2}}\cdot\sqrt{1-\frac{1}{3}}\cdot\sqrt{1-\frac{1}{4}}\cdot\sqrt{1-\frac{1}{5}}\cdot\ldots\cdot\sqrt{1-\frac{1}{9}}$.

A) 3 B) $\frac{1}{3}$
C) $\sqrt{13}$ D) $\frac{\sqrt{2}}{9}$

18. (v18-1-60) Agar $x<0$, $y>0$ bo'lsa, $x\sqrt{y}+\sqrt{x^2\cdot y}$ ifodaning qiymatini toping.

A) 0 B) $-2x\sqrt{y}$
C) xy D) $2x\sqrt{y}$

19. (v19/20-121-23) Koordinata to'g'ri chizig'ida $\sqrt{39}$ songa mos nuqta belgilangan. Bu qaysi nuqta?



A) M nuqta B) P nuqta
C) Q nuqta D) N nuqta

23. Kvadrat ildiz. Hisoblashga doir misollar

1. (96-3-28) $\sqrt{23-8\sqrt{7}}+\sqrt{23+8\sqrt{7}}$ ni hisoblang.

A) 7 B) 6 C) 8 D) 9
E) 5

2. (96-3-50) $\frac{1}{3-\sqrt{8}}-2\sqrt{2}+6$ ni soddalashtiring.

A) 8 B) 7
C) 9 D) 10
E) to'g'ri javob keltirilmagan

3. (96-4-24) $\frac{3-\sqrt{5}}{3+\sqrt{5}}+\frac{3+\sqrt{5}}{3-\sqrt{5}}$ ning qiymatini toping.

A) 2 B) $\frac{3\sqrt{5}}{2}$
C) 4,5 D) $\frac{3\sqrt{5}+2}{2}$
E) 7

4. (96-8-71) $\sqrt{9+2\sqrt{20}}-\sqrt{9-2\sqrt{20}}$ ayirmaning qiymatini toping.

A) 4 B) 5 C) 6 D) 3
E) –4

5. (97-6-53) $\sqrt{3-\sqrt{5}}+\sqrt{3+\sqrt{5}}$ ni hisoblang.

A) $2\sqrt{3}$ B) $\sqrt{10}$ C) 2 D) $\sqrt{2}$
E) to'g'ri javob keltirilmagan

6. (97-9-21) $\sqrt{9+4\sqrt{2}}$ ni soddalashtiring.

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

7. (98-10-41) $\sqrt{19-8\sqrt{3}}+\sqrt{3}$ ni hisoblang.

A) –4 B) 4
C) $4+2\sqrt{3}$ D) $2\sqrt{3}-4$
E) $2\sqrt{3}-2$

8. (99-7-19) $(a^{\frac{1}{2}}+b^{\frac{1}{2}})\cdot(a-a^{\frac{1}{2}}b^{\frac{1}{2}}+b)$ ni soddalashtirib, a va b asosli darajalar ko'rsatkichlarining yig'indisini hisoblang.

A) 1 B) 4 C) 2 D) 0
E) 3

9. (00-8-25) Agar $\sqrt{8-a}+\sqrt{5+a}=5$ bo'lsa, $\sqrt{(8-a)(5+a)}$ ning qiymatini toping.

A) 6 B) 20 C) 12 D) 10
E) 7

10. (01-2-22) $\sqrt{\frac{9+\sqrt{65}}{2}}+\sqrt{\frac{9-\sqrt{65}}{2}}$ ni hisoblang.

A) $\sqrt{13}$ B) $9-\sqrt{10}$
C) $4\sqrt{2}$ D) $7-\sqrt{2}$
E) $8-\sqrt{3}$

11. (01-6-23) $\left(\frac{\sqrt{2+\sqrt{3}}}{\sqrt{2-\sqrt{3}}}+\frac{\sqrt{2-\sqrt{3}}}{\sqrt{2+\sqrt{3}}}\right)^2-2$ ni hisoblang.
A) 12 B) 14 C) 18 D) 16 E) 15

12. (01-11-8) $(\sqrt{18}+\sqrt{72}-\sqrt{12})\cdot(\sqrt{18}+\sqrt{72}+\sqrt{12})$ ning qiymatini hisoblang.
A) 148 B) 149 C) 147 D) 150 E) 151

13. (02-6-26) $\frac{1}{\sqrt{7}-\sqrt{6}}-\frac{3}{\sqrt{6}-\sqrt{3}}-\frac{4}{\sqrt{7}+\sqrt{3}}$ ni hisoblang.
A) 0 B) 1 C) 2 D) 3 E) 4

14. (02-7-45) Agar $a=19-\sqrt{192}$ bo'lsa, $\sqrt{a}+\sqrt{3}$ ifodaning qiymatini aniqlang.
A) 4 B) 6 C) 5 D) $2+\sqrt{3}$ E) $4\sqrt{3}$

15. (03-4-11) $\sqrt{2+\sqrt{3}}-\sqrt{2-\sqrt{3}}$ ni soddalashtiring.
A) $\sqrt{3}$ B) $2\sqrt{3}$ C) $2\sqrt{2}$ D) $\sqrt{2}$ E) $\sqrt{6}$

16. (03-7-50) $\sqrt{11-4\sqrt{7}}$ ni soddalashtiring.
A) $\sqrt{7}+2$ B) $\sqrt{7}-2$ C) $\sqrt{7}-1$ D) $2-\sqrt{7}$ E) $\sqrt{7}$

17. (03-11-74) $\sqrt{17-12\sqrt{2}}\cdot(6+4\sqrt{2})$ ning qiymatini hisoblang.
A) $\sqrt{2}$ B) $-\sqrt{2}$ C) $\sqrt{3+\sqrt{8}}$ D) 2 E) $\sqrt{3-\sqrt{8}}$

18. (v4-103-17) $\frac{19}{\sqrt{20}-1}-2\sqrt{5}+5$ ni soddalashtiring.
A) $2\sqrt{5}+4$ B) $2\sqrt{5}-4$ C) 6 D) 4 E) $4\sqrt{5}-4$

19. (v4-114-17) $\frac{\sqrt{5}}{\sqrt{5}-2}-\frac{20}{\sqrt{5}}$ ni soddalashtiring.
A) 3 B) 5 C) $5-\sqrt{5}$ D) $5-2\sqrt{5}$ E) $3\sqrt{5}-5$

20. (v4-120-33) $\sqrt{13+7\sqrt{2}+\sqrt{5-2\sqrt{3+2\sqrt{2}}}}$ ni hisoblang.
A) $2+\sqrt{2}$ B) $2\sqrt{2}-2$ C) $2\sqrt{2}+1$ D) $2\sqrt{2}+2$ E) $2\sqrt{2}-1$

21. (v6-15-3) $\sqrt{\sqrt{56}+2\sqrt{10}}\cdot\sqrt{\sqrt{56}-2\sqrt{10}}$ ni hisoblang.
A) 6 B) 2 C) 4 D) 3

22. (v7-101-27) Agar $\sqrt{13+z^3}-\sqrt{z^3-14}=3{,}375$ bo'lsa, $\sqrt{13+z^3}+\sqrt{z^3-14}$ ning qiymati nechaga teng bo'ladi?
A) 6 B) 5 C) 8 D) 7

23. (v7-110-28) $\sqrt{5-2\sqrt{6}}+\sqrt{5+2\sqrt{6}}$ ni hisoblang.
A) $-4\sqrt{6}$ B) $2\sqrt{2}$ C) $2\sqrt{3}$ D) $\sqrt{2}$

24. (v7-113-28) $\frac{\sqrt{3+2\sqrt{2}}+\sqrt{3-2\sqrt{2}}+\sqrt{2}}{4\sqrt{2}}$ ni hisoblang.
A) 0,5 B) $\frac{\sqrt{2}}{4}$ C) 0,75 D) $\frac{\sqrt{2}}{2}$

25. (v7-117-15) $\frac{4+\sqrt{8}}{4-\sqrt{8}}-\frac{4-\sqrt{8}}{4+\sqrt{8}}$ ning qiymatini toping.
A) $\frac{3\sqrt{8}}{8}$ B) $4\sqrt{2}$ C) $\frac{\sqrt{8}+8}{4}$ D) $4\frac{2}{5}$

26. (v7-117-17) $\left(\sqrt{7}+\sqrt{2}+1\right)\left(\sqrt{7}-1-\sqrt{2}\right)$ ni soddalashtiring.
A) $2-\sqrt{2}$ B) $4+2\sqrt{2}$ C) $4-2\sqrt{2}$ D) $4-\sqrt{2}$

27. (v7-147-28) $(\sqrt{10}-\sqrt{2})\cdot\sqrt{3-\sqrt{5}}\cdot(3+\sqrt{5})-2$ ni hisoblang.
A) 4 B) 8 C) 6 D) 10

28. (v9-29-34) $\sqrt{8-3\sqrt{2}-\sqrt{4+5\sqrt{2}+\sqrt{6-4\sqrt{2}}}}$ ni aniqlang.
A) $\sqrt{2}-1$ B) $2+\sqrt{2}$ C) $2-\sqrt{2}$ D) $3-\sqrt{2}$

29. (v12z-105-1) $(5+\frac{5\sqrt{3}}{4-\sqrt{3}})^2(19-8\sqrt{3})$ ni hisoblang.
A) 400 B) 361 C) 25 D) 40

30. (v12z-114-24) $\sqrt{8-\sqrt{28}}-\sqrt{8+\sqrt{28}}$ ni hisoblang.
A) 4 B) –2 C) –4 D) 2

31. (v13-171-13) $\frac{2}{\sqrt{10}+\sqrt{15}+\sqrt{14}+\sqrt{21}}$ kasrning maxrajini irratsionallikdan qutqaring.
A) $\sqrt{10}-\sqrt{15}+\sqrt{21}+\sqrt{14}$
B) $\sqrt{10}+\sqrt{15}+\sqrt{14}-\sqrt{21}$
C) $\sqrt{10}-\sqrt{15}+\sqrt{14}-\sqrt{21}$
D) $\sqrt{10}-\sqrt{15}+\sqrt{21}-\sqrt{14}$

32. (v16-109-24) $\frac{\sqrt[4]{2\sqrt{2}+3}}{\sqrt{\sqrt{2}+1}}$ ni hisoblang.
A) $\frac{1}{\sqrt{2}}$ B) 1 C) $\frac{1}{2}$ D) $\sqrt{2}$

33. (v17-103-6) Hisoblang: $(5+3\sqrt{2})\sqrt{43-5\sqrt{72}}$.
A) 17 B) 25 C) 7 D) 9

34. (v17-106-8) Hisoblang: $\left(\sqrt{28}+\sqrt{12}\right)\sqrt{10-\sqrt{84}}$.
A) $2\sqrt{21}$ B) 8 C) $\sqrt{7}-\sqrt{3}$ D) $\sqrt{7}+\sqrt{3}$

35. (v17-107-23) Soddalashtiring: $(2\sqrt{6}-\sqrt{5}+4\sqrt{2})(3\sqrt{5}+\sqrt{6}-2\sqrt{2})$.
A) $5\sqrt{30}+14\sqrt{10}-19$
B) $5\sqrt{30}-14\sqrt{10}+19$
C) $6\sqrt{30}-16\sqrt{3}$
D) $5\sqrt{30}-16\sqrt{3}-14\sqrt{10}+19$

36. (v17-115-20) Ifodani soddalashtiring: $\left(\frac{9}{8}\sqrt{12}-4{,}5\sqrt{0{,}5}+2\frac{1}{4}\sqrt{2}-\frac{45}{8}\sqrt{\frac{1}{3}}\right):\frac{9}{4}\sqrt{\frac{1}{6}}$.
A) $\frac{\sqrt{2}}{2}$ B) 0 C) 1 D) 2

37. (v17-129-4) Soddalashtiring: $5\sqrt{\frac{7}{5}}\cdot\left(2\sqrt{\frac{5}{7}}-8\sqrt{\frac{7}{20}}+4\sqrt{\frac{7}{5}}\right)$.
A) 10 B) 8 C) 12 D) $10-\sqrt{\frac{7}{5}}$

38. (v18-1-61) Agar $x=\sqrt{1+\sqrt{50}}$ bo'lsa, $\sqrt{200}$ ni x orqali ifodalang.
A) $4(x^2-1)$ B) $2(x^2-1)$ C) $2(1-x^2)$ D) $4(x+1)$

39. (v18-1-62) Agar $a=\sqrt{15}$ bo'lsa, $\sqrt{0{,}6}$ ni a orqali ifodalang.
A) $\frac{5}{\sqrt{a}}$ B) $\frac{\sqrt{a}}{3}$ C) $\frac{\sqrt{a}}{5}$ D) $\frac{a}{3}$

40. (v18-1-63) Hisoblang: $\left(\frac{\sqrt{6}+\sqrt{5}}{\sqrt{2}+1}\frac{\sqrt{6}-\sqrt{5}}{\sqrt{2}-1}\right):\left(\frac{1}{\sqrt{3}}-\frac{\sqrt{3}}{9}+\frac{1}{\sqrt{27}}\right)$.
A) 1 B) $3\sqrt{3}$ C) $\sqrt{3}$ D) $\frac{\sqrt{3}}{3}$

41. (v19/20-117-8) $A=\frac{\sqrt{96}}{\sqrt{6}+\frac{12}{\sqrt{54}+\frac{15}{\sqrt{24}-\frac{7}{\sqrt{6}}}}}$

A ning 80% ni toping.
A) 0,75 B) 1,2 C) 1,5 D) 2,4

42. (v20/21-102-29) Soddalashtiring: $20\sqrt{245}-\sqrt{5}+\sqrt{125}-2{,}5\sqrt{180}$.

A) $131\sqrt{5}$ B) $119\sqrt{5}$
C) $129\sqrt{5}$ D) $159\sqrt{5}$

43. (v20/21-126-29) Hisoblang: $\left(2\sqrt{\frac{3}{13}}+8\sqrt{\frac{13}{27}}-3\sqrt{4\frac{1}{3}}\right)\cdot 3\sqrt{\frac{13}{3}}$.

A) $\frac{31}{13}$ B) $\frac{31}{3}$ C) $\frac{5}{13}$ D) $\frac{5}{3}$

44. (v20/21-140-13) Taqqoslang: $a=\frac{\sqrt{11}}{2}$, $b=\sqrt{2{,}5}$, $c=2\sqrt{0{,}6}$.

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

45. (v20/21-144-16) Hisoblang: $\sqrt{(11{,}(1))^{\frac{3}{2}}:(3{,}(3))^4+\left(2\frac{2}{49}\right)^{-\frac{1}{2}}}$.

A) $\sqrt{0{,}2}$ B) $\sqrt{0{,}4}$ C) 1 D) 2

46. (v20/21-144-19) Hisoblang: $\sqrt{484\cdot 0{,}06\cdot 24}$.

A) 26,2 B) 26,1 C) 26,4 D) 26,3

47. (v21-102-15) Soddalashtiring: $\left(2-\sqrt{6}\right)\left(3\sqrt{2}+2\sqrt{3}\right)$.

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

48. (v21-105-7) $\sqrt{317^2+217^2-634\cdot 217}$ ifodaning qiymatini toping.

A) 0 B) 10 C) 10000 D) 0,1

49. (v21-108-11) $\sqrt{\left(12{,}1^2-8{,}1^2\right):\left(0{,}25^2+0{,}25\cdot 19{,}95\right)}$ hisoblang.

A) 4 B) 1 C) 8 D) 2

24. Kvadrat ildiz qatnashgan ifodalarni soddalashtirish

1. (97-1-25) $\sqrt{\sqrt{28-16\sqrt{3}}}$ ni hisoblang.

A) $3-\sqrt{3}$ B) $4\sqrt{3}-1$
C) $2-\sqrt{3}$ D) $\sqrt{3}-1$
E) $2\sqrt{3}-1$

2. (97-1-57) $\frac{(x+\sqrt{y})\sqrt{y-2\sqrt{y}x+x^2}}{y-x^2}$ ifodani $x=2\sqrt{6}$ va $y=23$ bo'lganda hisoblang.

A) 1 B) -1
C) $\frac{1}{2}$ D) $-\frac{1}{2}$
E) to'g'ri javob berilmagan

3. (97-6-25) $\sqrt{\sqrt{17-12\sqrt{2}}}$ ni hisoblang.

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

4. (00-5-35) $\frac{1}{1+\sqrt{2}-\sqrt{3}}$ kasrning maxrajini irratsionallikdan qutqaring.

A) $\frac{2+\sqrt{2}+\sqrt{6}}{2}$ B) $\frac{2-\sqrt{2}+\sqrt{6}}{4}$
C) $\frac{2+\sqrt{2}-\sqrt{6}}{2}$ D) $\frac{2-\sqrt{2}-\sqrt{6}}{2}$
E) $\frac{2+\sqrt{2}+\sqrt{6}}{4}$

5. (01-1-7) $\left(\frac{a\sqrt{a}+b\sqrt{b}}{\sqrt{a}+\sqrt{b}}-\sqrt{ab}\right):(a-b)+\frac{2\sqrt{b}}{\sqrt{a}+\sqrt{b}}$ ni soddalashtiring.

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

6. (01-1-62) $\sqrt{a^2}-\sqrt{a^2+a+0{,}25}+\sqrt{a^2-a+0{,}25}$ ni soddalashtiring $(a>0{,}5)$.

A) $a-0{,}25$ B) $a-0{,}5$
C) $a-0{,}75$ D) $a-1$
E) $a+0{,}25$

7. (01-1-70) Agar $x=0{,}5\left(\frac{\sqrt{a}}{\sqrt{b}}-\frac{\sqrt{b}}{\sqrt{a}}\right)$, $a>0$ va $b>0$ bo'lsa, $2b\frac{\sqrt{1+x^2}}{\sqrt{1+x^2}-x}$ ni hisoblang.

A) $\frac{a+b}{2}$ B) $2a+b$
C) $a+2b$ D) $2(a-b)$
E) $a+b$

8. (01-2-57) Agar $x=e$ va $y=\pi$ bo'lsa, $\frac{\sqrt{x^2-2xy+y^2}}{\sqrt{x^2+2xy+y^2}}+\frac{2x}{x+y}$ ning qiymatini hisoblang.

A) $\frac{3e-\pi}{\pi+e}$ B) $\frac{\pi-e}{\pi+e}$ C) -1 D) 1
E) $\frac{2e-\pi}{\pi+e}$

9. (01-5-5) $\frac{a-b}{a+b+2\sqrt{ab}}:\frac{a^{-\frac{1}{2}}-b^{-\frac{1}{2}}}{a^{-\frac{1}{2}}+b^{-\frac{1}{2}}}$ ni soddalashtiring.

A) -1 B) $a+b$
C) $\frac{1}{\sqrt{a}+\sqrt{b}}$ D) $\frac{ab}{a+b}$
E) $\sqrt{ab}$

10. (01-7-13) $\left(\frac{1}{\sqrt{a}+\sqrt{a+1}}+\frac{1}{\sqrt{a}-\sqrt{a-1}}\right):\left(1+\sqrt{\frac{a+1}{a-1}}\right)$ ni soddalashtiring.

A) $\sqrt{a+1}$ B) $\sqrt{a-1}$
C) $\sqrt{\frac{a-1}{a+1}}$ D) $\sqrt{a}$
E) $\sqrt{a+1}-\sqrt{a-1}$

11. (01-7-14) Agar $a=(2+\sqrt{3})^{-1}$ va $b=(2-\sqrt{3})^{-1}$ bo'lsa, $(a+1)^{-1}+(b+1)^{-1}$ ning qiymatini hisoblang.

A) 2 B) 0,5 C) $2\sqrt{3}$ D) $\sqrt{3}$
E) 1

12. (01-9-48) $\frac{\sqrt{16x^2+9-24x}}{16x^2-9}$ ni soddalashtiring.

A) $\frac{1}{4x+3}$
B) $\begin{cases}\frac{1}{4x+3}, & agar\ x<\frac{3}{4}\\ \frac{1}{4x+3}, & agar\ x>\frac{3}{4}\end{cases}$
C) $\begin{cases}-\frac{1}{4x+3}, & agar\ x<\frac{3}{4}\\ \frac{1}{4x+3}, & agar\ x>\frac{3}{4}\end{cases}$
D) $-\frac{1}{4x+3}$
E) soddalashmaydi

13. (01-11-7) $\frac{3}{a-\sqrt{a^2-3}}+\frac{3}{a+\sqrt{a^2-3}}$ ni soddalashtiring.

A) 1,5a B) 3a C) 2a D) 2,5a
E) 2,4a

14. (02-3-14) Agar $a=\frac{1}{2}\left(\sqrt{\frac{2}{3}}+\sqrt{\frac{3}{2}}\right)$ bo'lsa, $\frac{\sqrt{a^2-1}}{a-\sqrt{a^2-1}}$ ning qiymatini toping.

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

15. (02-12-13) $\frac{\sqrt{x}+1}{x\sqrt{x}+x+\sqrt{x}}:\frac{1}{\sqrt{x}-x^2}+x$ ni soddalashtiring.

A) $2x$ B) 2 C) 1 D) $2x-1$
E) -1

16. (03-1-1) $\sqrt{\left(\frac{\pi}{2}-\sqrt{3}\right)^2}+\sqrt{\frac{\pi}{3}\left(-\sqrt{2}\right)^2}-\sqrt{5+2\sqrt{6}}$ ni soddalashtiring.

A) $\frac{5\pi}{6}-2(\sqrt{2}+\sqrt{3})$ B) $\sqrt{3}+\sqrt{2}$
C) $\frac{5\pi}{6}$ D) $-2\sqrt{3}-2\sqrt{2}$
E) $-\frac{5\pi}{6}$

17. (03-3-8) $\left(\frac{\sqrt{y}-\sqrt{x}}{y-\sqrt{xy}+x}+\frac{x}{x\sqrt{x}+y\sqrt{y}}\right)\cdot\frac{x\sqrt{x}+y\sqrt{y}}{y^3}$ ni soddalashtiring.

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

18. (03-10-12) Agar $x=\frac{4}{5}m$ bo'lsa, $\frac{\sqrt{m+x}+\sqrt{m-x}}{\sqrt{m+x}-\sqrt{m-x}}$ ning qiymatini toping.

A) 2 B) 2m
C) 4 D) –2
E) 4m

19. (03-10-15) Agar $x<0$ bo'lsa, $\sqrt{x^2-12x+36}-\sqrt{x^2}$ ni soddalashtiring.

A) 6 B) –6
C) 6 – 2x D) 2x – 6
E) 8

20. (03-11-77) $\frac{\sqrt{x+4\sqrt{x-4}}-2}{\sqrt{x-4\sqrt{x-4}}+2}$ $(x\ge 8)$ ni soddalashtiring.

A) 1 B) –1 C) 0,5 D) 0,25
E) 2

21. (v4-109-33) $\sqrt{9+5\sqrt{3}-\sqrt{5+3\sqrt{3}+\sqrt{7+4\sqrt{3}}}}$ ni soddalashtiring.

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

22. (v4-129-33) $\sqrt{15-9\sqrt{3}+\sqrt{2+4\sqrt{3}-2\sqrt{4-2\sqrt{3}}}}$ ni soddalashtiring.

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

23. (v7-101-2) $\sqrt{a-2a^{1/2}b^{1/2}+b}-\frac{a-b}{a^{1/2}-b^{1/2}}$ ni soddalashtiring $(b>a>0)$.

A) $-2a^{1/2}$ B) $2a^{1/2}-2b^{1/2}$
C) 0 D) $-2b^{1/2}$

24. (v7-109-27) Agar $\sqrt{t^5+3}-\sqrt{t^5-2}=2$ bo'lsa, $\sqrt{t^5+3}+\sqrt{t^5-2}$ ning qiymati nechaga teng bo'ladi?

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

25. (v7-110-27) Agar $a=39-\sqrt{432}$ bo'lsa, $\sqrt{a}+\sqrt{3}$ ifodaning qiymatini aniqlang.

A) 6 B) 4
C) $6+\sqrt{3}$ D) 5

26. (v7-116-17) Agar $a=\sqrt{2}$ va $b=\sqrt[3]{3}$ bo'lsa, $\sqrt{a^2-2ab+b^2}-\sqrt{a^2+2ab+b^2}$ ning qiymatini hisoblang.

A) $-\sqrt[3]{12}$ B) $\sqrt{8}$ C) $\sqrt[3]{24}$ D) $-\sqrt{8}$

27. (v7-119-15) $4\sqrt{7\frac{1}{2}-\frac{2\sqrt{10}}{2\sqrt{3}-\sqrt{10}}}+8+3\sqrt{10}$ ni soddalashtiring.

A) 10 B) $2-3\sqrt{10}$
C) –10 D) $3\sqrt{10}-2$

28. (v9-9-10) $\sqrt{8+3\sqrt{2}-\sqrt{8-3\sqrt{2}+\sqrt{6+4\sqrt{2}}}}$ ni soddalashtiring.

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

29. (v11-144-34) Hisoblang: $\frac{3+\sqrt{3}+\sqrt{10}+\sqrt{30}}{6\sqrt{5}+3\sqrt{6}-\sqrt{60}-3\sqrt{2}}-\frac{\sqrt{2}}{2}$.

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

30. (v12z-112-24) $b=2\sqrt{3}$ va $c=3\sqrt{2}$ bo'lsa, $\sqrt{c^2-4bc+4b^2}+\sqrt{b^2-2bc+c^2}$ ning qiymatini toping.

A) $3\sqrt{2}$ B) $-2\sqrt{3}$
C) $2\sqrt{3}$ D) $6(\sqrt{3}-\sqrt{2})$

31. (v12z-115-31) $\sqrt{7}+\sqrt{5}+\frac{2\sqrt{35}}{5\sqrt{7}-7\sqrt{5}}$ ni hisoblang.

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

32. (v12c-142-28) Ifodani soddalashtiring: $\left(\frac{10}{\sqrt{6}+1}+\frac{2}{\sqrt{6}-2}-\frac{6}{3-\sqrt{6}}\right)\cdot(4\sqrt{6}+24)$.

A) –115 B) –120
C) –480 D) –240

33. (v12c-144-34) $\frac{(\sqrt{m}+n)\sqrt{m-2\sqrt{m}\cdot n+n^2}}{m-n^2}+3$ ifodani $m=15$ va $n=3\sqrt{2}$ bo'lganda hisoblang.

A) 2 B) –1 C) –3 D) 0

34. (v13-106-6) $\frac{1}{\sqrt{1+b^2}}-\frac{1}{1+\frac{b^2}{1-b^2}}\cdot\frac{\sqrt{1-b^2}+\frac{b^2}{\sqrt{1-b^2}}}{1-b^2}$ ni soddalashtiring.

A) 1 B) 0
C) $\frac{1}{\sqrt{1-b^2}}-1$ D) –1

35. (v14-102-26) $\frac{\sqrt{24}}{\sqrt{5}+\sqrt{2}-\sqrt{3}}$ kasrning maxrajini irratsionallikdan qutqaring.

A) $\sqrt{5}+\sqrt{2}-\sqrt{3}$ B) 2
C) $\sqrt{5}-\sqrt{2}+\sqrt{3}$ D) $\sqrt{5}+\sqrt{2}+\sqrt{3}$

36. (v14-105-6) $\sqrt{(\sqrt{5}-\sqrt{3})\sqrt{8+\sqrt{60}}(\sqrt{5}+\sqrt{3})}$ ni hisoblang.

A) 4 B) $\sqrt{2}$ C) $2\sqrt{2}$ D) 2

37. (v15-103-6) Hisoblang: $\frac{\sqrt{0,5}}{\sqrt{2,4}}\cdot\left(\sqrt{\frac{1,2-0,7}{1,2+0,7}}+\sqrt{\frac{2,4+1,4}{2,4-1,4}}\right)\cdot\frac{\sqrt{1,5+0,4}}{\sqrt{0,9+1,5}}$.

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

38. (v15-110-4) $\left(\frac{\sqrt{x-a}}{\sqrt{x+a}+\sqrt{x-a}}+\frac{x-a}{\sqrt{x^2-a^2}-x+a}\right):\sqrt{\frac{x^2}{a^2}-1}$ ifodani soddalashtiring. $(x>|a|\ne 0)$

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

39. (v15-115-21) Ifodani soddalashtiring $(a>0)$: $\left(\frac{\sqrt{(a-5)^2+20a}}{\sqrt{a}+\frac{5}{\sqrt{a}}}-\frac{1}{\sqrt{a}}\right)\cdot\sqrt{a}$.

A) a + 1 B) a – 1 C) 2a D) a

40. (v15-119-27) Ifodani soddalashtiring: $\frac{1}{\sqrt{5}-2}-\left(\sqrt{5}+\frac{1}{2}\right)^2+5,25$.

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

41. (v16-104-2) $m=9$ bo'lsa, $\frac{m^{1,5}+2\sqrt{2}}{m+2-\sqrt{2m}}+\sqrt{2}\cdot(\sqrt{2m}-1)$ ifodaning qiymatini toping.

A) 9 B) 12 C) 27 D) 0

42. (v16-104-24) $\frac{n^{1,2}-3\sqrt{3}}{n^{0,8}+3-\sqrt{3n^{0,4}}}-\sqrt{3}(\sqrt{3n^{0,4}}-1)$ ifodani $n=32$ dagi qiymatini toping.

A) 8 B) –8 C) 6 D) –6

43. (v16-104-28) Hisoblang: $\sqrt{3\sqrt{2}-4}\cdot\sqrt[4]{34+24\sqrt{2}}\cdot\sqrt{324}$.

A) 8 B) 9 C) 6 D) 4

44. (v16-105-1) $x=2,125$ bo'lsa, $\sqrt{4x^2-5(4x-5)}+2\sqrt{9+x(x+6)}$ ifodaning qiymatini toping.

A) 11 B) 5,5 C) 6 D) 6,5

45. (v16-105-4) $\sqrt{x+1-4\sqrt{x-3}}+\sqrt{x+1+4\sqrt{x-3}}$ ifodaning $x=3,185$ dagi qiymatini toping.

A) $\frac{\sqrt{74}}{10}$ B) 1

C) 4 D) $\frac{\sqrt{74}}{5}$

46. (v16-105-5) $x = 2{,}61$ bo'lsa, $(3-x)^{-1}\cdot\sqrt{(x-3)^2(x+1)}$

A) 1,9 B) –1,9 C) 3,61 D) –3,61

47. (v16-105-14) Soddalashtiring:

$(18+8\sqrt{2})\cdot(4-\sqrt{2})^2+4\cdot\sqrt{20\frac{1}{4}}$.

A) 254 B) 178

C) $6+\sqrt{2}$ D) 214

48. (v16-105-28) $a = 1$ bo'lsa,

$\sqrt{2a-\sqrt{a^2+2}}\cdot\sqrt{2a+\sqrt{a^2+2}}$ ifodaning qiymatini toping.

A) $\sqrt{3}$ B) 1 C) $\sqrt{5}$ D) 2

49. (v16-111-25) Hisoblang:

$\left(4\sqrt{3}+8\right)\cdot\left(\sqrt{3}\left(\sqrt{3}-2\right)+\frac{3-2\sqrt{3}}{\sqrt{3}}+\frac{\sqrt{3}-2}{\sqrt{3}}+\ldots\right):$

$:\left(\sqrt{3}+1\right)$

A) 6 B) –6 C) $6\sqrt{3}$ D) $-6\sqrt{3}$

50. (v16-112-15) $a = 9{,}75$ bo'lsa,

$\sqrt{a+6\sqrt{a-9}}+\sqrt{a-6\sqrt{a-9}}$ ifodaning qiymatini toping.

A) $\sqrt{3}$ B) 3 C) $3\sqrt{3}$ D) 6

51. (v16-116-27) Hisoblang:

$(\sqrt{1+\sqrt{6}}-\sqrt{\sqrt{150}+\sqrt{25}})\cdot\sqrt{\sqrt{6}-1}+1-\sqrt{5}$,

A) 4 B) –4

C) 6 D) $6-2\sqrt{5}$

52. (v16-119-4) Hisoblang: $1-\frac{1}{1-\frac{3\sqrt{3}}{\sqrt{3}-\frac{3}{2\sqrt{3}}}}$.

A) $\frac{\sqrt{3}}{2}$ B) 1,2

C) 0,2 D) $1-\frac{\sqrt{3}}{2}$

53. (v17-109-29) Agar $x=\frac{\sqrt{15}+1}{2}$ bo'lsa,

$\frac{x^3-2x^2+6{,}5x-1}{x^2-x+1}$ kasrning qiymatini hisoblang.

A) $\sqrt{15}-1$ B) $\sqrt{15}+1$

C) $\sqrt{15}$ D) $\sqrt{15}+2$

54. (v17-110-27) Agar $x=\frac{\sqrt{13}+1}{2}$ bo'lsa,

$\frac{x^3-3x^2+7x-2}{x^2-x+1}$ kasrning qiymatini hisoblang.

A) $\sqrt{13}+1$ B) $\sqrt{13}+2$

C) $\sqrt{13}-1$ D) $\sqrt{13}$

55. (v17-119-16) $\frac{\sqrt{x-2\sqrt{2}}}{\sqrt{x^2-4x\sqrt{2}+8}}\cdot\frac{\sqrt{x+2\sqrt{2}}}{\sqrt{x^2+4x\sqrt{2}+8}}$ ifodaning $x = 3$ dagi qiymatini toping.

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

56. (v17-121-14) Agar $x=\frac{\sqrt{11}+1}{2}$ bo'lsa,

$\frac{x^3-3x^2+6{,}5x-2}{x^2-x+1}$ kasrning qiymatini hisoblang.

A) $1-\sqrt{11}$ B) $\sqrt{11}-2$

C) $\sqrt{11}-1$ D) $\sqrt{11}+1$

57. (v17-122-18) Agar

$xy+\sqrt{(1+x^2)(1+y^2)}=\sqrt{5}$ bo'lsa

$x\sqrt{1+y^2}+y\sqrt{1+x^2}$ ifodaning qiymatini toping.

A) $2\sqrt{5}$ B) 4 C) 2 D) ± 2

58. (v18-1-64) $a < 0$, $b < 0$, $a > b$ bo'lsa,

$\frac{\sqrt{ab}\left(\sqrt{\frac{a}{b}}-\sqrt{\frac{b}{a}}\right)}{\sqrt{(a+b)^2-4ab}}$ ifodani soddalashtiring.

A) –1 B) 2 C) 1 D) 0

59. (v18-1-67) Hisoblang: $\frac{1+\frac{3}{\sqrt{3}}}{\frac{3}{\sqrt{3}}-1}-\sqrt{3}$.

A) $\sqrt{3}$ B) $2+\sqrt{3}$

C) 2 D) 1

60. (v18-1-68) Agar $\frac{\sqrt{2}\cdot\sqrt{3}\cdot\sqrt{4}\cdot\sqrt{5}\cdot\ldots\cdot\sqrt{10}}{x}$ ifodaning qiymati irratsional son bo'lmasa, x ni toping.

A) $\sqrt{2}$ B) $\sqrt{6}$ C) $\sqrt{5}$ D) $\sqrt{7}$

61. (v18-1-69) Agar $x < -2$ bo'lsa,

$\sqrt{x^2+6x+1+\sqrt{9-12x+4x^2}}$ ifodani soddalashtiring.

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

C) $-x-2$ D) $-2x$

62. (v18-1-70) Agar $x < -2$ bo'lsa,

$\sqrt{x^2+5x+2+\sqrt{4-4x+x^2}}$ ifodani soddalashtiring.

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

C) $-2x$ D) $-x-2$

63. (v19/20-103-2) Hisoblang:

$\frac{2\sqrt{5}(6-\sqrt{35})}{\sqrt{7}-\sqrt{5}}\cdot\left(1+2\sqrt{1{,}4}+\frac{7}{5}\right)^{\frac{1}{2}}$.

A) $\sqrt{7}+\sqrt{5}$ B) $\sqrt{2}$

C) 2 D) 1

64. (v19/20-104-17) Ifodaning qiymatini toping:

$\frac{\left(\sqrt{7}-\sqrt{15}\right)\left(7\sqrt{2}+\sqrt{210}+\sqrt{35}+5\sqrt{3}\right)}{\sqrt{14}+\sqrt{5}}$.

A) 8 B) –4 C) –8 D) 4

65. (v19/20-107-15) a haqiqiy soni uchun $\sqrt{12-a}-\sqrt{5-a}=2$ bo'lsa, $\sqrt{12-a}+\sqrt{5-a}$ ifodaning qiymatini toping.

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

66. (v19/20-108-6) $x=5+3\sqrt{6}$; $y=2-\sqrt{6}$ bo'lsa, $\frac{x^2}{x^2-3xy}:\frac{x}{x^2-9y^2}$ ifodaning qiymatini toping.

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

67. (v19/20-108-16)

Soddalashtiring: $\frac{a^2+(\sqrt{2}-1)a-\sqrt{2}}{\sqrt{2}+\left(1-3\sqrt{2}\right)a-3a^2}$.

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

68. (v19/20-111-23) Agar $\frac{a+b}{a-b}=\sqrt{7}$ bo'lsa,

$\frac{a}{b}+\frac{b}{a}$ ni hisoblang.

A) $\frac{16}{7}$ B) $\frac{8}{3}$ C) $\frac{15}{7}$ D) $\frac{13}{6}$

69. (v19/20-122-20) Soddalashtiring:

$y\cdot\frac{1+\frac{2}{\sqrt{y+4}}}{2-\sqrt{y+4}}+\sqrt{y+4}+\frac{4}{\sqrt{y+4}}+4$.

A) 2 B) 0 C) 1 D) 4

70. (v19/20-125-17) $a-\frac{1}{a}=\frac{3\sqrt{7}}{7}$ bo'lsa,

$a^4+\frac{1}{a^4}$ ning qiymatini toping.

A) $8\frac{39}{49}$ B) $8\frac{37}{49}$ C) $7\frac{39}{49}$ D) $7\frac{31}{49}$

71. (v19/20-127-17) Agar $a \geq 0$, $\sqrt{a} \geq 3$ bo'lsa, $f(a)=\sqrt{\frac{a+9}{3}+2\sqrt{a}}-\sqrt{\frac{a+9}{3}-2\sqrt{a}}$ ifodani soddalashtiring.

A) $\frac{2\sqrt{3a}}{3}$ B) $2\sqrt{3a}$

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

72. (v19/20-127-24) $a = \sqrt{3}$ bo'lsa,

$30a-5(a+3)^2$ ifodaning qiymatini toping.

A) –50 B) –40 C) –30 D) –60

73. (v19/20-128-8) $b = \sqrt{0{,}3}$ bo'lsa,

$(b-2)^2-4b(2b-1)$ ifodani qiymatini toping.

A) 1,09 B) 0,09 C) 0,9 D) 1,9

74. (v20/21-103-24) Hisoblang:

$\sqrt{5+2\sqrt{3}+\sqrt{5\left(3+\sqrt{3}\right)+\sqrt{28+6\sqrt{3}}}}-\sqrt{3}$.

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

C) $\sqrt{2}$ D) $2+\sqrt{3}$

75. (v20/21-104-18) Hisoblang:

$\left(\frac{2}{\sqrt{7}-\sqrt{5}}+\frac{4}{3+\sqrt{5}}\right)\left(2-\sqrt{7}\right)+\sqrt{7}$.

A) 1 B) $1+2\sqrt{7}$

C) $-1+2\sqrt{7}$ D) –1

76. (v20/21-106-17) Ushbu $\dfrac{\sqrt{(3x+2)^2-24x}}{3\sqrt{x}-\dfrac{2}{\sqrt{x}}}$ ifodaning qiymatini $x=\dfrac{16}{81}$ bo'lganda hisoblang.

A) $-\dfrac{4}{9}$ B) $\dfrac{9}{4}$ C) $-\dfrac{9}{4}$ D) $\dfrac{4}{9}$

77. (v20/21-108-30) Ushbu $\sqrt{2018+\sqrt{2018+\ldots+\sqrt{2018}}}$ sonning butun qismini toping. Bunda 2018 ta ildiz belgisi qatnashgan.

A) 45 B) 44 C) 46 D) 47

78. (v20/21-111-12) Kasrning maxrajini irratsionallikdan qutqazing:

$\dfrac{2-\sqrt{3}+\sqrt{2}-\sqrt{6}}{2-\sqrt{3}-\sqrt{2}+\sqrt{6}}$.

A) $21+14\sqrt{2}+12\sqrt{3}+8\sqrt{6}$

B) $21-14\sqrt{2}-12\sqrt{3}+8\sqrt{6}$

C) $-21-14\sqrt{2}+12\sqrt{3}-8\sqrt{6}$

D) $-15-10\sqrt{2}+8\sqrt{3}+6\sqrt{6}$

79. (v20/21-112-2) Ushbu

$\left[\sqrt{8}+\left(\dfrac{3\sqrt{3}-2\sqrt{2}}{5+\sqrt{6}}-\dfrac{1}{\sqrt{3}-\sqrt{2}}\right)\cdot\dfrac{\sqrt{2}}{\sqrt{3}+\sqrt{2}}+\dfrac{6}{\sqrt{3}+\sqrt{2}}\right]^2$ ifodaning qiymatini toping.

A) 12 B) 18 C) 24 D) 27

80. (v20/21-114-1) Soddalashtiring:

$\dfrac{a\sqrt{a}}{\sqrt{a}+\sqrt{b}}-\dfrac{a\sqrt{b}}{\sqrt{b}-\sqrt{a}}-\dfrac{2a^2-4ab}{a-b}$ va $a=2$, $b=3$ da qiymatini hisoblang.

A) $\dfrac{a^2-5ab}{a-b}$, 26 B) $-\dfrac{a^2-5ab}{a-b}$, –26

C) $-\dfrac{a^2-5ab}{a-b}$, 26 D) $\dfrac{a^2-5ab}{a-b}$, – 26

81. (v20/21-115-4) Hisoblang:

$\sqrt{\underbrace{44\ldots44}_{100\ ta\ 4}+\underbrace{11\ldots11}_{51\ ta\ 1}-\underbrace{66\ldots6}_{50\ ta\ 6}}$.

A) $\underbrace{66\ldots67}_{49\ ta\ 6}$ B) $\underbrace{66\ldots67}_{50\ ta\ 6}$

C) $\underbrace{77\ldots77}_{49\ ta\ 7}$ D) $\underbrace{77\ldots77}_{50\ ta\ 7}$

82. (v20/21-117-8) $\dfrac{1}{\sqrt{2}+\sqrt{6}-1}$ kasrning maxrajini irratsionallikdan qutqaring.

A) $3\sqrt{6}-4\sqrt{3}-5\sqrt{2}+7$

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

C) $3\sqrt{6}+9\sqrt{2}-7$

D) $\sqrt{6}+\sqrt{2}$

83. (v20/21-118-5) Agar tub p va q sonlari uchun $5p+3q=19$ bo'lsa, $\dfrac{1}{\sqrt{q}-\sqrt{p}}$ kasrni irratsionallikdan qutqazing.

A) $\dfrac{\sqrt{5}-\sqrt{2}}{3}$ B) $\dfrac{\sqrt{5}-\sqrt{3}}{2}$

C) $-\sqrt{2}-\sqrt{3}$ D) $\sqrt{3}+\sqrt{2}$

84. (v20/21-122-14) Agar $x=\dfrac{\sqrt{5}-1}{2}$ bo'lsa, $(x-2)(x-1)(x+2)(x+3)$ ifodaning qiymatini toping.

A) –5 B) 5

C) $2+\sqrt{5}$ D) $\dfrac{3-\sqrt{5}}{2}$

85. (v20/21-125-22) Hisoblang:

$\dfrac{1}{5\sqrt{2}-7}-5\sqrt{2}+7$.

A) 0 B) 14

C) $10\sqrt{2}+14$ D) $10\sqrt{2}$

86. (v20/21-126-30) Kasrning maxrajidagi irratsionallikdan qutuling: $\dfrac{a}{\sqrt{1-a}-\sqrt{1-2a}}$.

A) $\sqrt{1+a}+\sqrt{1-2a}$ B) $\sqrt{1+a}+\sqrt{1+2a}$

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

87. (v20/21-127-23) Ushbu

$\left(\dfrac{c-\sqrt{d}}{c+\sqrt{d}}-\dfrac{c+\sqrt{d}}{c-\sqrt{d}}\right):\dfrac{2c\sqrt{d}}{c+\sqrt{d}}$ ifodani soddalashtiring.

A) 1 B) $\dfrac{2}{c-\sqrt{d}}$ C) –1 D) $\dfrac{2}{\sqrt{d}-c}$

88. (v20/21-127-29) Hisoblang:

$\sqrt{2003^2+2003^2\cdot2004^2+2004^2}-2003^2$.

A) 2003 B) 2002 C) 2005 D) 2004

89. (v20/21-128-5) Hisoblang:

$\sqrt{1-\dfrac{1}{2}}\cdot\sqrt{1-\dfrac{1}{3}}\cdot\sqrt{1-\dfrac{1}{4}}\cdot\ldots\cdot\sqrt{1-\dfrac{1}{64}}$.

A) 8 B) 0,25 C) 0,(3) D) 0,125

90. (v20/21-128-25) $2+\sqrt{5+2\sqrt{6}}$ soniga teskari sonning maxrajini irratsionallikdan qutqazganda maxrajda hosil bo'lishi mumkin bo'lgan eng kichik natural sonni toping.

A) 25 B) 31 C) 33 D) 23

91. (v20/21-129-21) Agar $a=\dfrac{1}{1+\sqrt{2}+\sqrt{3}}$ bo'lsa, $8a^2-4\sqrt{2}a-4$ ni hisoblang.

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

C) 50 D) 48

92. (v20/21-132-23) Agar $a=\dfrac{\sqrt{7}+\sqrt{3}}{3}$ bo'lsa, $\sqrt{a-2\sqrt{a-1}}+\sqrt{a+2\sqrt{a-1}}$ ifodaning qiymatini toping.

A) $\dfrac{10+2\sqrt{21}}{3}$ B) $\sqrt{2}$

C) 2 D) $\dfrac{\sqrt{7}-\sqrt{3}}{2}$

93. (v20/21-133-9) Hisoblang:

$\left(\dfrac{1}{2-\sqrt{3}}-\dfrac{1}{2+\sqrt{3}}\right)\cdot\left(\sqrt{12}-\sqrt{75}\right)$.

A) –12 B) –18 C) –9 D) –15

94. (v20/21-135-15) Soddalashtiring:

$\dfrac{3^{2a+0,5}-\sqrt{3}}{3^a+1}\left(\sqrt{3}\cdot9^a+3^{a+0,5}+\sqrt{3}\right)-3^{3a+1}$.

A) 1 B) 3^{a+1}

C) $3\cos7\pi$ D) -3^{a+1}

95. (v20/21-136-9) Hisoblang:

$\left(\dfrac{1}{2-\sqrt{3}}-\dfrac{1}{2+\sqrt{3}}\right)\cdot\left(\sqrt{48}-\sqrt{27}\right)$.

A) 4 B) 9 C) 12 D) 6

96. (v20/21-136-24) Hisoblang:

$\left(\dfrac{1}{2-\sqrt{3}}-\dfrac{1}{2+\sqrt{3}}\right)\cdot\left(\sqrt{12}-\sqrt{48}\right)$.

A) –18 B) –15 C) –12 D) –9

97. (v20/21-138-25) Hisoblang:

$9\sqrt{1,(6)}+10\sqrt{0,6}-\dfrac{75}{\sqrt{15}}$.

A) 0 B) $\sqrt{15}$ C) $-\sqrt{15}$ D) $2\sqrt{15}$

98. (v20/21-143-26) Hisoblang: $\sqrt{\dfrac{\sqrt{10}+1}{\sqrt{10}-1}}$.

A) $\dfrac{3}{\sqrt{10}-1}$ B) $\dfrac{3}{\sqrt{10}+1}$

C) $11+2\sqrt{10}$ D) $11-2\sqrt{10}$

99. (v21-102-19) Hisoblang:

$\sqrt{2021^2-2025\cdot2017}$.

A) 4 B) 16 C) 2021 D) 14

100. (v21-103-21) Agar $a=0,78$, $b=0,22$ bo'lsa, $\sqrt{a^3-a^2b-ab^2+b^3}$ ifodaning qiymatini toping.

A) 0,56 B) 0,75 C) 1 D) 0

101. (v21-104-2) $\sqrt{a^3-a^2b-ab^2+b^3}$ ifodaning $a=0,78$ va $b=0,22$ dagi qiymatini toping.

A) 0,56 B) 5,6 C) 0,1 D) 10

102. (v21-104-16) Hisoblang:

$5-\dfrac{13}{5}\sqrt{1\dfrac{56}{169}}-\dfrac{7}{4}\sqrt{5\dfrac{11}{49}}$

A) 2 B) 4 C) 0 D) 1

103. (v21-106-17)

$\left(13\sqrt{2}+\dfrac{1}{2}\sqrt{128}-6\sqrt{18}\right)\cdot\left(\sqrt{2}-\sqrt{3}\right)$

hisoblang.

A) 1 B) $\sqrt{3}-\sqrt{2}$

C) $\sqrt{6}$ D) $\sqrt{6}-2$

104. (v21-110-2) Agar

$A=\left(\dfrac{9}{8}\sqrt{12}-4,5\sqrt{0,5}+2\dfrac{1}{4}\sqrt{2}-\dfrac{45}{8}\sqrt{\dfrac{1}{3}}\right):\dfrac{9}{4}\sqrt{\dfrac{1}{6}}$ bo'lsa, $\arccos A$ ni toping.

A) $\dfrac{\pi}{4}$ B) $\dfrac{\pi}{2}$ C) $\dfrac{\pi}{3}$ D) π

105. (v21-110-25) Hisoblang:

$\sqrt{\left(\sqrt{7}-2\right)^2}+\sqrt{\left(\sqrt{7}-3\right)^2}$.

A) $2\sqrt{7}-1$ B) $2\sqrt{7}$

C) 1 D) $2\sqrt{7}+1$

106. (v21-111-13) Soddalashtiring: $(\sqrt{6}-\sqrt{2})(8+2\sqrt{12})$.

A) 4 B) 16
C) $\sqrt{12}-\sqrt{6}$ D) 8

107. (v21-111-25) $x=\left(\frac{3}{2}\sqrt{3}-6\sqrt{12}+\sqrt{1\frac{1}{3}}+14\sqrt{\frac{3}{4}}\right):\frac{2}{3}\sqrt{3}$, [x] ni toping. Bu yerda [x] – sonning butun qismi.

A) 1 B) –5 C) –2 D) 3

108. (v21-115-24) Soddalashtiring: $(8+2\sqrt{15})(\sqrt{5}-\sqrt{3})^2$.

A) 4 B) $3\sqrt{5}$
C) $(\sqrt{5}-\sqrt{3})^4$ D) 2

109. (v21-116-20) Hisoblang:

$$\frac{(-17\sqrt{5})^2}{85}+\sqrt{6\cdot15}\cdot\sqrt{40}.$$

A) 60 B) 67 C) 77 D) 75

110. (v21-119-13) $\left(2-\frac{2\sqrt{x}}{\sqrt{x}-3}\right):\frac{8}{x-9}$ ifodaning $x = 1{,}21$ dagi qiymatini toping.

A) $-3\frac{3}{40}$ B) $-3\frac{7}{40}$ C) $-3\frac{3}{4}$ D) $-3\frac{3}{41}$

111. (v21-119-18) Hisoblang: $\sqrt{2026\cdot2016+25}$.

A) 2021 B) 2020 C) 2010 D) 2011

112. (v21-121-6) Hisoblang:

$$\frac{\sqrt{244^2-240^2}}{(\sqrt{14}-5)(\sqrt{14}+5)}.$$

A) –4 B) 4 C) 8 D) 11

113. (v21-130-13) Hisoblang: $\left(\frac{1,5-\sqrt{6}}{4-\sqrt{6}}\right)^2$.

A) $\frac{3}{16}$ B) $\frac{1}{4}$ C) $\frac{3}{8}$ D) $\frac{3}{4}$

25. Ratsional ko'rsatkichli daraja va uning xossalari

1. (98-5-2) $\sqrt[3]{9+\sqrt{73}}\sqrt[3]{9-\sqrt{73}}$ ni hisoblang.

A) 2 B) 3 C) 4 D) 1
E) 6

2. (98-5-17) $(a^{1/2}-b^{1/2})(a+a^{1/2}b^{1/2}+b)$ ni soddalashtiring, so'ng a va b lar daraja ko'rsatkichlarining yig'indisini hisoblang.

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

3. (98-8-35) $\sqrt{3-2\sqrt{2}}\cdot\sqrt[4]{17+12\sqrt{2}}$ ni hisoblang.

A) $6\sqrt{2}$ B) 2 C) 4 D) 1
E) $5-2\sqrt{2}$

4. (00-2-20) $\sqrt{a^{\frac{2}{3}}-2a^{-\frac{1}{3}}+a^{-\frac{4}{3}}}:a^{-\frac{2}{3}}$ ni soddalashtiring ($a \geq 1$).

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

5. (00-3-2) $\sqrt[3]{216\cdot512}+\sqrt[5]{32\cdot243}$ ni hisoblang.

A) 45 B) 48 C) 49 D) 50
E) 54

6. (00-3-6) $0{,}27^{-\frac{1}{3}}-\left(-\frac{1}{6}\right)^{-2}+$
$+256^{\frac{3}{4}}-3^{-1}+5{,}5^0$ ni hisoblang.

A) 33 B) 32,97 C) 31 D) 32
E) 31,99

7. (00-8-29) 1; $\sqrt{2}$; $\sqrt[3]{3}$ va $\sqrt[4]{4}$ sonlarni o'sish tartibida joylashtiring.

A) 1; $\sqrt{2}=\sqrt[4]{4}$; $\sqrt[3]{3}$ B) 1; $\sqrt[3]{3}$; $\sqrt{2}$; $\sqrt[4]{4}$
C) $\sqrt[3]{3}$; $\sqrt{2}=\sqrt[4]{4}$; 1 D) $\sqrt{2}=\sqrt[4]{4}$; $\sqrt[3]{3}$; 1
E) $\sqrt[3]{3}$; 1; $\sqrt[4]{4}$; $\sqrt{2}$

8. (00-9-31) Agar $\sqrt[4]{ab}=2\sqrt{3}$ va a, b ∈ N bo'lsa, a – b quyida keltirilgan qiymatlardan qaysi birini qabul qila olmaydi?

A) –32 B) 10 C) 0 D) 70
E) 25

9. (00-10-5) $\left[65\cdot\left(4^{\frac{1}{4}}\right)^{-12}+\frac{2^{-5}}{-2}\right]^{-1}$ ni hisoblang.

A) $\frac{1}{2}$ B) 2 C) $\frac{1}{4}$ D) $\frac{1}{8}$
E) 1

10. (01-2-56) $\frac{\sqrt[5]{17}}{\sqrt[5]{144}}+\frac{\sqrt[3]{54}}{\sqrt[3]{128}}$ ni hisoblang.

A) 1 B) 1,2 C) 1,25 D) 1,5
E) 1,75

11. (02-10-9) $\left(3\frac{3}{8}\right)^{-\frac{2}{3}}+27^{\frac{2}{3}}\cdot9^{0,5}\cdot3^{-2}+$
$+\left(\left(\frac{7}{9}\right)^3\right)^0-\left(-\frac{1}{2}\right)^{-2}$ ni hisoblang.

A) $\frac{4}{9}$ B) $\frac{8}{9}$ C) 1 D) 0
E) $1\frac{2}{3}$

12. (02-10-42) $m=\left(\frac{4}{7}\right)^{-2/3}$, $n=\left(\frac{49}{16}\right)^{4/3}$ va $k=\left(\frac{16}{49}\right)^{-1/4}$ sonlarni o'sish tartibida joylashtiring.

A) $k<m<n$ B) $m<k<n$
C) $m<n<k$ D) $k<n<m$
E) $n<m<k$

13. (02-12-34) $a=\sqrt[3]{2}$, $b=\sqrt[4]{3}$ va $c=\sqrt[6]{5}$ sonlarni o'sish tartibida joylashtiring.

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

14. (03-7-11) Agar $x=\sqrt[8]{\frac{32\sqrt{2}}{\sqrt{8}}}$ bo'lsa, quyidagilardan qaysi biri butun son bo'ladi?

A) x B) x^2 C) x^3 D) x^5
E) x^7

15. (03-7-51) $\left(\left(a^{-\frac{3}{2}}b\right)(ab^{-2})^{-\frac{1}{2}}(a^{-1})^{-\frac{2}{3}}\right)^3$ ni soddalashtiring.

A) $\frac{1}{a^4b^6}$ B) a^4b^6
C) $\frac{a^4}{b^6}$ D) $\frac{b^6}{a^4}$
E) a^2b^3

16. (03-8-6) $\left(\sqrt[3]{13}\sqrt[3]{\frac{\sqrt[4]{13}-1}{(\sqrt[4]{13}+1)^2}}+\frac{\sqrt[4]{13}-1}{\sqrt[3]{(\sqrt{13}-1)^2}}\right)^{\frac{3}{5}}\cdot(\sqrt{13}-1)^{\frac{4}{5}}$ ni hisoblang.

A) $\sqrt{13}+1$ B) $\sqrt{13}-1$
C) 12 D) $(\sqrt{13}-1)^{-1}$
E) $2\sqrt{13}$

17. (03-8-49) $ab\cdot\left(\frac{a^{1-n}}{b^n}-\frac{b^{1-n}}{a^n}\right)^{\frac{1}{n}}\cdot\frac{1}{\sqrt[n]{a-b}}$ ni soddalashtiring.

A) 1 B) ab C) $\sqrt{ab}$ D) 0
E) $\sqrt{a-b}$

18. (v4-109-18) $\left[(\sqrt[8]{16})^{-12}\cdot(\frac{1}{33})^{-1}+95\cdot4^{-3}\right]$ ni hisoblang.

A) 2 B) 0,75 C) $\frac{1}{2}$ D) $\frac{1}{4}$
E) 4

19. (v6-3-3) $\frac{x^{4\sqrt{x}}+y^{4\sqrt{x}}}{y^{2\sqrt[4]{x}}-x^{2\sqrt[4]{x}}}$ ni qisqartiring.

A) $x^{\sqrt{x}}+y^{\sqrt{x}}$ B) $\frac{1}{x^{\sqrt[4]{x}}+y^{\sqrt[4]{x}}}$
C) $\frac{1}{-x^{\sqrt[4]{x}}+y^{\sqrt[4]{x}}}$ D) $x^{\sqrt{x}}-y^{\sqrt{x}}$

20. (v6-17-19) $a=\left(\frac{1}{3}\right)^{-\sqrt{3}}$, $b=\sqrt[4]{3^6}$ va $c=\left(\sqrt[3]{3}\right)^5$ sonlarni o'sish tartibida joylashtiring.

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

21. (v7-102-15) $\sqrt{12\sqrt[3]{18}}\cdot\sqrt[3]{96}$ ni hisoblang.

A) 18 B) 6 C) 12 D) 9

22. (v7-102-17) $\frac{\left(32-16a^{\frac{1}{4}}\right)\cdot\left(2a^{\frac{1}{4}}+a^{\frac{1}{2}}\right)}{8a^{\frac{1}{4}}-2a^{\frac{3}{4}}}$ kasrni qisqartiring.

A) 4 B) 15 C) 8 D) 7,5

23. (v7-102-28) $\sqrt[3]{2001\cdot 1997-1998\cdot 2000+9}$ ni hisoblang.

A) $\sqrt[3]{13}$ B) 2 C) $\sqrt[3]{6}$ D) $\sqrt[3]{17}$

24. (v7-103-15) $\frac{\sqrt[3]{\left(5+2\sqrt{6}\right)^2}}{\sqrt[3]{5-\sqrt{24}}}-6-\sqrt{24}$ ni hisoblang.

A) –3 B) –1 C) –8 D) –7

25. (v7-109-28) $\sqrt[3]{a}=\sqrt[3]{c}+\sqrt[3]{b}$ bo'lsa, $(a-b-c)^3$ ni toping.

A) 81abc B) –27abc
C) 27abc D) $-81a^2b^2c^2$

26. (v7-112-17) $\sqrt[3]{3-2\sqrt{2}}:\sqrt[3]{\sqrt{2}-1}+1$ ni hisoblang.

A) 2 B) 3 C) –1 D) 1

27. (v12z-103-7) $\frac{21^{-1}}{2^{-3}}\cdot\frac{\left(\frac{1}{343}\right)^{-1/3}+\left(\frac{1}{8}\right)^{-1/3}}{\sqrt[3]{18\sqrt{144}}}$ ni hisoblang.

A) $\frac{4}{7}$ B) $\frac{3}{2}$ C) $\frac{2}{3}$ D) $\frac{5}{16}$

28. (v12z-104-3) $\left(3^{\sqrt{8+2\sqrt{15}}}\right)^{\sqrt{5}-\sqrt{3}}$ ifodaning qiymatini toping.

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

29. (v12z-109-30) $\frac{\sqrt[3]{(7+\sqrt{50})^2}}{\sqrt[3]{7-\sqrt{50}}}+\sqrt{50}$ ni hisoblang.

A) 14 B) 7 C) –14 D) –7

30. (v12z-111-32) Hisoblang:

$\sqrt[4]{64}-3\sqrt[4]{324}+2\sqrt{32}-2\sqrt{50}$.

A) $16\sqrt[4]{2}-2\sqrt{2}$ B) $-9\sqrt{2}$
C) $-8\sqrt[4]{2}-2\sqrt{2}$ D) $12\sqrt{2}$

31. (v12z-130-36) Hisoblang:

$\sqrt[12]{\frac{2\cdot(8^3+8^3+2^9+2^9)}{3^{23}+9\cdot 27^7+3\cdot 9^{11}}}$.

A) $\frac{4}{9}$ B) $\frac{2}{9}$ C) $\frac{4}{27}$ D) $\frac{2}{3}$

32. (v12z-139-36) $3\sqrt{20}\left(\sqrt[4]{4}\left(3\frac{3}{8}\right)^{\frac{2}{3}}\cdot 10^{\frac{1}{2}}\right)^{-1}$ ni hisoblang.

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

33. (v12c-131-27) $2^{\sqrt{4+2\sqrt{3}}}:2^{\sqrt{4-2\sqrt{3}}}$ ifodaning qiymatini toping.

A) 8 B) 4 C) $8^{\sqrt{3}}$ D) $2^{\sqrt{3}}$

34. (v13-102-36)

$\left(\frac{(a+\sqrt[3]{a^2x}):(x+\sqrt[3]{ax^2})-1}{a^{\frac{1}{3}}-x^{\frac{1}{3}}}-x^{-\frac{1}{3}}\right)^3$ ifodani soddalashtiring.

A) 0 B) a^2x
C) ax^{-2} D) ax

35. (v13-113-5) $\left(\left(7\sqrt{7}\right)^{1/3}+\left(3^{1/10}\right)^{-5}\right)\cdot\left(\frac{1}{\sqrt{7}}-\sqrt{\frac{1}{3}}\right)$ ni hisoblang.

A) $-\frac{1}{21}$ B) $\frac{4}{21}$ C) $\frac{2}{21}$ D) $-\frac{4}{21}$

36. (v13-137-3) $\sqrt[4]{11+2\sqrt{18}}\cdot\sqrt[8]{9-\sqrt{80}}\cdot\sqrt[8]{9+\sqrt{80}}$ ni hisoblang.

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

37. (v13-151-15) $\sqrt[10]{(15^{10}-10^{10}):(3^{10}-2^{10})}$ ni hisoblang.

A) 25 B) 8 C) 5 D) 9

38. (v13-170-28) $\sqrt[n]{3^8+9^4+81^2}$ ifodaning qiymati natural bo'ladigan n ning eng katta qiymatini toping.

A) 8 B) 6 C) 12 D) 9

39. (v14-104-2) Hisoblang:

$\sqrt[3]{5^{(\sqrt{5}+1)^2}\cdot 25^{-\sqrt{5}}}\cdot\left(\sqrt{5^3}-\sqrt{\frac{1}{125}}\right):\left(\sqrt{5}-5^{-\frac{1}{2}}\right)$.

A) 155 B) 1 C) 50 D) 25

40. (v15-101-24) $\sqrt[3]{2\sqrt{13}+5}+\sqrt[3]{5-2\sqrt{13}}$ ni hisoblang.

A) $\sqrt[3]{2}$ B) $\frac{\sqrt[3]{65}}{4}$ C) 1 D) $\frac{3}{2}$

41. (v15-113-15) $\frac{b^{\frac{5}{3}}+2b^{\frac{2}{3}}+b^{-\frac{1}{3}}}{b^{\frac{7}{6}}+b^{\frac{1}{6}}}$ ni soddalashtiring.

A) 1 B) $\frac{b+b^{-2}}{2}$

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

42. (v16-105-9) $\frac{\sqrt{5-2\sqrt{6}}}{(\sqrt[4]{3}+\sqrt[4]{2})(\sqrt[4]{3}-\sqrt[4]{2})}$ ni hisoblang.

A) 1/2 B) 2 C) –1 D) 1

43. (v17-104-27) $\frac{\sqrt[4]{48}\cdot\sqrt{245}}{\sqrt{5}\cdot\sqrt[4]{3}}$ ifodaning qiymatini toping.

A) 10 B) 14 C) 1 D) 0

44. (v18-1-71) Hisoblang:

$\left[4^{-\frac{1}{4}}+\left(\frac{1}{2^{-\frac{3}{2}}}\right)^{-\frac{4}{3}}\right]\cdot\left[4^{-0,25}-\left(2\sqrt{2}\right)^{-\frac{4}{3}}\right]$.

A) $\frac{5}{16}$ B) $\frac{1}{2}$ C) 1 D) $\frac{7}{16}$

45. (v18-1-72) Hisoblang:

$\left[\frac{1}{4}\left(0,027^{\frac{2}{3}}+15\cdot 0,0016^{\frac{3}{4}}+1\right)\right]^{\frac{1}{2}}$.

A) 1 B) 0,55 C) $\frac{1}{2}$ D) 0,54

46. (v18-1-75) Sonlarni taqqoslang: $x=\sqrt[6]{5}$, $y=\sqrt[3]{3}$, $z=\sqrt{2}$.

A) z > x > y B) x > z > y
C) z > y > x D) x > y > z

47. (v18-1-77) Agar $\sqrt[3]{a+\sqrt[3]{a+\sqrt[3]{a+\ldots}}}=2$ bo'lsa, $\sqrt{a-\sqrt{a-\sqrt{a-\ldots}}}$ ning qiymatini toping.

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

48. (v18-1-78) Agar $x=\sqrt{42-\sqrt{42-\sqrt{42-\ldots}}}$, $y=\sqrt{x+\sqrt{x+\sqrt{x+\ldots}}}$, $z=\sqrt{y\cdot\sqrt{y\cdot\sqrt{y\cdot\ldots}}}$ bo'lsa, x + y + z ning qiymatini toping.

A) 11 B) 14 C) 10 D) 12

49. (v19/20-102-21) Ifodani soddalashtiring:

$\frac{2\sqrt[3]{b^2}}{\sqrt[6]{b}\cdot\sqrt[6]{b}}$.

A) 2 B) 2b C) b D) 1

50. (v19/20-111-5)

$\frac{2}{x^2-4}+\frac{x-4}{x^2+2x}=\frac{1}{x^2-2x}$ tenglamaning barcha ildizlari yig'indisini (agar u bitta bo'lsa, shu ildizni o'zini) toping.

A) 5 B) 3 C) 4 D) –5

51. (v19/20-115-25) a manfiy bo'lsa, ifodani soddalashtiring: $\sqrt[3]{54a^{2\frac{1}{3}}}\cdot\sqrt[3]{24a^{\frac{2}{3}}}$.

A) $12a^{\frac{2}{3}}$ B) $6a^{\frac{2}{3}}$ C) $6a\sqrt[3]{6}$ D) 12a

52. (v19/20-119-11) Ifodani soddalashtiring:

$\sqrt[5]{b^5}+\sqrt[4]{b^4}-\sqrt[6]{b^6}-\sqrt[7]{b^7}$, bu yerda $b\geq 0$.

A) 0 B) 0; 4b
C) 4b D) 0; –4b

53. (v19/20-120-5) Hisoblang:

$27^{\frac{2}{3}}+16^{\frac{3}{4}}-\frac{2}{8^{-\frac{2}{3}}}+\frac{\sqrt[5]{2}}{4^{-\frac{2}{5}}}$.

A) 11 B) 23 C) 7 D) 9

54. (v20/21-107-4) Agar $\sqrt[5]{2\sqrt[4]{4\sqrt[3]{16\sqrt{4096}}}}$ bo'lsa, $\sqrt[7]{x^6\sqrt[7]{x^3}}$ ni hisoblang.

A) 2 B) $\sqrt[7]{8}$ C) $\sqrt[7]{4}$ D) $\sqrt[7]{16}$

55. (v20/21-121-25) Hisoblang:

$0,125^{\frac{-1}{3}}:(27)^{\frac{2}{3}}$.

A) $\frac{2}{9}$

B) 18

C) $\frac{1}{18}$

D) ifoda ma'noga ega emas

56. (v20/21-122-16) Hisoblang:

$\sqrt[3]{2\sqrt{6}-5}\cdot\sqrt[6]{49+20\sqrt{6}}$.

A) –1 B) 1 C) 2 D) $-\sqrt[3]{5}$

57. (v20/21-123-7) Hisoblang:

$\sqrt[3]{5\sqrt{2}+7}-\sqrt[3]{5\sqrt{2}-7}$.

A) 2 B) $\sqrt{2}$ C) $-\sqrt{2}$ D) –2

58. (v20/21-137-7) $\sqrt[4]{\sqrt[3]{\sqrt{2}}} : \sqrt[6]{8}$ ifodani rasional daraja ko'rinishda ifodalang.

A) $2^{-\frac{11}{24}}$ B) $2^{-\frac{11}{12}}$ C) $2^{\frac{11}{24}}$ D) $2^{\frac{1}{12}}$

59. (v21-103-9) Hisoblang: $\frac{\left(2^{\frac{4}{5}} \cdot 5^{\frac{2}{3}}\right)^{15}}{50^{10}}$.

A) 5^{-10} B) 5^{10} C) 2^{10} D) 25^{10}

60. (v21-103-28)

$\left(9^{0,25} - \left(2^{1,5}\right)^{\frac{2}{3}}\right) \cdot \left(9^{0,25} + \left(2^{1,5}\right)^{\frac{2}{3}}\right) + 1$ ifodaning qiymatini toping.

A) 0 B) –1 C) 2 D) 1

61. (v21-104-20) $6 \cdot \frac{5 \cdot 2^{n-2} + 10 \cdot 2^{n-1}}{10^{n+2}}$ hisoblang.

A) –1 B) 1 C) 2^{n-3} D) 5^{n-2}

62. (v21-107-16) $N = a^{2\frac{1}{3}}$, $M = a^3$, $P = a^{4\frac{1}{2}}$ bo'lsa, $\frac{N^2\sqrt[4]{NP}}{\sqrt{M^3N}}$ ifoda soddalashtirilganda a ning qanday darajasi hosil bo'ladi?

A) $\frac{19}{24}$ B) $\frac{17}{24}$ C) $\frac{1}{24}$ D) $\frac{5}{24}$

63. (v21-108-20) $\sqrt[6]{a^3\sqrt[5]{a^2\sqrt{a}}}$ ifoda soddalashtirilganda a ning qanday darajasi hosil bo'ladi?

A) $\frac{1}{12}$ B) $\frac{5}{12}$ C) $\frac{7}{12}$ D) $\frac{11}{12}$

64. (v21-113-18) $\left[\frac{2:4^{-2} + \left(3^{-2}\right)^3 \cdot \left(\frac{1}{9}\right)^{-3}}{5^{-3} \cdot 25^2 + (0,7)^0 \cdot \left(\frac{1}{2}\right)^{-2}}\right]$ hisoblang, bu yerda [...] – sonning butun qismi.

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

65. (v21-114-28) $3x^{\frac{1}{5}} \cdot x^{0,6} \cdot x^{1,2}$ ifodaning $x = 10$ dagi qiymatini toping.

A) 100 B) 300
C) 200 D) 400

66. (v21-120-14) Hisoblang: $\frac{8^{2,6} \cdot 5^{3,6}}{20^{2,4}}$.

A) 40 B) 45 C) 20 D) 10

67. (v21-121-22) Agar $M = \frac{512^2 \cdot \sqrt{16384} \cdot \sqrt[3]{4096^2}}{32 \cdot \sqrt[3]{8^5} \cdot 1024}$ bo'lsa, M ni toping.

A) 1024 B) 8192
C) 8092 D) 1

68. (v21-130-4)

$\left(\sqrt[3]{\frac{1}{9}} + 4\sqrt[3]{\frac{1}{72}} - \sqrt[3]{4}\right) \cdot \left(\sqrt[3]{9} + \sqrt[3]{12} + \sqrt[3]{16}\right)$ hisoblang.

A) 2 B) –1 C) 1 D) $\frac{1}{2}$

69. (v21-130-25)

$\frac{\left(\sqrt[3]{10} - \sqrt[3]{7}\right) \cdot \left(\sqrt[3]{100} + \sqrt[3]{70} + \sqrt[3]{49}\right)^2}{\left(3\sqrt{16} - 3\sqrt{10}\right)^2 \cdot \left(\frac{\sqrt{16}}{3} + \frac{\sqrt{10}}{3}\right)^2}$ ifodaning qiymatini toping.

A) $\frac{1}{12}$ B) 1 C) $\frac{1}{6}$ D) $\frac{1}{4}$

26. Ratsional ko'rsatkichli. Daraja qatnashgan ifodalarni soddalashtirish

1. (97-1-18) $\left[\frac{x^{\frac{1}{2}} - y^{\frac{1}{2}}}{x - y} - \frac{1}{x^{\frac{1}{2}} - y^{\frac{1}{2}}}\right] \cdot \frac{x + 2x^{\frac{1}{2}}y^{\frac{1}{2}} + y}{4y^{\frac{1}{2}}}$ ni soddalashtiring.

A) $\sqrt{x} + \sqrt{y}$ B) $\frac{1}{\sqrt{x} - \sqrt{y}}$

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

E) $\frac{\sqrt{x} + \sqrt{y}}{2(\sqrt{y} - \sqrt{x})}$

2. (97-9-81) $\frac{\sqrt[3]{x^2} + 2\sqrt[3]{x} + 1}{x + 3\sqrt[3]{x^2} + 3\sqrt[3]{x} + 1}$ ni soddalashtiring.

A) 1 B) $\frac{1}{\sqrt[3]{x} + 1}$

C) $\sqrt[3]{x}$ D) 0

E) $\sqrt[3]{x} + 1$

3. (98-1-35) $\sqrt[3]{2\sqrt{6} - 5} \cdot \sqrt[6]{49 + 20\sqrt{6}}$ ni hisoblang.

A) 1 B) –1 C) $4\sqrt{6}$ D) 2 E) $-2\sqrt{6}$

4. (98-11-5) $\sqrt[3]{80 + 48\sqrt{3}}$ ni soddalashtiring.

A) $4\sqrt{3} + 1$ B) $2\sqrt{3} + 2$
C) $4\sqrt{2} + 2$ D) $3\sqrt{2} + 2$
E) $2\sqrt{3} + 1$

5. (98-12-13) $\left(\sqrt[6]{9 + 4\sqrt{5}} + \sqrt[3]{\sqrt{5} + 2}\right) \cdot \sqrt[3]{\sqrt{5} - 2}$ ni hisoblang.

A) 2 B) 1 C) 3 D) 4 E) 6

6. (98-12-17) $\sqrt[4]{97 + 56\sqrt{3}}$ ni soddalashtiring.

A) $\sqrt{3} + 2$ B) $\sqrt{2} + 3$
C) $\sqrt{2} + \sqrt{3}$ D) $7 + 4\sqrt{3}$
E) $\sqrt{3} + 3$

7. (99-9-2) Agar $a = 27$ bo'lsa,

$\left(\frac{a - b}{\sqrt[3]{a} + \sqrt[3]{b}} + \sqrt[3]{ab}\right) : \left(\sqrt[3]{a} + \sqrt[3]{b}\right) + \left(\sqrt[3]{a^2} - \sqrt[3]{b^2}\right) : \left(\sqrt[3]{a} + \sqrt[3]{b}\right)$ ning qiymatini hisoblang.

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

8. (00-1-7) $\sqrt{\frac{a^{\frac{3}{2}} - b^{\frac{3}{2}}}{a^{\frac{1}{2}} - b^{\frac{1}{2}}} + a^{\frac{1}{2}}b^{\frac{1}{2}}} - \sqrt{\frac{a^{\frac{3}{2}} + b^{\frac{3}{2}}}{a^{\frac{1}{2}} + b^{\frac{1}{2}}} - a^{\frac{1}{2}}b^{\frac{1}{2}}}$ ni soddalashtiring $(b > a > 0)$.

A) $2\sqrt{a}$ B) $2\sqrt{b}$
C) $2(\sqrt{b} - \sqrt{a})$ D) $2(\sqrt{a} - \sqrt{b})$
E) $2\sqrt{b} - \sqrt{a}$

9. (00-8-53) $\frac{a^{3/4} - 36^{1/4}}{a^{1/2} - 6a^{1/4}}$ ni soddalashtiring

A) $\sqrt[4]{a} - 6$ B) $\sqrt[4]{a} + 6$
C) $\sqrt{a} - 6$ D) $\sqrt{a} + 6$
E) $a + 6$

10. (01-3-22) $\sqrt{3 + 2\sqrt{2}} \cdot \sqrt[4]{17 - 12\sqrt{2}}$ ni hisoblang.

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

11. (01-5-3) $\sqrt[3]{5\sqrt{2} + 7} - \sqrt[3]{5\sqrt{2} - 7}$ ni hisoblang.

A) 2 B) 1 C) 3 D) 4
E) 5

12. (01-6-24) $\frac{\sqrt{\sqrt{a^3}} + \sqrt[12]{a^9}}{a\sqrt[4]{a} \cdot \sqrt{a}}$ ni soddalashtiring.

A) $2a^{-2}$ B) $2a^{-1}$ C) a^{-1} D) a^{-3}
E) $2a^{-3}$

13. (01-6-32) $\left(\frac{x^{\frac{3}{2}} - y^{\frac{3}{2}}}{x^{\frac{1}{2}} - y^{\frac{1}{2}}} - x - y\right) \cdot x^{\frac{1}{3}}y^{\frac{1}{3}}$ ning $x = 16^{\frac{1}{3}}$ va $y = 4^{\frac{1}{3}}$ bo'lgandagi qiymatini hisoblang.

A) 2 B) 4
C) $2\sqrt[3]{4}$ D) 3
E) $2\sqrt[3]{2}$

14. (02-1-20) $\frac{\sqrt{a^3b} \cdot \sqrt[3]{a^4} + \sqrt{a^4b^3} : \sqrt[6]{a}}{\left(b^2 - ab - 2a^2\right) \cdot \sqrt{ab}}$ ni soddalashtiring.

A) $\frac{a\sqrt[3]{a}}{b - 2a}$ B) $a\sqrt[3]{a}$

C) $\frac{b - 2a}{\sqrt{a}}$ D) $a\sqrt{a}$

E) $\frac{a\sqrt{a}}{a - 2b}$

15. (02-3-6) $\sqrt[4]{68 + 8\sqrt{72}} \cdot \sqrt[8]{4 - \sqrt{15}} \cdot \sqrt[8]{4 + \sqrt{15}} + 1$ ni soddalashtiring.

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

16. (02-6-27) Agar a = 5,2 bo'lsa, $\frac{a^2-a-6-(a+3)\sqrt{a^2-4}}{a^2+a-6-(a-3)\sqrt{a^2-4}}$ ning qiymatini toping.
A) 1,5 B) –2,5 C) –1,5 D) 2,4
E) –3,2

17. (02-10-5) $\sqrt[3]{9+2\sqrt{20}}+\sqrt[3]{9-2\sqrt{20}}$ ning qiymatini toping.
A) 3 B) 1 C) 4 D) 2
E) $2\sqrt[3]{2}$

18. (02-12-44) Agar a = 729 bo'lsa, $\frac{a^{\frac{1}{3}}-8a^{\frac{1}{3}}}{a^{\frac{2}{3}}+2a^{\frac{1}{3}}+4}:\left(\sqrt[3]{a}-2\right)$ ning qiymatini toping.
A) 9 B) 6 C) 12 D) 15
E) 3

19. (03-1-59) $\frac{2a^{-1/3}}{a^{2/3}-3a^{-1/3}}-\frac{a^{2/3}}{a^{5/3}-a^{2/3}}-\frac{a+1}{a^2-4a+3}$ ni soddalashtiring.
A) 0 B) 1 C) –1 D) $\frac{a-1}{a+1}$
E) $\frac{a}{a-3}$

20. (03-4-9) Agar x = 256 bo'lsa, $\frac{x-1}{x^{\frac{3}{4}}+x^{\frac{1}{2}}}\cdot\frac{x^{\frac{1}{2}}+x^{\frac{1}{4}}}{x^{\frac{1}{2}}+1}\cdot x^{\frac{1}{4}}+1$ ning qiymatini hisoblang.
A) 14 B) 15 C) 16 D) 13
E) 12

21. (03-4-18) $\sqrt[3]{16+16\sqrt{2}}\cdot\sqrt[6]{48-32\sqrt{2}}$ ni hisoblang.
A) 2 B) 6 C) 4 D) 8 E) 5

22. (03-4-28) a = 64 bo'lganda, $\frac{a^{\frac{4}{3}}-8a^{\frac{1}{3}}b}{a^{\frac{2}{3}}+2a^{\frac{1}{3}}b^{\frac{1}{3}}+4b^{\frac{2}{3}}}:\left(1-\frac{2b^{\frac{1}{3}}}{a^{\frac{1}{3}}}\right)-4a^{\frac{2}{3}}$ ning qiymatini hisoblang.
A) –46 B) –48 C) –44 D) –50
E) –42

23. (03-5-5) $((\sqrt[4]{2}-\sqrt[4]{8})^2+5)\cdot((\sqrt[4]{2}-\sqrt[4]{8})^2-5)$ ni hisoblang.
A) 17 B) 16 C) 20 D) $17\sqrt{2}$
E) 25

24. (03-5-10) $\frac{\sqrt[3]{26-15\sqrt{3}}\cdot(2-\sqrt{3})}{7-4\sqrt{3}}$ ni soddalashtiring.
A) 1 B) $\frac{1}{3}$ C) $2-\sqrt{3}$ D) 2
E) 3

25. (03-6-46) $\sqrt[3]{1-\sqrt{3}}\cdot\sqrt[6]{4+2\sqrt{3}}$ ni hisoblang.
A) $-\sqrt{2}$ B) $\sqrt[3]{2}$ C) $-\sqrt[3]{2}$ D) $\sqrt{2}$
E) $\sqrt[3]{3}$

26. (03-8-9) $\frac{2}{2+\sqrt[3]{2}+\sqrt[3]{4}}$ kasrning maxrajini irratsionallikdan qutqaring.
A) $2-\sqrt[3]{4}$ B) $1-\sqrt[3]{4}$
C) $1+\sqrt[3]{4}$ D) $\sqrt[3]{2}$
E) $\sqrt[3]{4}$

27. (v4-113-17) $\left(\frac{1}{\sqrt{a+1}+\sqrt{a}}+\frac{1}{\sqrt{a}-\sqrt{a-1}}\right)\cdot(\sqrt{a+1}-\sqrt{a-1}):2$ ni soddalashtiring.
A) $2\sqrt{a}$ B) $2\sqrt{a+1}$
C) 1 D) $2\sqrt{a-1}$
E) 2

28. (v4-114-33) $\frac{a+a\sqrt{a}}{\sqrt[3]{a^2}-\sqrt[6]{a^5}+a}-\frac{\sqrt[3]{a^2}-a}{\sqrt[3]{a}+\sqrt{a}}-2\sqrt{a}$ ni soddalashtiring.
A) $2\sqrt{a}$ B) $a-\sqrt{a}$
C) 0 D) $\sqrt{a}-\sqrt[3]{a}$
E) $2\sqrt[3]{a}$

29. (v7-105-28) $\frac{\sqrt[3]{26-15\sqrt{3}}\cdot\left(2-\sqrt{3}\right)}{28-16\sqrt{3}}$ ni soddalashtiring.
A) $\frac{1}{3}$ B) 1 C) $\frac{1}{4}$ D) $2-\sqrt{3}$

30. (v7-108-28) Agar $a=8\sqrt{2}$ va $b=4\sqrt{2}$ bo'lsa, $\frac{a^{\frac{3}{2}}-b^{\frac{3}{2}}}{a^{\frac{1}{2}}-b^{\frac{1}{2}}}-\frac{a^{\frac{3}{2}}+b^{\frac{3}{2}}}{a^{\frac{1}{2}}+b^{\frac{1}{2}}}$ ning qiymati nechaga teng bo'ladi?
A) 6 B) 16 C) 12 D) 8

31. (v7-111-28) $\left(\frac{a^{\frac{3}{2}}+b^{\frac{3}{2}}}{(a^{\frac{1}{2}}+b^{\frac{1}{2}})^2}-\frac{a^{\frac{1}{2}}b^{\frac{1}{2}}}{a^{\frac{1}{2}}+b^{\frac{1}{2}}}\right):(a-b)$ ning a = 0,36 va b = 0,16 bo'lgandagi qiymatini hisoblang.
A) $\frac{1}{5}$ B) $-\frac{1}{4}$ C) $-\frac{1}{5}$ D) $\frac{1}{125}$

32. (v7-112-28) $\frac{729a+1}{81\sqrt[3]{a^2}-9a^{\frac{1}{3}}+1}-\frac{729a-1}{81a^{\frac{2}{3}}+9\sqrt[3]{a}+1}+4$ soddalashtiring.
A) 5 B) 4 C) 9 D) 6

33. (v7-118-16) Agar a = 3, b = 5 bo'lsa, $\sqrt[3]{a^b+b^a-152}$ ni hisoblang.
A) $\sqrt[3]{200}$ B) $\sqrt[3]{150}$ C) 6 D) 5

34. (v8-102-36) $\frac{a+a\sqrt{a}}{\sqrt[3]{a^2}-\sqrt[6]{a^5}+a}-\frac{\sqrt[3]{a^2}-a}{\sqrt[3]{a}-\sqrt{a}}+2\sqrt[3]{a}$ ni soddalashtiring.
A) $2\sqrt{a}$ B) $2\sqrt[3]{a}$
C) 0 D) $\sqrt{a}+2\sqrt{a}$

35. (v9-1-27) $\sqrt[3]{2\sqrt[3]{2\sqrt{2}}}:2^{\frac{1}{18}}$ ni hisoblang.
A) $\sqrt[9]{32}$ B) $\sqrt[9]{8}$ C) $\sqrt[9]{16}$ D) $\sqrt[9]{64}$

36. (v9-6-15) $\sqrt{15+9\sqrt{3}-\sqrt{2-4\sqrt{3}+2\sqrt{4+2\sqrt{3}}}}$ ni soddalashtiring.
A) $2\sqrt{3}+2$ B) $2\sqrt{3}-1$
C) $2\sqrt{3}-2$ D) $2\sqrt{3}+1$

37. (v12z-103-26) $\frac{\sqrt{x}-3}{x-3x^{0,5}+9}:\frac{x-9}{x^{1,5}+27}$ ifodani soddalashtiring.
A) 2x B) x + 1
C) 1 D) –x

38. (v12z-110-12) $\frac{2-\sqrt{x}}{x-2x^{0,5}+4}:\frac{x-4}{8+x^{1,5}}$ ifodani soddalashtiring.
A) 1 B) x – 1
C) x + 1 D) –1

39. (v12z-117-33) Hisoblang: $\sqrt[6]{99+70\sqrt{2}}$.
A) $\sqrt{2}+1$ B) 1
C) $\sqrt{2}$ D) $\sqrt{2}-1$

40. (v12z-123-23) $\frac{\sqrt[3]{(9+\sqrt{82})^2}}{\sqrt[3]{9-\sqrt{82}}}+\sqrt{82}$ ni hisoblang.
A) $9+2\sqrt{82}$ B) 9
C) $\sqrt{82}$ D) –9

41. (v12z-132-34) Agar $\sqrt[4]{ab}=3\sqrt{2}$ va a, b ∈ N bo'lsa, a – b quyida keltirilgan qiymatlardan qaysi birini qabul qila olmaydi?
A) 29 B) 77 C) 48 D) 105

42. (v12z-133-22) Agar $a=\sqrt[3]{4}+\sqrt[3]{16}$ bo'lsa, u holda a^3-12a ni hisoblang.
A) 4 B) 12 C) 20 D) 16

43. (v12z-137-17) Agar $a=\sqrt[3]{25}-\sqrt[3]{5}$ bo'lsa, u holda a^3+15a ni hisoblang.
A) 20 B) 30 C) 25 D) 15

44. (v12c-124-30) $\frac{64-x^{1,5}}{x-16}:\frac{x+4\sqrt{x}+16}{4+\sqrt{x}}$ ifodani soddalashtiring.
A) –1 B) x – 1
C) x + 1 D) 1

45. (v12c-146-6) Agar $a=\sqrt[3]{81}+\sqrt[3]{9}$ bo'lsa, u holda a^3-27a ni hisoblang.
A) 90 B) 70 C) 30 D) 50

46. (v12c-153-26) $\frac{6}{\sqrt[4]{81}-\sqrt[4]{3}}$ kasr maxrajini irratsionallikdan qutqaring.

A) $2\sqrt[4]{9}-\sqrt[4]{3}$ B) $\sqrt[4]{81}-\sqrt[4]{3}$

C) $3\sqrt[4]{9}+\sqrt[4]{243}$ D) $3-\sqrt[4]{243}$

47. (v12c-154-9) $\frac{125+x^{1,5}}{x-25}:\frac{x-5\sqrt{x}+25}{5-\sqrt{x}}$ ifodani soddalashtiring.

A) $5-\sqrt{x}$ B) 1

C) -1 D) $5+\sqrt{x}$

48. (v12c-160-35) Agar $x < -2$ bo'lsa, $\sqrt[4]{(7x-10)^8}-\sqrt[4]{(7x+10)^8}$ ifodani hisoblang.

A) 10 B) 20

C) -10 D) -20

49. (v13-115-26) $\left(\frac{1}{a-\sqrt{ab}}+\frac{1}{a+\sqrt{ab}}\right)\cdot\frac{a^3-b^3}{a^2+ab+b^2}$ ni soddalashtiring.

A) a B) 2 C) 1 D) $\frac{1}{a+b}$

50. (v13-120-4) $\frac{(x^2-y^2)(\sqrt[3]{x}+\sqrt[3]{y})}{\sqrt[3]{x^5}+\sqrt[3]{x^2y^3}-\sqrt[3]{x^3y^2}-\sqrt[3]{y^5}}-(\sqrt[3]{xy}+\sqrt[3]{y^2})$ ifodani soddalashtiring va $x=64$; $y=\frac{31}{78}$ da son qiymatini toping.

A) 12 B) 18 C) 15 D) 16

51. (v13-121-21) Agar $0 < x \neq 1$ bo'lsa, $\frac{x-1}{x+x^{\frac{1}{2}}-1}:\frac{x^{1,5}+1}{x^{1,5}-1}+\frac{2}{x^{-0,5}}$ ifodani soddalashtiring.

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

52. (v13-130-17) $\frac{a+x}{\sqrt[3]{a^2}-\sqrt[3]{x^2}}+\frac{\sqrt[3]{ax^2}-\sqrt[3]{a^2x}}{\sqrt[3]{a^2}-2\sqrt[3]{ax}+\sqrt[3]{x^2}}-\sqrt[6]{x}}{\sqrt[6]{a}-\sqrt[6]{x}}$ ifodani soddalashtiring.

A) 1 B) $\sqrt[6]{a}$

C) $\sqrt[3]{a}+\sqrt[3]{x}$ D) $-\sqrt[6]{x}$

53. (v13-132-16) $\frac{a+b}{\sqrt{a}+\sqrt{b}}:\left(\frac{a+b}{\sqrt{ab}}-\frac{b}{\sqrt{ab}-a}-\frac{a}{\sqrt{ab}+b}\right)$ ifodani soddalashtiring.

A) 0 B) 1

C) $a-b$ D) $\sqrt{a}-\sqrt{b}$

54. (v13-133-13) Agar $a > b > 0$ bo'lsa, $\left(\frac{\sqrt{a-b}}{\sqrt{a+b}+\sqrt{a-b}}+\frac{a-b}{\sqrt{a^2-b^2}-a+b}\right):\sqrt{\frac{a^2}{b^2}-1}$ ifodani soddalashtiring.

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

55. (v13-147-23) $\left(\frac{3x^{\frac{1}{3}}}{x^{\frac{2}{3}}-2x^{\frac{1}{3}}}-\frac{x^{\frac{1}{3}}}{x^{\frac{2}{3}}-x^{\frac{1}{3}}}\right)^{-1}+\left(\frac{1-2x}{3x-2}\right)^{-1}$ ifodani soddalashtiring.

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

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

56. (v13-150-12) $\left(\frac{\sqrt{y+1}}{\sqrt{y+1}-\sqrt{y}}-\frac{\sqrt{y}}{\sqrt{y+1}+\sqrt{y}}\right):(2y+1)+\sqrt{\frac{1}{y^2}-1}-1$ ifodani soddalashtiring. $(y\in(0;1))$

A) $\sqrt{\frac{1}{y^2}-1}$ B) 1

C) 0 D) $\frac{\sqrt{1+y^2}}{y}$

57. (v13-154-27) $\left(\frac{\sqrt[3]{a+b}}{\sqrt[3]{a-b}}+\frac{\sqrt[3]{a-b}}{\sqrt[3]{a+b}}-2\right):\left(\frac{1}{\sqrt[3]{a-b}}-\frac{1}{\sqrt[3]{a+b}}\right)$ ifodani soddalashtiring. $(a > b > 0)$

A) 1

B) 0

C) $\sqrt[3]{a-b}+\sqrt[3]{a+b}$ $\sqrt[3]{a-b}-\sqrt[3]{a+b}$

D) $\sqrt[3]{a+b}-\sqrt[3]{a-b}$

58. (v13-162-29) $\frac{5\sqrt[3]{4\sqrt[3]{192}}+7\sqrt[3]{18\sqrt[3]{81}}}{\sqrt[3]{12\sqrt[3]{24}}+6\sqrt[3]{375}}$ ni hisoblang.

A) $\frac{2}{3}$ B) $\frac{5}{3}$

C) $\frac{13}{3}$ D) $\frac{31}{3}$

59. (v13-163-15) Agar $a > b > 0$ bo'lsa, $ab\sqrt[n]{a^{1-n}b^{-n}-a^{-n}b^{1-n}}\cdot\sqrt[n]{(a-b)^{-1}}$ ifodani soddalashtiring.

A) $a^{-1}b^{-1}$ B) ab

C) 1 D) $(ab)^n$

60. (v13-164-6) $\frac{\sqrt{x^3}+\sqrt{xy^2}-\sqrt{x^2y}-\sqrt{y^3}}{\sqrt[4]{y^5}+\sqrt[4]{x^4y}-\sqrt[4]{xy^4}-\sqrt[4]{x^5}}$ ifodani soddalashtiring. $x\neq y$, $x > 0$, $y > 0$.

A) $-(\sqrt[4]{x}+\sqrt[4]{y})$ B) $-(\sqrt{x}+\sqrt{y})$

C) 1 D) 0

61. (v13-172-26) $\left(\frac{x+\sqrt{x^2-y^2}}{x-\sqrt{x^2-y^2}}-\frac{x-\sqrt{x^2-y^2}}{x+\sqrt{x^2-y^2}}\right):\frac{\sqrt{x^2-y^2}}{\frac{1}{4}y^2}$ ifodani soddalashtiring. $(x > y)$

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

62. (v14-101-19) Ifodani soddalashtiring $(x\neq\pm1)$: $\sqrt[3]{\frac{1+x}{x^3-2x+1}}\cdot\sqrt[3]{\frac{x-1}{x^3+2x+1}}\cdot\sqrt{\frac{1}{x^4-2x^2+1}}\cdot(x^2-1)^{\frac{2}{3}}$.

A) (x^{-1}) B) 1 C) 0 D) $\frac{1}{x^3-1}$

63. (v14-107-10) $\sqrt[4]{\frac{2\sqrt{6}+5}{6x}}\cdot(3\sqrt{2x}-2\sqrt{3x})^{\frac{1}{2}}$ ni soddalashtiring $x > 0$.

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

64. (v14-108-4) $\sqrt[3]{2\sqrt{13}+5}+\sqrt[3]{5-2\sqrt{13}}$ ni hisoblang.

A) $\frac{3}{2}$ B) $\frac{\sqrt[3]{65}}{4}$

C) 1 D) $\sqrt[3]{2}$

65. (v15-103-9) Kasrning maxrajini irratsionallikgan qutqaring: $\frac{6}{3+\sqrt[3]{3}+\sqrt[3]{9}}$.

A) $3+\sqrt[3]{9}$ B) $\sqrt[3]{9}-3$

C) $\sqrt[3]{9}-\sqrt{3}$ D) $3-\sqrt[3]{9}$

66. (v16-106-3) Ifodani soddalashtiring: $\left(\frac{x-0,(5)}{\sqrt[3]{x^2}+\sqrt[3]{\frac{5x}{9}}+\sqrt[3]{\frac{25}{81}}}+(0,(5))^{\frac{1}{3}}\right)^3$.

A) x B) $2x$ C) $x-1$ D) $x+1$

67. (v16-115-23) Ifodani soddalashtiring: $\frac{1,6+5,4}{\sqrt[3]{2,56}-\sqrt[3]{8,64}+\sqrt[3]{29,16}}-\frac{2,25-1,44}{1,5-1,2}+\frac{27}{10}$.

A) $-2\sqrt[3]{0,2}$ B) $5\sqrt[3]{0,2}$

C) 0 D) $2\sqrt[3]{0,2}$

68. (v16-118-21) Agar $m = 64$ bo'lsa, $\log_7\left(\frac{\sqrt{m}+27}{\sqrt[3]{m}-2\sqrt[6]{m}-15}:\frac{\sqrt[3]{m}-3\sqrt[6]{m}+9}{\sqrt[3]{m}-25}\right)$ ni hisoblang.

A) $\log_7 2$ B) 0 C) 1 D) -1

69. (v16-127-23) $\left(a^{(\sqrt{5}-2)^2}:a^{(\sqrt{5}+2)^2}\right)^{-0,5\sqrt{5}}$ ifodaning $a=\sqrt[5]{2}$ bo'lgandagi qiymatini toping.

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

70. (v17-107-9) Ifodani soddalashtiring: $x^{\frac{1}{4}}-[(16x)^{\frac{1}{4}}-(81x)^{\frac{1}{4}}-(256x)^{\frac{1}{4}}]$.

A) $2\sqrt[4]{x}-1$ B) $6\sqrt[4]{x}$

C) $\sqrt[4]{x}+1$ D) 1

71. (v17-114-9) $\sqrt[17]{\frac{36^{34}}{4^{51}}}-\sqrt[3]{\frac{1}{2^6}}$ ifodaning qiymatini toping.

A) 20 B) 25 C) $\frac{1}{8}$ D) 1

72. (v17-122-23) Hisoblang: $\sqrt[3]{\frac{12}{\sqrt{2}}\sqrt{\frac{63^2-27^2}{5}}}$.

A) $6\sqrt{5}$ B) 6 C) $\sqrt[3]{6}$ D) $\sqrt[3]{\frac{6}{5}}$

73. (v17-130-9) Hisoblang:

$$\frac{(3\cdot\sqrt[3]{7}+3\cdot\sqrt[3]{3})(49^{\frac{1}{3}}-21^{\frac{1}{3}}+9^{\frac{1}{3}})}{(\sqrt{15}-\sqrt{10})^2(2\sqrt{15}+2\sqrt{10})^2}.$$

A) 0,4 B) 0,2 C) 0,5 D) 0,3

74. (v17-130-15) Agar $a=\sqrt[3]{2}$, $b=\sqrt[3]{4}$ va $c=2$ bo'lsa, $\frac{1}{a(a-b)(a-c)}+\frac{1}{b(b-a)(b-c)}+\frac{1}{c(c-a)(c-b)}$ ifodaning qiymatini toping.

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

75. (v18-1-79) Agar $x=\sqrt[3]{7+5\sqrt{2}}-\frac{1}{\sqrt[3]{7+5\sqrt{2}}}$ bo'lsa, $x^3+3x-14$ ni hisoblang.

A) 1 B) 2 C) –1 D) 0

76. (v18-1-80) Ifodani soddalashtiring:

$$\left(\sqrt[n+3]{\sqrt[n-1]{a^2}\cdot\sqrt[n+1]{a^{-1}}}\right)^{n^2-1}.$$

A) a B) $a^{\frac{1}{2}}$ C) 1 D) $\sqrt[3]{a}$

77. (v18-1-82) Ifodani soddalashtiring:

$$\frac{\sqrt[3]{\sqrt[3]{a}\cdot x^2}\cdot\left(a^{\frac{3}{2}}\cdot x^{\frac{5}{4}}\right)^{\frac{2}{3}}}{\sqrt[4]{x^3\cdot\sqrt[3]{\frac{a^2}{x^3}}\cdot a^{-\frac{1}{18}}}}.$$

A) $xa^{\frac{3}{2}}$ B) ax C) $xa^{\frac{5}{4}}$ D) $\sqrt[3]{xa}$

78. (v18-1-84) Ifodani soddalashtiring:

$$\sqrt{2m\sqrt[3]{\frac{1}{4m^2}\sqrt{\frac{n}{m}}}}:\left(m^{\frac{1}{12}}\cdot n^{\frac{1}{12}}\right).$$

A) $2^{\frac{1}{4}}$ B) $\sqrt[3]{2m}$ C) $\sqrt[12]{2m^5}$ D) $2^{\frac{1}{6}}$

79. (v18-1-85) Ifodani soddalashtiring:

$$\frac{\sqrt{x\sqrt[3]{x^2\sqrt[4]{x^3}}}}{\sqrt{x^3\sqrt[3]{x^2\sqrt{x}}}}\cdot\sqrt[-2]{\sqrt[-3]{\sqrt[-2]{x^{-1}}}}.$$

A) $x^{-\frac{3}{8}}$ B) $x^{\frac{7}{8}}$ C) $x^{-\frac{7}{8}}$ D) $x^{\frac{3}{8}}$

80. (v18-1-86) Ifodani soddalashtiring:

$$\frac{a+x}{\sqrt[3]{a^2}-\sqrt[3]{x^2}}+\frac{\sqrt[3]{ax^2}-\sqrt[3]{a^2x}}{\sqrt[3]{a^2}-2\sqrt[3]{ax}+\sqrt[3]{x^2}}-\sqrt[6]{x}.$$

A) $\sqrt[3]{a}$ B) 1 C) $\sqrt[6]{a}$ D) 0

81. (v18-1-89) Ifodani soddalashtiring:

$$\left(\frac{\left(a+\sqrt[3]{a^2x}\right):\left(x+\sqrt[3]{ax^2}\right)-1}{\sqrt[3]{a}-\sqrt[3]{x}}-\frac{1}{\sqrt[3]{x}}\right)^6.$$

A) $\frac{a^2}{x^2}$ B) $\frac{a}{x}$ C) $\frac{a^2}{x^4}$ D) 0

82. (v18-1-90) $a=1{,}2$, $b=\frac{3}{5}$ bo'lganda

$$\frac{a^{\frac{3}{2}}+b^{\frac{3}{2}}}{(a^2-ab)^{\frac{2}{3}}}:\frac{a^{-\frac{2}{3}}\sqrt[3]{a-b}}{a\sqrt{a}-b\sqrt{b}}$$ ifodaning qiymatini toping.

A) 2,52 B) 2,5 C) 2,6 D) 2

83. (v18-1-91) Ifodani soddalashtiring:

$$\frac{2+\sqrt{3}}{\sqrt{2}+\sqrt{2+\sqrt{3}}}+\frac{2-\sqrt{3}}{\sqrt{2}-\sqrt{2-\sqrt{3}}}.$$

A) 1 B) 0 C) $\sqrt{2}$ D) $-\sqrt{2}$

84. (v18-1-93) Soddalashtiring:

$$\left(\frac{\sqrt[6]{2b}-\sqrt[3]{2b}}{1+2b}+\frac{1+\sqrt[6]{2b}}{1-\sqrt[3]{2b}+\sqrt[3]{4b^2}}\right)\cdot\frac{1+2b}{1-2b}.$$

A) $\frac{1}{1-2b}$ B) 1 + 2b

C) 1 D) $\frac{\sqrt[6]{2b}-\sqrt[3]{2b}}{1-2b}$

85. (v18-1-94) $a=10{,}24$ va $b=6{,}25$ dagi $\frac{a-b}{2\left(\sqrt{a}-\sqrt{b}\right)}-\frac{\sqrt{ab}+b}{\sqrt{a}+\sqrt{b}}$ ifodaning qiymatini toping.

A) 0 B) –0,35 C) 0,35 D) 0,7

86. (v18-1-95) Agar $x=\sqrt{3-\sqrt{2}}$, $y=\frac{\sqrt{8x}\cdot\sqrt[10]{x^5}}{\sqrt{3-2\sqrt{2}}+1}$ bo'lsa, $x-\sqrt{4-\sqrt{2}-y}$ ning qiymatini toping.

A) 6 B) $2\sqrt{2}$ C) 1 D) 0

87. (v19/20-101-6) $\sqrt{2^{20}+2^{11}+1}-\sqrt{2^{20}-2^{12}+4}$ ni hisoblang.

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

88. (v19/20-103-22) $\sqrt{\frac{12-\sqrt{7+\sqrt{4}}}{8\cdot\sqrt[5]{8\cdot\sqrt{13+\sqrt{9}}}}}$ ni hisoblang.

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

89. (v19/20-104-16) Ifodani soddalashtiring: $\frac{x}{2}\cdot\sqrt[3]{\frac{y^5}{x^2}}:\sqrt[3]{\frac{xy^4}{8}}$.

A) y B) $y^{\frac{1}{6}}+4$ C) $y^{\frac{1}{6}}$ D) $y^{\frac{1}{3}}$

90. (v19/20-108-8) Soddalashtiring:

$$\frac{\left(\sqrt[3]{(a^2+4)\cdot\sqrt{1+\frac{4}{a^2}}}-\sqrt[3]{(a^2-4)\sqrt{1-\frac{4}{a^2}}}\right)^2}{\sqrt{a^4-16}-a^2}-\frac{\sqrt[3]{a}}{a}.$$

A) $\frac{4\sqrt[3]{a}}{a}$ B) $-\frac{3\sqrt[3]{a}}{a}$

C) $-\frac{2\sqrt[3]{a}}{a}$ D) $\frac{\sqrt[3]{a}}{a}$

91. (v19/20-110-9) $\sqrt{4^{19}+6^{20}+9^{20}}+\sqrt{4^{19}-6^{20}+9^{20}}$ ifodani soddalashtiring.

A) $2\cdot3^{20}$ B) 4^{10} C) $2\cdot3^{19}$ D) 2^{21}

92. (v19/20-110-20) Agar $a\in(-1;1)$ bo'lsa, ifodani soddalashtiring

$$\sqrt[4]{(1-2a+a^2)(a^2-1)(a-1)}:\frac{a^2+2a-3}{\sqrt[4]{a+1}}.$$

A) $\frac{\sqrt{a+1}}{\sqrt{a+3}}$ B) $\frac{\sqrt{a+1}}{a+3}$

C) $-\frac{\sqrt{a+1}}{\sqrt{a+3}}$ D) $-\frac{\sqrt{a+1}}{a+3}$

93. (v19/20-111-11) Hisoblang:

$$27^{\frac{2}{3}}+16^{\frac{3}{4}}-\frac{2}{8^{-\frac{2}{3}}}+\frac{\sqrt[5]{2}}{4^{-\frac{2}{5}}}.$$

A) 11 B) 23 C) 7 D) 9

94. (v19/20-112-4) Ifodani soddalashtiring:

$$\left(\frac{4a^{0,25}+b\cdot c^{1,5}}{(4+c^{1,5})\cdot(a^{0,25}-b)}+\frac{a^{\frac{1}{4}}\cdot c^{\frac{3}{2}}-4b}{(4-c^{1,5})\cdot(\sqrt[4]{a}-b)}\right)\cdot\frac{1}{16+c^3}.$$

A) $\frac{1}{16+c^3}$ B) $\frac{1}{c^3-16}$

C) $\frac{1}{16-c^3}$ D) $\frac{1}{8-c^3}$

95. (v19/20-115-8) Agar $x<-2$ bo'lsa, $\sqrt{x^2+7x+2+\sqrt{4-12x+9x^2}}$ ifodani soddalashtiring.

A) x + 2 B) –x – 2 C) 2 – x D) –2x

96. (v19/20-117-15) Agar x ratsional son bo'lsa, $\sqrt[4]{5+x}+\sqrt{-x-5}-\sqrt{30+x}$ ifodani soddalashtiring.

A) –4 B) –5 C) 4 D) 6

97. (v19/20-118-22) $\sqrt[3]{2\sqrt{4\sqrt[3]{2\sqrt{4}...}}}$ hisoblang.

A) 2 B) 8 C) 4 D) $2\sqrt[3]{8}$

98. (v19/20-125-23) $\sqrt{4^{10}+6^{11}+9^{11}}+\sqrt{4^{10}-6^{11}+9^{11}}$ ifodani soddalashtiring.

A) 4^{10} B) 2^{11} C) $2\cdot9^{10}$ D) $2\cdot3^{11}$

99. (v19/20-126-19) $\sqrt{4^{12}+6^{13}+9^{13}}-\sqrt{4^{12}-6^{13}+9^{13}}$ ifodani soddalashtiring.

A) 2^{12} B) $2\cdot3^{13}$ C) $2\cdot9^6$ D) 2^{13}

100. (v19/20-128-18) Ifodani soddalashtiring:

$$\frac{a^{\frac{1}{3}}\cdot c^2-3b^{\frac{1}{2}}}{(c^2+3)\cdot\left(a^{\frac{1}{3}}+\sqrt{b}\right)}+\frac{3a^{\frac{1}{3}}+b^{\frac{1}{2}}\cdot c^2}{(c^2-3)\cdot\left(a^{\frac{1}{3}}+\sqrt{b}\right)}.$$

A) $\frac{c^4+9}{c^4-9}$ B) $\frac{c^4-9}{c^4+9}$ C) $\frac{c^4+3}{c^4-3}$ D) $\frac{9}{c^4-9}$

101. (v20/21-110-3) Hisoblang:

$$\sqrt[3]{200+126\sqrt[3]{2}+\frac{54}{1+\sqrt[3]{2}}}+\sqrt[3]{\frac{18}{1+\sqrt[3]{2}}-6\sqrt[3]{2}}.$$

A) 4 B) 8

C) $4+\sqrt[3]{2}$ D) $8-2\sqrt[3]{2}$

102. (v20/21-117-24) $\sqrt[4]{\frac{2\sqrt{6}+5}{6x}}\cdot\left(3\sqrt{2x}-2\sqrt{3x}\right)^{\frac{1}{2}}$ ni soddalashtiring.

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

103. (v20/21-118-11) Agar $a = \sqrt[3]{4} + \sqrt[3]{2} + 1$ bo'lsa, $\frac{3}{a} + \frac{3}{a^2} + \frac{1}{a^3}$ ifodaning qiymatini toping.

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

104. (v20/21-121-24) Agar $x = \sqrt[3]{124} - \sqrt{26}$ bo'lsa, $\left[\sqrt{x^2} + \sqrt[3]{x^3} + \sqrt[4]{x^4} + \sqrt[4]{x^4} + \sqrt[5]{x^5} + \sqrt[3]{124}\right]$ ifodaning qiymatini toping. Bu yerda $[a] - a$ sonning butun qismi.

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

105. (v20/21-124-29) Hisoblang: $\sqrt[4]{13 + \sqrt{5 + \sqrt[3]{62 + \sqrt[5]{32}}}}$.

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

106. (v20/21-127-30) Ushbu $2015\frac{1999}{9991} \cdot 2016\frac{1999}{9991} - 2014\frac{1999}{9991} \cdot 2017\frac{1999}{9991}$ ifodaning qiymatini hisoblang.

A) $2\frac{1999}{9991}$ B) 2

C) 1 D) 0

107. (v20/21-133-20) a = 0,0016 bo'lsa, $\left(\frac{a^{\frac{1}{2}} - a^{\frac{3}{4}}}{1 - a^{\frac{1}{2}}}\right)^{-1} - a^{-\frac{1}{4}}$ ifoda qiymatini toping.

A) 0,04 B) 25 C) 5 D) 0,2

108. (v20/21-133-26) Ifodani soddalashtiring: $\sqrt[4]{\frac{8 - 2\sqrt{7}}{2x}} \cdot \left(\sqrt{14x} + \sqrt{2x}\right)^{\frac{1}{2}}$.

A) $\sqrt{6}$ B) $\sqrt{7}$ C) 7 D) $\sqrt{2}$

109. (v20/21-137-28) Hisoblang: $\left(1 + \sqrt{3}\right) \cdot \sqrt[3]{\left(1 - ctg\frac{\pi}{6}\right)^3} - \left(1 + \sqrt{3}\right) \cdot \sqrt[3]{6\sqrt{3} - 10}$.

A) 0 B) –2

C) –4 D) $6 - 2\sqrt{3}$

110. (v20/21-141-5) X ning qanday qiymatida $\frac{x^{-0,6} \cdot x^{4/15}}{\sqrt[3]{x^{-1}} \cdot \sqrt[5]{x^2}}$ kasrning qiymati 0,25 ga teng bo'ladi?

A) $x = \frac{1}{32}$ B) x = 16 C) x = 64 D) x = 32

111. (v21-101-30) $\left(0,5a^2\sqrt{2a} - \frac{3}{2}b\sqrt{2a^3} + 1,5b^2\sqrt{2a} - \sqrt{\frac{b^6}{2a}}\right) \cdot 2\sqrt{0,5a}$ ifodani soddalashtiring.

A) $a^3 - b^3$ B) $a^2 - ab + b^2$

C) $(a - b)^3$ D) $a^3 - ab$

112. (v21-105-18) $\left(\left(\frac{x^2 - y\sqrt{x}}{\sqrt{x} - \sqrt[3]{y}} + x\sqrt[3]{y}\right) : \left(x + \sqrt[6]{x^3y^2}\right) - \sqrt[3]{y}\right)^2$ ifodaning $x = 2$ va $y = 3$ dagi qiymatini toping.

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

113. (v21-115-23) $\left(\frac{\left(\sqrt{a}+1\right)^2 - \frac{a - \sqrt{ax}}{\sqrt{a} - \sqrt{x}}}{\left(\sqrt{a}+1\right)^3 - a\sqrt{a} + 2}\right)^{-3}$ ifodaning $a = 3$ va $x = 5$ dagi qiymatini toping.

A) 27 B) 1 C) 2 D) $\frac{1}{8}$

114. (v21-118-13) $\frac{x-1}{x^{\frac{3}{4}} + x^{\frac{1}{2}}} \cdot \frac{x^{\frac{1}{2}} + x^{\frac{1}{4}}}{x^{\frac{1}{2}} + 1} \cdot x^{\frac{1}{4}} + 1$ ifodaning $x = 100$ dagi qiymatini toping.

A) 100 B) 10 C) 101 D) 90

115. (v21-119-26) $\frac{1}{8}\sqrt{6} \cdot \left(\sqrt[6]{25 + 4\sqrt{6}} - \sqrt[3]{1 + 2\sqrt{6}}\right) \cdot \sqrt[3]{1 - 2\sqrt{6}}$ hisoblang.

A) 0 B) 1 C) $\sqrt{6}$ D) $2\sqrt{6}$

116. (v21-120-15) $\left[\left(\frac{x^{\frac{5}{2}}y^{\frac{4}{3}}}{z^{-\frac{5}{4}}} \cdot \frac{z^4}{x^{-3}y^{-\frac{5}{3}}}\right) : \frac{y^{-2}z^{\frac{1}{4}}}{x^{-\frac{1}{2}}}\right]^{\frac{1}{5}}$ soddalashtiring.

A) xy B) $\frac{x}{y}$ C) yz D) xyz

117. (v21-121-20) $\frac{a^{\frac{4}{3}} - 8a^{\frac{1}{3}}b}{a^{\frac{2}{3}} + 2\sqrt[3]{ab} + 4b^{\frac{2}{3}}} : \left(1 - 2\sqrt[3]{\frac{b}{a}}\right) - a^{\frac{2}{3}}$ ifodaning $a = 2$ va $b = 3$ dagi qiymatini toping.

A) 0 B) 1 C) 5 D) 4

118. (v21-122-16) $\sqrt[3]{\frac{x+1}{x^2 - 2x + 1}} - \sqrt[3]{\frac{x-1}{x^2 + 2x + 1}} - \sqrt[3]{\frac{1}{x^4 - 2x^2 + 1}}$ ifodani soddalashtiring.

A) $\frac{\sqrt[3]{x^2 - 1}}{x^2 - 1}$ B) $\frac{1}{x^2 - 1}$

C) $\sqrt[3]{x^2 - 1}$ D) 1

119. (v21-125-16) $\frac{\sqrt[3]{\sqrt[3]{a} \cdot x^2} \cdot \left(a^{\frac{3}{2}} \cdot x^{\frac{5}{4}}\right)^{\frac{2}{3}}}{\sqrt[4]{x^3\sqrt[3]{\frac{a^2}{x^3}} \cdot a^{-\frac{1}{18}}}}$ ifodaning $a = 2$, $x = 3$ dagi qiymatini toping.

A) 6 B) 1 C) $\frac{2}{3}$ D) $\frac{3}{2}$

120. (v21-125-30) Agar $x = \sqrt[3]{a^{-\frac{1}{2}}b^{-1} \cdot a^{\frac{5}{6}}b^{\frac{1}{2}}\sqrt{a^{-1}b^{\frac{2}{3}}}}$ bo'lsa, x^6 ni toping.

A) $a^{-3}b$ B) a^3b^3 C) ab^3 D) ab^{-3}

121. (v21-128-12) $\left[\left(\frac{ab}{c}\right)^5 : \left(\frac{a^2m}{b^2c^2}\right)^3\right] \cdot \left[\left(\frac{cm^2}{a^3b^2}\right)^4 : \left(\frac{bc^3}{a^5}\right)^2\right]$ hisoblang.

A) $\frac{bm^5}{a^3c}$ B) $\frac{bm^4}{a^3c^2}$

C) $\frac{(bm)^5}{a^3b^2}$ D) 1

122. (v21-128-14) Agar $\sqrt[3]{x} + \sqrt[3]{y} - \sqrt[3]{z} = 0$ bo'lsa, $(x + y - z)^3$ ning qiymatini toping.

A) $-27xyz$ B) xyz

C) $9xyz$ D) $27xyz$

123. (v21-130-27) Agar $x = \left[\left(\frac{pq^2}{a^3b}\right)^3 \cdot \left(\frac{b^2q^3}{a^2p}\right)^2\right] : \left[\left(\frac{p^2q}{ab^3}\right) \cdot \left(\frac{b^2q^3}{ap^2}\right)^3\right]$ bo'lsa, $x \cdot pq$ *ning* qiymatini toping.

A) $\frac{b}{a}$ B) $\left(\frac{b}{a}\right)^6$

C) $\frac{b^7}{a^6}$ D) $\frac{a^6}{b^7}$

5-bob. TENGLAMA

27. Chiziqli tenglama. Ayniyat

1. (97-1-6) $\frac{3x - 11}{4} - \frac{3 - 5x}{8} - \frac{x + 6}{2}$ tenglamani yeching.

A) 5 B) –4,5 C) 6,5 D) 7 E) 8

2. (97-3-3) $0,7 \cdot (6y - 5) = 0,4 \cdot (y - 3) - 1,16$ tenglamani yeching.

A) 0,3 B) –3 C) –0,3 D) 2

E) 30

3. (97-6-6) $6 - \frac{x-1}{2} = \frac{3-x}{2} + \frac{x-2}{3}$ tenglamani yeching.

A) 4,5 B) 8 C) 17 D) 11

E) 14

4. (97-7-3) $0,9 \cdot (4x - 2) = 0,5 \cdot (3x - 4) + 4,4$ tenglamani yeching.

A) 1,2 B) 2,5 C) –3 D) 2

E) 0,2

5. (97-10-7) $(3\frac{19}{22} + x) : 4\frac{1}{5} = 5$ tenglamani yeching.

A) $17\frac{19}{22}$ B) $18\frac{3}{22}$ C) $17\frac{3}{22}$ D) 21

E) $18\frac{3}{11}$

6. (97-11-6) $\frac{x-3}{6} + x = \frac{2x-1}{3} - \frac{4-x}{2}$ tenglamani yeching.

A) 3 B) 2 C) –2 D) –4

E) Ø

7. (98-7-1) 420:(160 – 1000:x) = 12 dan x ni toping.

A) 8 B) $\frac{1}{8}$ C) 35 D) 36 E) –8

8. (98-8-4) 5,6 – 7(0,8x + 1) = 14 – 5,32x tenglamani yeching.

A) 5,5 B) 55 C) –55 D) –5,5

E) 50

9. (99-1-16) $8(3^2 + 1)(3^4 + 1)(3^8 + 1) \cdot \ldots \cdot (3^{128} + 1)x = 3^{256} - 1$ tenglamani yeching.

A) 1 B) $\frac{1}{8}$ C) $\frac{1}{2}$ D) –1 E) 2

10. (99-4-9) $(2x + 6\frac{6}{13}) : 3 = 4\frac{1}{3}$ tenglamani yeching.

A) $3\frac{3}{13}$ B) $3\frac{10}{26}$
C) $3\frac{7}{26}$ D) $4\frac{3}{13}$
E) $4\frac{7}{26}$

11. (99-4-12) $4{,}5 - 1{,}6 - (5x - 3) = 1{,}2 \cdot (4x - 1) - 15{,}1$ tenglamani yeching.
A) 20 B) 2 C) 0,2 D) 0,5
E) To'g'ri javob keltirilmagan.

12. (99-8-11) $\frac{(x - 12) : \frac{3}{8}}{0{,}3 \cdot 3\frac{1}{3} + 7} = 1$ tenglamani yeching.
A) 25 B) 14 C) 15 D) 16
E) 18

13. (01-2-59) $\left(\frac{0{,}(3) + 0{,}1(6)}{0{,}(319) + 1{,}(680)}\right) \cdot x = 8^{0{,}(6)}$ tenglamani yeching.
A) 4 B) 32 C) 2 D) 1 E) 16

14. (02-2-19) Agar $\frac{(3 \cdot 2^{20} + 7 \cdot 2^{19}) \cdot 52}{(13 \cdot 8^4)^2 x} = -1$ bo'lsa, $x = ?$
A) $-\frac{1}{8}$ B) $-\frac{1}{4}$ C) $-\frac{1}{16}$ D) $-\frac{5}{26}$
E) $-\frac{11}{26}$

15. (02-3-9) Agar $a(x-1)^2 + b(x-1) + c = 2x^2 - 3x + 5$ ayniyat bo'lsa, $a + b + c$ yig'indi nechaga teng bo'ladi?
A) 7 B) 8 C) 6 D) 4 E) 5

16. (02-3-16) $\frac{x}{3} + \frac{x}{15} + \frac{x}{35} + \frac{x}{63} + \frac{x}{99} + \frac{x}{143} = 12$ tenglamani yeching.
A) 26 B) 13 C) 18 D) 16
E) 24

17. (02-7-43) $986^2 - 319^2 = 2001n$ bo'lsa, n ning qiymatini toping.
A) 435 B) 443 C) 515 D) 475
E) 445

18. (02-11-9) $\frac{2x+3}{2} + \frac{2-3x}{3} = 2{,}1(6)$ tenglamani yeching.
A) Ø B) 2 C) –2 D) $-\frac{1}{2}$
E) cheksiz ko'p yechimga ega

19. (03-3-7) $\frac{x}{3} - \frac{x+8}{6} = \frac{3x+2}{9} - \frac{x+11}{6}$ tenglamani yeching.
A) –5 B) 5 C) Ø D) –4
E) cheksiz ko'p ildizga ega

20. (03-7-44) $\frac{3 + 25x}{3x + 7} = 5$ tenglamani yeching.
A) –3,2 B) 1,5 C) $-1\frac{1}{5}$ D) 3,2
E) –3

21. (03-8-10) $\frac{0{,}1(6) + 0{,}(6)}{0{,}(3) + 1{,}(6)}(x + 1) = 0{,}3(8)x$ tenglamani yeching
A) 5,(6) B) –5,(6) C) 3,(6) D) –3,(6)
E) –3,(3)

22. (03-11-57) $12\left(1\frac{3}{4}x + \frac{5}{8}\right) = -6\frac{1}{2}$ tenglamani yeching
A) $-\frac{1}{3}$ B) $\frac{2}{3}$ C) $\frac{2}{3}$ D) $-\frac{13}{21}$
E) $\frac{3}{4}$

23. (03-11-62) $1{,}2\,(0{,}5 - 5x) + 4{,}2 = 3 \cdot (4 - 2{,}1x)$ tenglamaning ikkizi –10 dan qancha ortiq?
A) 14 B) 24 C) 34 D) 28
E) 12,4

24. (v4-101-3) $\frac{1 - \frac{1}{x-1}}{1 + \frac{1}{x-1}} = 0$ tenglamani yeching.
A) –1 B) 2 C) –2 D) 1 E) 0

25. (v4-103-19) $(-3x + \alpha y)(\beta x - 2y) = \gamma x^2 + 4xy + 2y^2$ ayniyatdagi noma'lum koeffitsiyentlardan biri β ni toping.
A) 2 B) 3 C) 1 D) –2
E) –1

26. (v4-112-2) a va b ning qanday qiymatida $\frac{2}{x^2 + x - 6} = \frac{a}{x-2} - \frac{b}{x+3}$ tenglik ayniyat bo'ladi ($x \neq 2$, $x \neq -3$)?
A) $a = 5$; $b = -5$ B) $a = -\frac{1}{5}$; $b = \frac{3}{5}$
C) $a = 1$; $b = 1$ D) $a = \frac{2}{5}$; $b = \frac{2}{5}$
E) $a = \frac{2}{5}$; $b = -\frac{2}{5}$

27. (v4-114-19) $(\alpha x - 2y)(x + 3y) = \alpha x^2 + 3xy - 6y^2$ ayniyatdagi noma'lum koeffitsiyent a ni toping.
A) $\frac{5}{3}$ B) 3 C) $\frac{5}{2}$ D) $\frac{7}{3}$
E) 2

28. (v4-121-19) $(\alpha x + 2y)(3x + \beta y) = \gamma x^2 + 6\frac{2}{3}xy + y^2$ ayniyatdagi noma'lum koeffitsientlardan biri γ ni toping.
A) 7 B) 2 C) 5 D) 4
E) 6

29. (v6-2-5) $\left(2\frac{10}{22} + x\right) : 4\frac{1}{5} = 5$ tenglamani yeching.
A) $18\frac{3}{22}$ B) $17\frac{10}{22}$ C) 21 D) $17\frac{3}{22}$

30. (v6-6-5) $\left(x + 3\frac{22}{25}\right) : 7\frac{1}{3} = 3$ tenglamani yeching.
A) $19\frac{22}{25}$ B) $20\frac{22}{25}$ C) $18\frac{3}{25}$ D) $19\frac{3}{25}$

31. (v6-10-28) $\frac{x}{3} + \frac{x}{15} + \frac{x}{35} + \frac{x}{63} + \frac{x}{99} + \frac{x}{143} = 6$ tenglamani yeching
A) 13 B) 36 C) 18 D) 15

32. (v7-102-4) Quyida keltirilgan tengliklardan qaysilari ayniyat?
1) $(x - c)(x - d) = x^2 + (c - d)x + cd$;
2) $(x - a)(x + d) = x^2 - (a - d)x - ad$;
3) $(3x^2 + y^2 - (8x^2 - 4y^2 - (10x^2 + (8x^2 - 4y^2))) = -x^2$;
4) $3a - (2b - (4a - (b - b) + 6 + (a + 8b) - 8c)) = (9a + 9b - 8c$.
A) 1, 3, 4 B) 1, 2, 4
C) 1, 2, 3 D) 2, 3, 4

33. (v7-104-4) Quyida keltirilgan tengliklardan qaysilari ayniyat?
1) $(x + a)(x - b) = x^2 + (a - b)x + ab$;
2) $(x - c)(x - d) = x^2 - (c + d)x + cd$;
3) $(x - a)(x + d) = x^2 + (a - d)x - ad$;
4) $5a^2 - 3b^2 = ((a^2 - 2ab - b^2) - (5a^2 - 2ab - b^2)) = 9a^2 - 3b^2$
A) 2, 3, 4 B) 1, 2, 4
C) 1, 2, 3 D) 1, 3, 4

34. (v7-106-27) Agar $a(x-1)^2 + b(x-1) + 6 = 2x^2 - 5x + 8$ ayniyat bo'lsa, $a + b + 6$ yig'indi nechaga teng bo'ladi?
A) 8 B) 7 C) 4 D) 6

35. (v7-110-5) 1) $2a^2 - 4ab + 2b^2 = (b - a)^2$;
2) $\frac{x^4 - y^4}{x^2 + xy + y^2} = x - y$;
3) $-(a - b - c) = -a + b + c$;
4) $\frac{a^2 - 1}{b} = \frac{a^2 - 1}{b}$.
Ushbu tengliklarning qaysi biri ayniyat?
A) 2, 4 B) 1 C) 1, 3 D) 2

36. (v11-143-29) Ushbu $x\sqrt{3} + 2 = x + 4$ tenglamani yeching.
A) $1 - \sqrt{3}$ B) $\sqrt{3} - 1$
C) $\sqrt{3} + 1$ D) $2 - \sqrt{3}$

37. (v11-147-23) Tenglamani yeching:
$(x + 1)^2 - (x + 2)^2 = (x + 3)^2 - (x + 5)^2$.
A) –6,5 B) 4 C) 6,5 D) 1,5

38. (v11-149-7) Tenglamani yeching:
$\frac{3x - 7}{4} - \frac{9x + 11}{8} = \frac{3 - x}{2}$.
A) x = 42 B) x = 36 C) x = 24 D) x = 37

39. (v12z-105-35) $(\alpha x - 3y)(x + \beta y) = \gamma x^2 + \frac{4}{3}xy + y^2$ ayniyatning noma'lum koeffitsientlaridan biri γ ni toping.
A) 15 B) –15 C) –13 D) 13

40. (v12z-118-34) Tenglamani yeching:
$\sqrt{3 - \sqrt{5}} - \sqrt{3 + \sqrt{5}} = x$.
A) $-\sqrt{2}$ B) –2 C) $\sqrt{2}$ D) 2

41. (v12z-131-4) $(\alpha x + 2y)(x - \beta y) = \gamma x^2 - 2\frac{3}{4}xy + y^2$ ayniyatdagi no'malum koeffitsientdan biri γ ni toping.
A) 10 B) –0,5 C) –6,5 D) 9

42. (v12c-154-10) $\left(4\frac{3}{8}x+5\frac{1}{16}\right)\cdot\frac{2}{15}=$ $=\frac{5}{24}x+2\frac{1}{5}$ tenglamani yeching.

A) $2\frac{1}{5}$ B) $1\frac{2}{5}$ C) $\frac{3}{185}$ D) $4\frac{1}{15}$

43. (v13-102-13) $\left(1-\frac{1}{a}\right)\cdot\left(1-\frac{1}{a-1}\right)\cdot\left(1-\frac{1}{a-2}\right)\cdot\ldots\cdot\left(1-\frac{1}{3}\right)\cdot\left(1-\frac{1}{2}\right)=\frac{1}{30}$ bo'lsa, a ning qiymatini toping.

A) 15 B) 30 C) 10 D) 6

44. (v13-112-27) $\frac{x-1}{n-1}+\frac{2n^2(1-x)}{(n^2-1)(n^2+1)}=$ $=\frac{2x-1}{1-n^4}-\frac{1-x}{1+n}$ tenglamani yeching.

A) $\frac{1}{2}$ B) $\frac{6}{8}$ C) $\frac{1}{4}$ D) $\frac{5}{8}$

45. (v13-119-17) $\frac{2x^2-x+1}{(x+1)(x-2)^2}=\frac{a}{x+1}+$ $+\frac{b}{x-2}+\frac{c}{(x-2)^2}$ tenglikni qanoatlantiradigan a, b, c larni toping.

A) $a=-\frac{4}{9};\ b=\frac{14}{9};\ c=\frac{7}{3}$

B) $a=\frac{4}{9};\ b=-\frac{14}{9};\ c=-\frac{7}{3}$

C) $a=\frac{14}{9};\ b=\frac{4}{9};\ c=\frac{7}{3}$

D) $a=\frac{4}{9};\ b=\frac{14}{9};\ c=\frac{7}{3}$

46. (v13-120-32) $\left(1-\frac{1}{5^2}\right)\cdot\left(1-\frac{1}{6^2}\right)\cdot\ldots\cdot\left(1-\frac{1}{14^2}\right)\cdot(x-1)=\frac{3}{7}$ tenglamani yeching.

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

47. (v13-134-32) $\frac{1}{x(x+1)(x+2)}=$ $=\frac{a}{x}+\frac{b}{x+1}+\frac{c}{x+2}$ tenglikni qanoatlantiradigan a, b, c larni toping.

A) $a=-\frac{1}{2};\ b=-1;\ c=\frac{1}{2}$

B) $a=1;\ b=2;\ c=\frac{1}{2}$

C) $a=\frac{1}{2};\ b=1;\ c=\frac{1}{2}$

D) $a=\frac{1}{2};\ b=-1;\ c=\frac{1}{2}$

48. (v13-144-20) $\dfrac{\frac{5}{x-50}+\frac{7}{x+25}}{\frac{2}{x-50}-\frac{3}{x+25}}=17$ tenglamani yeching.

A) 50 B) 100 C) 125 D) 25

49. (v13-150-13) $\frac{1}{(x+1)^2(x+2)}=$ $=\frac{a}{x+1}+\frac{b}{(x+1)^2}+\frac{c}{x+2}$ 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) $a=1;\ b=-1;\ c=1$

50. (v13-153-32) $\frac{1}{x^3+1}=\frac{a}{x+1}+\frac{bx+c}{x^2-x+1}$ tenglikni qanoatlantiradigan a, b, c larni toping.

A) $a=\frac{1}{3};\ b=\frac{2}{3};\ c=-\frac{1}{3}$

B) $a=\frac{2}{3};\ b=-\frac{1}{3};\ c=\frac{1}{3}$

C) $a=b=c=\frac{1}{3}$

D) $a=\frac{1}{3};\ b=-\frac{1}{3};\ c=\frac{2}{3}$

51. (v13-168-21) $\frac{2}{7}\left(4\frac{2}{3}x+3\frac{1}{2}\right)+\frac{2}{3}\left(x-\frac{1}{2}\right)=3$ tenglamani yeching.

A) 3 B) $1\frac{1}{6}$ C) $\frac{2}{7}$ D) $\frac{2}{3}$

52. (v13-172-30) $0{,}2(x-1)+0{,}5(3x-9)=$ $=0{,}(3)x-2$ tenglamani yeching.

A) $\frac{1}{3}$ B) $\frac{81}{41}$ C) $\frac{85}{41}$ D) $\frac{80}{41}$

53. (v14-106-14) $\cfrac{1+\cfrac{1+\frac{\cdots}{5}}{5}}{5}+1=x$ tenglamadan x ni toping.

A) $\frac{5}{4}$ B) $\frac{7}{5}$ C) $\frac{11}{6}$ D) $\frac{4}{5}$

54. (v15-109-11) $0{,}5(3x-9)+0{,}2(x-1)=$ $=0{,}(3)x-2$ tenglamani yeching.

A) $\frac{81}{41}$ B) $\frac{80}{41}$ C) $\frac{85}{41}$ D) $\frac{1}{3}$

55. (v16-102-15) Agar barcha x, y lar uchun $x^3+4x^2y+axy^2+3xy-bx^cy+7xy^2+dxy+y^2=$ $=x^3+y^2$ ayniyat bajarilsa, $|a+b+c|(a-b-d)$ ni toping. $(c>1)$

A) 3 B) –8 C) –4 D) –2

56. (v16-109-21) Agar barcha x, y lar uchun $x^3+4x^2y+axy^2+3xy-bx^cy+7xy^2+dxy+y^2=$ $=x^3+y^2$ ayniyat bajarilsa, $b-d$ ni toping. $(c>1)$

A) 7 B) 6 C) –4 D) –2

57. (v16-113-17) Agar barcha x, y lar uchun $x^3+4x^2y+axy^2+3xy-bx^cy+7xy^2+dxy+y^2=$ $=x^3+y^2$ ayniyat bajarilsa, $|a+b+c|(c+d)$ ni toping. $(c>1)$

A) –1 B) 3 C) –2 D) –4

58. (v16-117-18) Agar barcha x, y lar uchun $x^3+4x^2y+axy^2+3xy-bx^cy+7xy^2+dxy+y^2=$ $=x^3+y^2$ ayniyat bajarilsa, $|a+b+c|(a+b-c)$ ni toping. $(c>1)$

A) –4 B) –2 C) –5 D) 3

59. (v16-129-6) Agar barcha x, y lar uchun $x^3+4x^2y+axy^2+3xy-bx^cy+7xy^2+$ $+dxy+y^2=x^3+y^2$ ayniyat bajarilsa, $|a+b+c|(a+b+d)$ ni toping. $(c>1)$

A) –4 B) –2 C) 3 D) –6

60. (v17-112-23) $\dfrac{3x}{4x-\dfrac{0{,}25+x}{3x+\dfrac{4-2x}{4}}}=1$ tenglamani yeching.

A) $-\frac{\sqrt{10}}{10}$ va $\frac{\sqrt{10}}{10}$ B) $-\frac{1}{2}$ va $\frac{1}{2}$

C) $-\frac{\sqrt{10}}{10}$ D) $\frac{\sqrt{10}}{10}$

61. (v17-128-28) $-6(2-0{,}2x)+11=$ $=-4(3-0{,}3x)-1$ tenglamaning yechimi x ga teng bo'lsa, $\frac{2x+1}{4}$ ning qiymatini toping.

A) Ø B) $-\frac{3}{4}$ C) 1 D) –1

62. (v18-1-96) $\frac{0{,}5(x-1)+x-1}{2018}=0$ tenglamani yeching.

A) ∅ B) 0 C) 1 D) –1

63. (v18-1-97) $-7+3(2018-x)=$ $=5(x-2018)-7$ tenglamani yeching.

A) 0 B) –1 C) 2018 D) ∅

64. (v19/20-102-25) Bir noma'lumli chiziqli tenglama nechta ildizga ega bo'lishi mumkin?

1) bitta ildizga; 2) cheksiz ko'p ildizga; 3) ildizi yo'q.

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

65. (v20/21-107-29) Tenglamani yeching: $\frac{-3x-1}{7}+\frac{-2x-2}{8}=\frac{65}{28}$.

A) 3 B) –4 C) –2 D) 2

66. (v20/21-113-26) x ni toping: $\left[3{,}25-\dfrac{\left(6\frac{9}{16}-2\frac{1}{2}x\right)\cdot 0{,}53}{0{,}75}\right]:6\frac{2}{3}=\frac{4}{15}$.

A) 15 B) $\frac{43}{24}$ C) $\frac{223}{120}$ D) 3

67. (v20/21-117-4) Tenglamani yeching: $x-(7{,}23+2{,}99)=20{,}5$.

A) 30,52 B) 10,28 C) 30,72 D) 2,99

68. (v20/21-124-8) Tenglamani yeching: $(20^2-19^2+18^2-17^2+\ldots+2^2-1)x=20+19+\ldots+2+1$.

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

69. (v20/21-124-28) Tenglamani yeching: $\dfrac{7}{5-\dfrac{6}{4-\dfrac{2x-3}{x+1}}}=\frac{7}{3}$.

A) 2 B) ildizi yo'q
C) 4 D) 1

0. (v20/21-126-22) Tenglamani yeching:
$18,75 \cdot 3,4 - x = 7,83 + 6,45 \cdot 1,4$.
A) 46,89 B) 64,95
C) 62,55 D) 80,61

1. (v20/21-127-1) Tenglamani yeching:
$\left(x\sqrt{5}-2\right)\cdot\sqrt{10} = 5x - 2\sqrt{5}$.

A) $\frac{2}{\sqrt{5}}$ B) $\frac{\sqrt{5}}{2}$

C) $\frac{2\left(\sqrt{2}+1\right)}{\sqrt{5}\left(\sqrt{2}-1\right)}$ D) $\frac{2\left(\sqrt{2}-1\right)}{\sqrt{5}\left(\sqrt{2}+1\right)}$

2. (v20/21-130-24) Agar $\frac{1}{\frac{1}{3}+\frac{1}{6}} = \frac{\frac{1}{2}-\frac{1}{4}}{x}$

bo'lsa, $\frac{x}{x-\frac{1}{16}}$ ni hisoblang.

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

3. (v21-110-14) $\sqrt{5} - 7x = -3x + \sqrt{15}\cdot x - \sqrt{3}$ tenglamani yeching va $x\cdot\left(\sqrt{5}+\sqrt{3}\right)$ ning qiymatini toping.
A) 1 B) $\sqrt{3}-2$
C) 2 D) $\sqrt{5}$

4. (v21-115-8) $5 + 0,5x = \sqrt{3} - \sqrt{3}\cdot x$ tenglamani yeching va $x\cdot\left(2+2\sqrt{3}\right)$ ning qiymatini toping.
A) 0 B) -8
C) -6 D) $\sqrt{3}$

28. Proporsiya. Proporsiyaning noma'lum hadini topish. Proporsiya xossasi

1. (96-1-6) $2\frac{4}{5} : x = 1\frac{2}{3} : 2\frac{6}{7}$ proporsiyaning noma'lum hadini toping.
A) $\frac{1}{2}$ B) $\frac{2}{3}$ C) $4\frac{4}{5}$ D) $\frac{3}{5}$
E) $2\frac{1}{5}$

2. (96-6-6) $5\frac{5}{8} : 7\frac{1}{2} = x : 6\frac{2}{5}$ proporsiyaning noma'lum hadini toping.
A) $4\frac{4}{5}$ B) $3\frac{2}{5}$ C) $5\frac{1}{8}$ D) $4\frac{1}{5}$
E) $3\frac{3}{8}$

3. (00-5-10) $1\frac{1}{12}x : 2\frac{1}{12} = 2\frac{3}{5}$ tenglamani yeching.
A) 5 B) 3 C) $1\frac{5}{12}$ D) 4 E) $3\frac{2}{5}$

4. (01-12-30) $x : 2,0(6) = 0,(27) : 0,4(09)$ tenglamani yeching.
A) 1,3 B) 1,37 C) 1,(37) D) 1,(32)
E) 1,3(7)

5. (v6-5-5) $12\frac{1}{2} : 2\frac{1}{2} = 16\frac{2}{3} : \frac{y}{2}$ tenglamani yeching.
A) $6\frac{2}{3}$ B) $6\frac{1}{3}$ C) $6\frac{6}{6}$ D) $4\frac{1}{6}$

6. (v7-110-1) $3\frac{3}{5} : 2\frac{7}{10} = 3\frac{3}{4} : x$ proporsiyaning noma'lum hadini toping.
A) $2\frac{3}{10}$ B) $2\frac{13}{16}$
C) $1\frac{15}{16}$ D) $3\frac{1}{3}$

7. (v7-128-1) $7\frac{1}{2} : 6\frac{2}{5} = 5\frac{5}{8} : x$ proporsiyaning noma'lum hadini toping.
A) $3\frac{2}{5}$ B) $4\frac{4}{5}$ C) $4\frac{1}{5}$ D) 5

8. (v21-107-24) $b-3$; $a+3$; 4 va 3 sonlari proportsiya tashkil etadi. $\frac{b}{7} = \frac{4a}{21}$ ning qiymatini toping.
A) 1 B) $\frac{1}{7}$
C) 2 D) $\frac{2}{21}$

29. Kvadrat tenglama (tola, chala, tenglama ildizlari sonini topish)

1. (02-7-2) $x^2 - 3ax + 2a^2 - ab - b^2 = 0$ tenglamani yeching.
A) $a-b$; $2a+b$ B) $-a+b$; $-2a+b$
C) $-a-b$; $2a-b$ D) $a+b$; $2a+b$
E) $a-b$; $2a-b$

2. (v6-3-5) $(8x+1)\cdot\left(x-\frac{1}{4}\right) = 0$ bo'lsa, $8x+1$ qanday qiymatlar qabul qilishi mumkin?
A) faqat $\frac{1}{4}$ B) faqat $-\frac{1}{8}$
C) 0 yoki 3 D) faqat 0

3. (v6-12-5) Agar $(x-5)\left(\frac{1}{5}x-4\right) = 0$ bo'lsa, $\frac{1}{5}x - 4$ qanday qiymatlar qabul qiladi?
A) faqat -3 B) faqat 0
C) 0 yoki 3 D) 0 yoki -3

4. (v6-15-6) $-\frac{4}{x} = x + 1$ tenglamaning nechta haqiqiy ildizi bor?
A) 2 B) 3
C) ildizi yo'q D) 1

5. (v7-113-27)
Agar $\frac{5x+1}{x^2-x-12} = \frac{a}{x+3} + \frac{b}{x-4}$ ayniyat bo'lsa, $b-a$ ni toping.
A) -1 B) 6
C) 1 D) -6

6. (v8-121-5) Ildizlari $x^2 - 17x + 66 = 0$ tenglamaning ildizlariga teskari bo'lgan kvadrat tenglama tuzing.
A) $66x^2 + 17x + 1 = 0$
B) $66x^2 - 17x + 1 = 0$
C) $66x^2 + 17x - 1 = 0$
D) $66x^2 - 17x - 1 = 0$

7. (v9-24-6) $x^2 + x - 30$ kvadrat uchhadni chiziqli ko'paytuvchilarga ajrating.
A) $(x+6)(x-5)$ B) $(x-5)(6-x)$
C) $(x+5)(6-x)$ D) $(x+5)(x-6)$

8. (v9-25-26) Ildizlari $7x^2 + x - 8 = 0$ tenglamaning ildizlariga qarama-qarshi sonlardan iborat bo'lgan tenglama tuzing.
A) $7x^2 - x - 8 = 0$ B) $7x^2 + x - 7 = 0$
C) $7x^2 - 8x + 1 = 0$ D) $7x^2 - x + 8 = 0$

9. (v11-141-6) Quyidagi tenglamalardan qaysi biri ildizga ega emas?
A) $8x^2 - 12x + 5 = 0$
B) $12x^2 - 36x + 27 = 0$
C) $x^2 + 2x - 8 = 0$
D) $18x^2 - 24x + 8 = 0$

10. (v11-148-32) Agar $(x-2)\cdot(3x-1) = 0$ bo'lsa, $3x-1$ ning qiymati quyidagilardan qaysi biriga teng bo'ladi?
A) faqat $\frac{1}{3}$ B) $\frac{1}{3}$ yoki 2
C) faqat 0 D) 0 yoki 5

11. (v13-152-25)

$$\frac{1}{\frac{1}{\frac{1}{x}+\frac{1}{2}}+\frac{1}{\frac{1}{x}+\frac{1}{2}}} + \frac{1}{\frac{1}{\frac{1}{x}+\frac{1}{2}}+\frac{1}{\frac{1}{x}+\frac{1}{2}}} - \frac{x}{36}$$

tenglamani yeching.
A) 36 B) 70 C) 60 D) 1

12. (v13-157-9) $x^2 + 4x - 8\sqrt{8x} + 20 = 0$ tenglama ildizlari uchun quyidagi mulohazalardan qaysi biri to'g'ri?
A) ildizlari irratsional sonlar
B) ildizlari murakkab sonlar
C) ildizlari kasr sonlar
D) ildizlari tub sonlar

13. (v16-107-13) $(x^2 + 11x + 11)\cdot(x^2 + x + 11) = 11x^2$ tenglama eng kichik ildizi eng kattasidan qancha kichik?
A) 10 B) 9 C) 8 D) 11

14. (v16-111-12) $(x^2 + 23x + 23)\cdot(x^2 + x + 23) = 23x^2$ tenglama haqiqiy ildizlari yig'indisini toping.
A) -23 B) -22 C) -24 D) -25

15. (v16-129-23) Agar $\frac{8}{a} - \frac{a}{2} = 0$ bo'lsa $\frac{2^4}{a^2} + \frac{a^3}{(-4)^2}$ ni hisoblang.
A) 1 B) 1,5 C) 2,5 D) 2

16. (v16-130-23) $(x^2 + 28x + 28)\cdot(x^2 + x + 28) = 28x^2$ tenglama haqiqiy ildizlari yig'indisini toping.
A) -27 B) -30
C) -28 D) -29

17. (v17-101-15) Agar $5a^2 - 7ab - 6b^2 = 0$ bo'lsa, a ni b orqali ifodalang.
A) $a = -0,2b$; $a = b$
B) $a = -0,8b$; $a = -b$
C) $a = -0,6b$; $a = 2b$
D) $a = -2b$; $a = 0,5b$

18. (v17-116-17) Javoblardan qaysi biri $(x^2-9)(4x-x^3)=0$ tenglamaning yechimi bo'la olmaydi.
A) –3 B) –2 C) 0 D) 4

19. (v17-120-19) $x^2+2017x+2016=0$ tenglamaning yechimlari yig'indisini toping.
A) –2017 B) 0
C) –2016 D) 2016

20. (v17-122-27) Tenglamani yeching: $x^2-2ax+a^2-b^2=0$.
A) a – b; a + b B) $\frac{a-b}{2}; \frac{a+b}{2}$
C) a – b; b – a D) a + b; 2a + 2b

21. (v18-1-98) $x^2-8=(x-2)^2$ tenglama ildizi qaysi oraliqqa tegishli?
A) $(-\infty; 0)$ B) [1; 3)
C) (2; 5] D) (3; 1]

22. (v18-1-99) $(x^2+x)+(x^2+2x)+\ldots+(x^2+19x)=1425$ tenglamani qanoatlantiruvchi x natural sonni toping.
A) 6 B) 10 C) 5 D) 8

23. (v18-1-100) Agar $x^2-5x+2=0$ bo'lsa, $x^2+\frac{4}{x^2}$ ning son qiymatini toping.
A) 15 B) 23 C) 21 D) 18

24. (v19/20-105-1) $4x^2-20x=0$ tenglama ildizlarini toping.
A) 0; 4 B) –4; 0
C) –5; 0 D) 0; 5

25. (v19/20-109-21) $(x+2)^2=(x-4)^2$ tenglamani yeching.
A) 4 B) –1 C) 2 D) 1

26. (v19/20-111-17) $x^2-5x-14=0$ tenglamaning ildizlarini o'sish tartibida yozing.
A) 2; 7 B) –2; 7
C) –7; 2 D) –7; –2

27. (v19/20-118-4) Tenglama ildizlarining to'rtinchi darajalari yig'indisini toping: $x^2+x-1=0$.
A) –3 B) 7 C) 8 D) –1

28. (v20/21-104-29) Agar $x^2+2x=8\sqrt{6}$ bo'lsa, $2x-\frac{12}{x}$ ni toping.
A) 0 B) $\sqrt{6}$ C) $2\sqrt{6}$ D) $4\sqrt{6}$

29. (v20/21-107-27) Tenglamani yeching: $x^2-23x+60=0$.
A) –20 va 3 B) 20 va 3
C) 20 va –3 D) –20 va –3

30. (v20/21-108-18) Tenglamani yeching: $2016x^2-2018x+2=0$.
A) 1; $\frac{2}{2016}$ B) –1; $\frac{2}{1998}$
C) 1; 2018 D) –1; 2016

31. (v20/21-108-19) $\frac{x+8}{3}=x-\frac{x-3}{x}$ tenglama ildizlari ayirmasining modulini toping.
A) 5,5 B) 5 C) 3,5 D) 4

32. (v20/21-114-6) Ushbu $x^2+2\sqrt{5}x+2\sqrt{6}=0$ tenglamaning katta ildizini toping.
A) $-\sqrt{3}-\sqrt{2}-\sqrt{5}$ B) $-\sqrt{3}+\sqrt{2}-\sqrt{5}$
C) $\sqrt{3}-\sqrt{2}-\sqrt{5}$ D) $\sqrt{3}+\sqrt{2}-\sqrt{5}$

33. (v20/21-118-27) Agar $a>0$ va ax^2+bx+c ifoda uchun $b^2-4ac<0$ bo'lsa, $ax^2+bx+c>0$ tengsizlikning yechimi.
A) bo'sh to'plam
B) haqiqiy sonlar to'plami
C) b ning ishorasiga bog'liq
D) c ning ishorasiga bog'liq bo'ladi.

34. (v20/21-121-27) Ushbu $26x^2-87x+55=0$ tenglamaning katta ildizi kichik ildizidan qanchaga katta?
A) $\frac{65}{22}$ B) $\frac{16}{13}$ C) $\frac{43}{26}$ D) 1

35. (v20/21-121-29) Ushbu $57{,}5x^2+161x+112{,}7=0$ tenglamaning ildizlari sonini toping.
A) 0 B) 2 C) 3 D) 1

36. (v20/21-137-18) $x^2-\left(\sqrt{6}-\sqrt{24}\right)x-12=0$ tenglama ildizlari orasidagi butun sonlar yig'indisini toping.
A) 7 B) 9 C) –9 D) –7

30. Kvadrat uchhadni chiziqli ko'paytuvchiga ajratish

1. (97-12-26) $\frac{n^2-7n+6}{n^2-1}$ ni qisqartiring.
A) $\frac{n+6}{n-1}$ B) $\frac{n-6}{n+1}$ C) $\frac{n+6}{n+1}$ D) $\frac{n-6}{n-1}$
E) $\frac{n-3}{n+1}$

2. (98-7-28) $\frac{4a^2-12ab+9b^2}{2a^2-ab-3b^2}$ ni soddalashtiring.
A) $\frac{3a-2b}{a+b}$ B) $\frac{3b-2a}{a+b}$
C) $\frac{2a-3b}{a+b}$ D) $\frac{2a-3b}{a-b}$
E) $\frac{3a-2b}{a-b}$

3. (98-12-27) $\frac{2a^2+4ab-6b^2}{a^2+5ab+6b^2}$ ni soddalashtiring.
A) $\frac{2(a-b)}{a+2b}$ B) $\frac{a-b}{a+2b}$
C) $\frac{2a-b}{a+2b}$ D) $\frac{a+2b}{2(a-b)}$
E) $\frac{2(a-b)}{a+b}$

4. (v6-10-3) x^2-x-6 kvadrat uchhadni chiziqli ko'paytuvchilarga ajrating.
A) (x + 3)(x – 2) B) (x – 3)(x + 2)
C) (x + 3)(2 – x) D) (x + 2)(3 – x)

5. (v7-107-15) $\frac{n^2-8n+7}{n^2-1}$ ni qisqartiring.
A) $\frac{n-7}{n+1}$ B) $\frac{n+7}{n-1}$
C) $\frac{n-7}{n-1}$ D) $\frac{n+7}{n+1}$

6. (v9-16-29) x^2-x-20 kvadrat uchhadni chiziqli ko'paytuvchilarga ajrating.
A) (x – 5)(x + 4)
B) (x + 4)(5 – x)
C) (x + 5)(x – 4)
D) (x + 5)(4 + x)

7. (v12c-150-28) $\frac{12x^2-x-1}{21x^2-19x+4}$ kasrni qisqartiring.
A) $-\frac{4x+1}{7x+4}$ B) $\frac{4x+1}{4-7x}$
C) $\frac{4x+1}{7x+4}$ D) $\frac{4x+1}{7x-4}$

8. (v13-131-3) $\frac{x^3-6x^2+32}{x^2-8x+16}$ ni soddalashtiring.
A) 1 – x B) x + 2 C) 3x – 2 D) $\frac{x-1}{x+1}$

9. (v19/20-119-17) $6x^2-5x+1=0$ tenglama ildizlari $\operatorname{tg}\alpha$ va $\operatorname{tg}\beta$ bo'lsa, $\alpha+\beta$ ning qiymatini toping.
A) πn B) $\frac{\pi}{3}+\pi n$
C) $\frac{\pi}{4}+\pi n$ D) $\frac{\pi}{6}+\pi n$

10. (v19/20-120-4) Tenglama ildizlarining to'rtinchi darajalari yig'indisini toping: $x^2-2x-2=0$.
A) 54 B) 48 C) 64 D) 56

11. (v20/21-120-30) Agar $3x(2x-1)-6x(7+x)=90$ tenglamaning ildizi x_0 bo'lsa, x_0^2 ni toping.
A) –4 B) –2 C) 4 D) 2

12. (v21-103-29) Ildizlari $5+\sqrt{2}$ va $5-\sqrt{2}$ larga teng bo'lgan tenglama tuzing.
A) $x^2+10x+23=0$
B) $x^2-10x-23=0$
C) $x^2-10x+23=0$
D) $x^2+23x+10=0$

31. Viyet teoremasi. Viyet teoremasini qo'llash

1. (96-8-75) x_1 va x_2 $x^2+ax+6=0$ tenglamaning ildizlari bo'lib, $\frac{1}{x_1}+\frac{1}{x_2}=\frac{1}{2}$ tenglikni qanoatlantirsa, a ning qiymatini toping.
A) –1 B) –2 C) –3 D) 3
E) 2

2. (97-9-84) Agar a va b sonlari $x^2-8x+7=0$ kvadrat tenglamaning ildizlari bo'lsa, $\frac{1}{a^2}+\frac{1}{b^2}$ ni hisoblang.
A) $1\frac{1}{49}$ B) $1\frac{1}{50}$ C) $2\frac{1}{15}$ D) $1\frac{1}{10}$
E) $2\frac{1}{49}$

3. (98-12-84) Agar $x^2-x+q=0$ tenglamaning x_1 va x_2 ildizlari $x_1^3+x_2^3=19$ shartni qanoatlantirsa, q ning qiymati qanchaga teng bo'ladi?
A) –5 B) –2 C) –12 D) –1
E) –6

4. (99-8-27) $2x^2 - 5x + 1 = 0$ tenglama ildizlari kublarining yig'indisini toping.
A) $11\frac{7}{8}$ B) 12 C) $12\frac{8}{9}$ D) $12\frac{7}{8}$
E) 13

5. (00-1-12) $2x^2 - 26x + 72 = 0$ tenglama ildizlarining o'rta proporsionalini toping.
A) 4 B) 5 C) 7 D) 6 E) 8

6. (00-3-18) Agar $x^2 - 3x - 6 = 0$ tenglamaning ildizlari x_1 va x_2 bo'lsa, $\frac{1}{x_1^3} + \frac{1}{x_2^3}$ ni toping.
A) $\frac{1}{3}$ B) 0,5 C) –0,5 D) 0,375
E) –0,375

7. (00-8-32) x_1 va x_2 lar $3x^2 - 8x - 15 = 0$ tenglamaning ildizlari bo'lsa, $\frac{x_1}{x_2} + \frac{x_2}{x_2}$ ning qiymatini hisoblang.
A) $-3\frac{19}{45}$ B) $-3\frac{1}{45}$ C) 5 D) $-\frac{8}{3}$
E) $-1\frac{11}{13}$

8. (01-10-2) Agar x_1 va x_2 $x^2 + x - 5 = 0$ tenglamaning ildizlari bo'lsa, $x_1^2x_2^4 + x_2^2x_1^4$ ning qiymatini hisoblang.
A) 225 B) 145 C) 125 D) 175
E) 275

9. (02-5-15) Ildizlaridan biri $\frac{1}{6+\sqrt{2}}$ ga teng bo'lgan ratsional koeffitsiyentli kvadrat tenglama tuzing.
A) $34x^2 - 12x + 1 = 0$
B) $x^2 - 12x + 1 = 0$
C) $34x^2 - 12x - 1 = 0$
D) $x^2 - 12x + 34 = 0$
E) $34x^2 + 12x - 1 = 0$

10. (02-6-9) Agar x_1 va x_2 $x^2 + x - 3 = 0$ tenglamaning ildizlari bo'lsa, $\frac{1}{x_1^2x_2^4} + \frac{1}{x_1^4x_2^2}$ ning qiymatini hisoblang.
A) $\frac{5}{81}$ B) $\frac{7}{81}$ C) $\frac{11}{81}$ D) $\frac{4}{27}$
E) $\frac{3}{16}$

11. (02-7-8) 2 va –3 sonlari $x^3 + mx + n$ ko'phadning ildizlari. Bu ko'phadning uchinchi ildizi topilsin.
A) 1 B) 4 C) –1 D) –2
E) 3

12. (02-11-13) Agar x_1 va x_2 $9x^2 + 3x - 1 = 0$ tenglamaning ildizlari bo'lsa, $\frac{3x_1x_2}{x_1 + x_2}$ ning qiymatini toping.
A) –1 B) 1 C) 2 D) $\frac{1}{3}$
E) 3

13. (02-11-14) Ildizlaridan biri $3 + \frac{\sqrt{2}}{2}$ ga teng bo'lgan ratsional koeffitsiyentli kvadrat tenglama tuzing.
A) $x^2 - 3x + 9 = 0$
B) $x^2 - 6x + 17 = 0$
C) $x^2 - 12x + 9 = 0$
D) $2x^2 + 12x - 17 = 0$
E) $2x^2 - 12x + 17 = 0$

14. (02-11-16) x_1 va x_2 $3x^2 - 5x + 2 = 0$ kvadrat tenglamaning ildizlari. Ildizlari $\frac{x_1}{3x_2 - x_1}$ va $\frac{x_2}{3x_1 - x_2}$ ga teng bo'lgan kvadrat tenglamani tuzing.
A) $3x^2 - 7x + 4 = 0$ B) $7x^2 + 9x - 2 = 0$
C) $7x^2 + 9x + 2 = 0$ D) $7x^2 - 9x + 2 = 0$
E) $3x^2 + 7x - 4 = 0$

15. (03-1-3) $ax^2 + bx + c = 0$ tenglamaning koeffitsiyentlari $b = a + c$ tenglikni qanoatlantiradi. Agar x_1 va x_2 berilgan kvadrat tenglamaning ildizlari bo'lsa, $\frac{x_2}{x_1} + \frac{x_1}{x_2}$ ning qiymatini hisoblang.
A) $\frac{a^2 - c^2}{ac}$ B) $\frac{a}{c} + \frac{c}{a}$
C) $\frac{1}{a} + \frac{1}{c}$ D) $\frac{1}{a} - \frac{1}{c}$
E) $\frac{2(a+c)}{ac}$

16. (03-3-17) Agar x_1 va x_2 $2x^2 + 3x - 4 = 0$ tenglamaning ildizlari bo'lsa, $\frac{x_1^3 - x_2^3}{x_1 - x_2}$ ning qiymatini toping.
A) 0,25 B) –0,25 C) 4,25 D) –4,25
E) 3,25

17. (03-11-67) $x^2 + x + a = 0$ tenglamaning x_1 va x_2 ildizlari orasida $\frac{1}{x_1} + \frac{1}{x_2} = \frac{1}{2}$ munosabat o'rinli. a ning qiymatini toping.
A) –2,5 B) –2 C) –1 D) –1,5
E) –0,5

18. (v6-4-29) Agar $x^2 + x - 4 = 0$ tenglamaning ildizlari x_1 va x_2 bo'lsa, $x_1^3 + x_2^3$ ning qiymati qanchaga teng bo'ladi?
A) 3 B) 1 C) –13 D) 2

19. (v6-8-6) x_1 va x_2 $x^2 + 2x - 12 = 0$ tenglamaning ildizlari ekanligi ma'lum. $x_1^2 + x_2^2$ ning qiymatini toping.
A) 12 B) 10 C) 28 D) 11

20. (v6-11-6) x_1 va x_2 $x^2 - 22x + 8 = 0$ tenglamaning ildizlari bo'lsa, $x_1x_2^2 + x_1^2x_2$ ning qiymatini toping.
A) –176 B) –120 C) 176 D) 280

21. (v8-101-18) k ning qanday qiymatida $5x^2 - 22x + 5k = 0$ tenglamaning x_1 va x_2 ildizlari orasida $5x_1 + 6x_2 = 26$ munosabat o'rinli bo'ladi?
A) $\frac{8}{5}$ B) $\frac{-8}{5}$ C) $\frac{-22}{5}$ D) $\frac{22}{5}$

22. (v8-104-5) Ildizlari $x^2 - 15x + 56 = 0$ tenglamaning ildizlariga teskari bo'lgan kvadrat tenglama tuzing.
A) $56x^2 + 15x + 1 = 0$
B) $56x^2 - 15x + 1 = 0$
C) $56x^2 + 15x - 1 = 0$
D) $56x^2 - 15x - 1 = 0$

23. (v8-108-18) k ning qanday qiymatida $4x^2 - 17x + 4k = 0$ tenglamaning x_1 va x_2 ildizlari orasida $8x_1 + 11x_2 = 49$ munosabat o'rinli bo'ladi?
A) $\frac{15}{4}$ B) $\frac{-15}{4}$ C) $\frac{-17}{4}$ D) $\frac{17}{4}$

24. (v8-113-5) Ildizlari $x^2 - 22x + 112 = 0$ tenglamaning ildizlaridan ikki marta katta bo'lgan kvadrat tenglama tuzing.
A) $x^2 + 44x + 448 = 0$
B) $x^2 - 44x + 448 = 0$
C) $x^2 - 44x - 448 = 0$
D) $x^2 + 44x - 448 = 0$

25. (v8-114-18) k ning qanday qiymatida $4x^2 + 49x + 4k = 0$ tenglamaning x_1 va x_2 ildizlari orasida $12x_1 + 8x_2 = -95$ munosabat o'rinli bo'ladi?
A) $\frac{39}{4}$ B) $\frac{-39}{4}$ C) $\frac{49}{4}$ D) $\frac{-49}{4}$

26. (v8-129-5) Ildizlari $x^2 - 22x + 112 = 0$ tenglamaning ildizlaridan ikkita katta bo'lgan kvadrat tenglama tuzing.
A) $x^2 + 26x + 160 = 0$
B) $x^2 - 26x + 160 = 0$
C) $x^2 - 26x - 160 = 0$
D) $x^2 + 26x - 160 = 0$

27. (v11-145-6) $-2x^2 + 5x + 3 = 0$ bo'lsa, $\frac{1}{x_1} + \frac{1}{x_2}$ ni hisoblang.
A) $\frac{3}{5}$ B) $\frac{5}{3}$ C) $-\frac{3}{5}$ D) $-\frac{5}{3}$

28. (v11-146-16) x_1 va x_2 $4x^2 + 9x - 11 = 0$ tenglamaning ildizlari bo'lsa, $x_2 + x_2x_1 + x_1$ yig'indining qiymati nimaga teng?
A) –4 B) –5 C) 2 D) –2

29. (v11-147-31) Ildizlari $3 + \sqrt{3}$ va $3 - \sqrt{3}$ bo'lgan kvadrat tenglama tuzing.
A) $x^2 - 6x - 6 = 0$ B) $x^2 + 6x + 6 = 0$
C) $x^2 - 6x + 6 = 0$ D) $x^2 + 6x - 6 = 0$

30. (v11-150-25) $2x^2 - 4x - 3 = 0$ bo'lsa $x_1x_2^2 + x_1^2x_2$ ni hisoblang.
A) –3 B) 4 C) 3 D) –4

31. (v12z-106-5) Agar a va b sonlari $x^2 - 10x + 9 = 0$ kvadrat tenglamaning ildizlari bo'lsa, $\frac{1}{a^2} + \frac{1}{b^2}$ ni hisoblang.
A) $1\frac{7}{81}$ B) $1\frac{1}{81}$ C) $1\frac{1}{49}$ D) $1\frac{1}{100}$

32. (v12z-111-16) Ildizlari $7 - \sqrt{17}$ va $7 + \sqrt{17}$ bo'lgan keltirilgan kvadrat tenglamaning barcha koeffitsiyentlari yig'indisini toping.
A) 15 B) 21 C) 19 D) 20

33. (v12z-116-14) Agar x_1 va x_2 $x^2 + x - 7 = 0$ tenglamaning ildizlari bo'lsa, $x_1^2x_2^4 + x_2^2x_1^4$ ning qiymatini hisoblang.
A) 637 B) 625 C) 735 D) 725

34. (v13-122-32) $2x^2 - 11x + 13 = 0$ tenglamaning ildizlari x_1, x_2 bo'lsa, $\frac{x_1}{x_2} + \frac{x_2}{x_1}$ ni hisoblang.

A) $\frac{69}{26}$ B) $\frac{84}{29}$
C) $\frac{26}{69}$ D) $-\frac{26}{69}$

35. (v13-161-10) Agar x_1 va x_2 sonlari $x^2+3x+1=0$ tenglamaning ildizlari bo'lsa, $\left(\frac{x_1}{x_2+1}\right)^2+\left(\frac{x_2}{x_1+1}\right)^2$ ni toping.
A) 36 B) 27 C) 9 D) 18

36. (v13-172-21) $z^2-\frac{\sqrt{85}}{4}z+1\frac{5}{16}=0$ tenglamaning katta va kichik ildizlari kublarining ayirmasini toping.
A) –2 B) 2 C) 1 D) –1

37. (v14-102-24) $ax^2+bx+c=0$ tenglamaning ildizlari x_1 va x_2 bo'lsa, ildizlari $\frac{1}{x_2}$ va $\frac{1}{x_1}$ bo'lgan kvadrat tenglama tuzing.
A) $cx^2-bx+a=0$ B) $-cx^2+bx-a=0$
C) $cx^2-bx-a=0$ D) $cx^2+bx+a=0$

38. (v16-121-30) $\sqrt{11}+9$ soni x^2+mx+n ko'phadning ildizi bo'lsa, m va n butun sonlar yig'indisini toping.
A) 58 B) 54 C) 56 D) 52

39. (v17-105-11) Ildizidan biri $x_1=2-\sqrt{3}$ bo'lgan ratsional koeffitsiyentli kvadrat tenglamani belgilang.
A) $x^2-4x+2=0$ B) $x^2+4x+2=0$
C) $x^2-4x+1=0$ D) $x^2+4x+1=0$

40. (v17-110-16) Ildizlari $x_1=\frac{5+2\sqrt{6}}{3}$ va $x_2=\frac{5-2\sqrt{6}}{3}$ bo'lgan kvadrat tenglama tuzing.
A) $x^2-30x+1$ B) x^2-9x+1
C) $9x^2-30x+1=0$ D) $9x^2-x+30=0$

41. (v17-115-3) $x^2+100x+1=0$ kvadrat tenglamaning haqiqiy yechimlari $x^2+mx+n=0$ tenglamaning haqiqiy yechimlarining kublariga teng. m^3-3mn ning qiymatini toping.
A) 81 B) 100 C) 125 D) 50

42. (v17-120-18) $x^2-(m-1)x-5=0$ tenglamaning x_1 va x_2 ildizlari orasida $x_1+\frac{1}{x_2}=2$ munosabat o'rinli. m ning qiymatini toping.
A) 2,5 B) 1,5 C) –1,5 D) 3,5

43. (v17-127-24) Agar $x^2+mx+m^2+a=0$ tenglamaning ildizlari a va b bo'lsa, a^2+ab+b^2+a ning qiymatini toping.
A) 1 B) 0 C) 2 D) 4

44. (v18-1-101) Ildizlari $x_1=\frac{\sqrt{a}}{\sqrt{a}+\sqrt{a-b}}$; $x_2=\frac{\sqrt{a}}{\sqrt{a}-\sqrt{a-b}}$ bo'lgan kvadrat tenglama tuzing.
A) $ax^2-bx+b^2=0$
B) $bx^2-2ax+a=0$
C) $2abx^2-ax+b=0$
D) $bx^2-2x+\frac{a}{b}=0$

45. (v18-1-102) $x\left(x-\sqrt{3}\right)=1$ tenglama ildizlari kvadratlarining yig'indisini toping.
A) 5 B) 4 C) 3 D) 2

46. (v19/20-104-24) Ildizlari $\frac{1}{10-\sqrt{72}}$ va $\frac{1}{10+6\sqrt{2}}$ ga teng bo'lgan ratsional koeffitsiyentli kvadrat tenglama tuzing.
A) $28x^2-20x+\frac{1}{4}=0$
B) $7x^2-20x+1=0$
C) $7x^2-5x+1=0$
D) $28x^2-20x+1=0$

47. (v19/20-106-22) $x^2-3x-10=0$ tenglama ildizlari kublari yig'indisini toping.
A) 117 B) 90 C) 115 D) 98

48. (v20/21-102-6) Agar $3x^2-7x+1=0$ tenglamaning ildizlari x_1 va x_2 bo'lsa, $\frac{x_1^2}{x_2}+\frac{x_2^2}{x_1}$ ifodaning qiymatini toping.
A) $\frac{280}{9}$ B) $\frac{406}{9}$ C) $\frac{43}{3}$ D) $\frac{55}{3}$

49. (v20/21-103-26) Agar $2x^2-(a+3)x++a+1=0$ tenglamaning bir ildizi –7 bo'lsa, ikkinchi ildizini toping.
A) –1 B) 1 C) 2 D) –2

50. (v20/21-104-27) Agar $x^2-6x+2=0$ bo'lsa, $\frac{x^3+\frac{8}{x^3}}{x^2+\frac{4}{x^2}}$ ni toping.
A) 6 B) $\frac{45}{4}$ C) $\frac{45}{8}$ D) 36

51. (v20/21-114-7) Agar $x^2+x-3=0$ tenglamaning ildizlari x_1 va x_2 bo'lsa, ildizlari $x_1^2+x_2$ va $x_1+x_2^2$ bo'lgan keltirilgan kvadrat tenglama tuzing.
A) $y_2-6y-4=0$ B) $z_2+6z-4=0$
C) $x^2-6y+4=0$ D) $m^2+6m+4=0$

52. (v20/21-122-1) Agar $x^2-3x+1=0$ tenglama x_1 va x_2 ildizlarga ega bo'lsa, $x_1+x_1x_2+x_2$ ifodaning qiymatini toping.
A) 4 B) 2 C) –2 D) –4

53. (v20/21-122-2) Agar $2x^2+5x-8=0$ tenglamaning ildizlari x_1 va x_2 bo'lsa, $x_1^2+x_2^2$ ifodaning qiymatini toping.
A) –1,75 B) 2,25 C) 14,25 D) 5,75

54. (v20/21-125-10) Agar $x^2-7x+6=0$ tenglamaning ildizlari x_1 va x_2 bo'lsa, $x_1^5+x_2^5$ ni toping.
A) 16808 B) 16807
C) 7777 D) –77777

55. (v20/21-128-3) Ushbu $x^2-7x+a+b=0$ tenglama ildizlari a va b. Uning diskirminantini toping.
A) 21 B) 14 C) 7 D) –7

56. (v20/21-128-26) Agar $2x^2+11x+t=0$ tenglamaning ildizlari nisbati 10 bo'lsa, t ni toping.
A) –2,5 B) 2,5 C) 5 D) –5

57. (v20/21-129-28) Agar $x^2+(2-a-a^2)x+a=0$ tenglamaning ildizlari yig'indisi 0 bo'lsa, a ni toping.
A) –2 B) 1
C) –2 yoki 1 D) 0

58. (v20/21-136-28) $x^2-3x-5=0$ tenglama ildizlari x_1 va x_2. Ildizlari $(x_2-1)^{-1}\cdot x_1$ va $(x_1-1)^{-1}\cdot x_2$ bo'lgan kvadrat tenglama tuzing.
A) $7x^2+16x+5=0$
B) $7x^2-16x+5=0$
C) $7x^2+16x-5=0$
D) $7x^2-16x-5=0$

32. Bikvadrat tenglama. Kvadrat tenglama keltiriladigan tenglamalar

1. (97-10-15) $x^4-13x^2+36=0$ tenglamaning eng katta va eng kichik ildizlari ayirmasini toping.
A) 5 B) 1 C) 7 D) 0
E) 6

2. (98-11-10) $y^4-2y^2-8=0$ tenglamaning haqiqiy ildizlari ko'paytmasini aniqlang.
A) 4 B) –16 C) 16 D) –4
E) 64

3. (99-2-15) $x^4=3x^2-2x$ tenglamaning eng katta va eng kichik ildizlari yig'indisini toping.
A) 3 B) –3 C) 1 D) –1
E) –2

4. (00-3-26) $(x^2+5x+4)(x^2+5x+6)=120$ tenglamaning haqiqiy ildizlari yig'indisini toping.
A) 3 B) –3 C) 2 D) –5
E) –4

5. (01-6-14) $(x^2+1)^4-3(a^2+1)^2-4=0$ tenglamaning nechta ildizi bor?
A) 6 B) 4 C) 3 D) 2
E) 5

6. (02-4-4) $x^4-(\sqrt{5}+\sqrt{3})x^2+\sqrt{15}=0$ tenglamaning ildizlari sonnini toping.
A) 2 B) 4 C) 1 D) 0
E) 3

7. (03-1-69) $(x^2+x+1)(x^2+x+2)=12$ tenglamaning haqiqiy ildizlari ko'paytmasini toping.
A) –12 B) 6 C) –2 D) 8
E) 2

8. (03-10-27) $(4x^2-7x-5)(5x^2+13x+3)\cdot(3x-x^2-8)=0$ tenglamaning barcha haqiqiy ildizlari ko'paytmasini toping.
A) 1 B) 0 C) 0,75 D) –0,75
E) 1,25

9. (03-12-2) $3x^4-5x^2+2=0$ tenglamaning eng kichik va eng katta ildizlari ayirmasini toping.
A) 2 B) $\frac{2\sqrt{6}}{3}$
C) $-\frac{2\sqrt{6}}{3}$ D) –2
E) $\frac{5}{3}$

10. (v12z-124-14) $x^4-(\sqrt{5}+\sqrt{2})x^2+\sqrt{10}=0$ tenglamaning haqiqiy ildizlari sonini toping.
A) 2 B) 1 C) 4 D) 0

11. (v13-106-7) $\left(\frac{x}{x-1}\right)^4 - 3\left(\frac{x}{x-1}\right)^2 + 2 = 0$ tenglamaning ildizlari ko'paytmasini toping.

A) 2 B) 1 C) $4\frac{1}{2}$ D) $3\frac{1}{6}$

12. (v13-134-31) $x^4 - 4x^2 + 3 = 0$ tenglamani yeching.

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

13. (v13-168-20) $(x^2 + 2x)^2 - (x + 1)^2 = 55$ tenglamani yeching.

A) –4; 2 B) –4; –2 C) –2; 4 D) 4; 2

14. (v15-126-2) $(x^2 + 36x + 36)\cdot(x^2 + x + 36) = 36x^2$ tenglama haqiqiy ildizlari yig'indisini toping.

A) –38 B) –35 C) –37 D) –36

15. (v16-119-23) $2 + \left(\frac{x}{x-1}\right)^4 - 3\left(\frac{x}{x-1}\right)^2 = 0$ tenglamaning ildizlari ko'paytmasini toping.

A) 1 B) 2 C) $3\frac{1}{6}$ D) $4\frac{1}{2}$

16. (v17-107-30) Tenglamani yeching: $(x^2 + 4x)^2 + x^2 + 4x - 30 = 0$.

A) –1; 5 B) –5; –3; –2; 1
C) 1; –5 D) –6; 1

17. (v20/21-107-28) $x^4 - 4x^2 + 4 = 0$ tenglama ildizlarining ko'paytmasini toping.

A) 2 B) –2 C) 4 D) –4

18. (v20/21-122-3) Ushbu $11x^4 + 47x^2 - 13 = 0$ tenglamaning ildizlari yig'indisini toping.

A) $-\frac{47}{11}$ B) 0 C) $-\frac{13}{11}$ D) $\sqrt{47}$

19. (v20/21-128-7) Ushbu $(x + 5)^4 + 8(x + 5)^2 - 9 = 0$ tenglamaning ildizlari yig'indisini toping.

A) 4 B) 5 C) –10 D) –5

20. (v21-101-12) a soni $\frac{x-2}{5x+1} = \frac{x-2}{3x+3}$ tenglamaning katta ildizi bo'lib, b soni esa kichik ildizi bo'lsa, $\log_a b$ ning qiymatini toping.

A) 0 B) 1 C) 2 D) $\frac{1}{2}$

33. Ratsional tenglama

1. (00-8-7) $x^6 - 65x^3 = -64$ tenglama haqiqiy ildizlarining yig'indisini toping.

A) 5 B) 65 C) 64 D) 16 E) 1

2. (02-3-25) $\frac{26}{5(x + x^{-1})} = 1$ tenglama ildizlarining ko'paytmasini toping.

A) 1 B) 5 C) 2 D) 2,4 E) 4,8

3. (02-9-22) $(2x - 1)(5x - 2)^2 = 100(x^2 - 0{,}16)(x - 0{,}5)$ tenglamaning ildizlari yig'indisini hisoblang.

A) 0,5 B) –1,2 C) –0,3 D) 2,1 E) 0,9

4. (02-10-45) $\frac{1}{x^2 - 3x - 3} + \frac{5}{x^2 - 3x + 1} = 2$ tegnlamaning ildizlari yig'indisini toping.

A) 6 B) 5 C) 4 D) 3 E) 2

5. (02-11-22) $x^3 - 3x^2 - 2x + 6 = 0$ tenglamaning ildizlari ko'paytmasini toping.

A) 3 B) –6 C) 6 D) –3 E) 1

6. (03-11-63) $\frac{x^3 - 8}{x - 2} = 6x + 1$ tenglamaning ildizlari yig'indisini toping.

A) 6 B) 4 C) –4 D) 3 E) –2

7. (v4-108-20) $x^3 + 2x^2 + 7 = 8x + 23$ tenglamaning ildizlari ko'paytmasini toping.

A) –4 B) 16 C) –10 D) –20 E) 20

8. (v4-114-20) $\frac{2}{x-3} = \frac{x+8}{x^2-9}$ tenglamani yeching.

A) 1 B) 1,5 C) –2 D) –1 E) 2

9. (v7-108-19) $\frac{x^3 - 8}{x - 2} = 9 - 2x$ tenglamaning ildizlari yig'indisini toping.

A) 4 B) 6 C) 3 D) –6

10. (v12z-112-26) $x^3 - ax^2 + 20x - 12 = 0$ tenglama ildizlaridan biri 2 ga teng. Uning qolgan ildizlari yig'indisini hisoblang.

A) 5 B) 7 C) 9 D) –5

11. (v12z-123-14) $\frac{x-9}{10} + \frac{x-10}{9} = \frac{10}{x-9} + \frac{9}{x-10}$ tenglama yechimlari yig'indisini toping.

A) $28\frac{10}{19}$ B) 0 C) $9\frac{10}{19}$ D) 19

12. (v12z-135-35) $x^3 + 9x^2 + 23x + 13 = -2$ tenglamaning barcha haqiqiy ildizlari yig'indisini toping.

A) –9 B) –5 C) –3 D) 7

13. (v12z-140-12) $x^3 + 3x^2 - 5x - 14 = 0$ tenglamaning barcha haqiqiy ildizlari yig'indisini toping.

A) 6 B) –6 C) –3 D) 4

14. (v12c-133-25) $(x + \frac{1}{x})^2 - 5(x + \frac{1}{x}) - 6 = 0$ tenglamaning ildizlari ko'paytmasini toping.

A) –4 B) –1 C) 1 D) 3

15. (v12c-151-13) $(x - 1)(x + 2)(x + 4)\cdot(x + 7) = -56$ $(x \in R)$ tenglamaning ildizlari yig'indisini toping.

A) –6 B) –12 C) –5 D) 0

16. (v13-101-3) $\frac{3ab+1}{a}x = \frac{3ab}{a+1} + \frac{(2a+1)x}{a(a+1)^2} + \frac{a^2}{(a+1)^3}$ tenglamani yeching.

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

17. (v13-108-25) $x^3 + 12x^2 + 48x = 152$ tenglamani yeching.

A) 3 B) 4 C) 2 D) 6

18. (v13-127-27) $x^2 - \frac{27}{x^2} + x - \frac{27}{x} = 0$ tenglamaning ildizlari ko'paytmasini toping.

A) –3 B) 0 C) 1 D) –2

19. (v13-139-2) $x^2 + \frac{16}{x^2} + (x - \frac{4}{x}) - 28 = 0$ tenglamaning ildizlari yig'indisini toping.

A) 4 B) 1 C) 0 D) –1

20. (v13-145-6) $x^3 - x + 3 = 0$ bo'lsa, $(x^3 - x + 1)\cdot(x^3 + 3)$ ning qiymatini toping.

A) 2x B) 0 C) –4x D) –2x

21. (v13-148-8) $\frac{x^2 + x - 2}{x^2 - 1} = x^2 + 5x + 6$ tenglama ildizlari ko'paytmasini toping.

A) –6 B) –12 C) –8 D) –4

22. (v13-151-10) $(x - 4)(x - 5)(x - 6)\cdot(x - 7) = 1680$ tenglamani yeching.

A) $x_1 = 5$; $x_2 = 6$ B) $x_1 = x_2 = 1$
C) $x_1 = -1$; $x_2 = 12$ D) $x_1 = 4$; $x_2 = 7$

23. (v13-159-26) $(x^2 + \frac{1}{x^2}) - 4(x + \frac{1}{x}) + 5 = 0$ tenglama yechimlari ko'paytmasini toping.

A) $\frac{3+\sqrt{5}}{2}$ B) $\frac{3-\sqrt{5}}{2}$
C) 1 D) 0

24. (v13-161-29) $\frac{a^2 + x}{b^2 - x} - \frac{a^2 - x}{b^2 + x} = \frac{4abx + 2a^2 - 2b^2}{b^4 - x^2}$ tenglamani yeching.

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

25. (v13-165-16) $\frac{x-4}{x-5} + \frac{6x-30}{x-4} = 5$ tenglamani yeching.

A) 6,5; 6 B) 5,5; 6
C) –5,5; –6 D) –5,5; 6

26. (v15-101-30) $\left(1 - \frac{1}{x}\right)\cdot(x + 1)\cdot\left(1 + \frac{1}{x^2}\right)\cdot\left(x^4 + 1\right)\cdot\left(1 + \frac{1}{x^8}\right) = x^5 + 1$ tenglamaning haqiqiy ildizlari yig'indisini toping.

A) 0 B) 2 C) 1 D) –1

27. (v15-109-26) $\frac{x^2 - x}{x^2 - x - 1} - 1 = \frac{x^2 - x + 2}{x^2 - x - 2}$ tenglama ildizlarining o'rta uritmotigini toping.

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

28. (v16-110-13) $x^3 - 32 - 4x\sqrt{x} = 0$ tenglamaning haqiqiy ildizlari ko'paytmasini toping.

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

29. (v16-116-10) $\frac{1}{x-2} + \frac{1}{x+7} = \frac{1}{x-1} + \frac{1}{x+1}$ tenglamani yeching.

A) –0,5; 5 B) 0,2; 5
C) –0,2; 0,2 D) –5; 5

30. (v17-102-24) $2x^4 + 7x^3 - 2x^2 - 13x + 6 = 0$ tenglamaning eng kichik ildizini toping.

A) 1 B) –3 C) 2 D) –1

31. (v17-103-16) $2x + x^3 + x^5 + 4 = 0$ tenglamani yeching.

A) 1 B) –2 C) –1 D) Ø

32. (v17-104-14) $(x^2+x-2)^2+(x^2+x-2)+2=x$ tenglamaning natural yechimlari nechta?
A) 2
B) 1
C) natural yechimga ega emas
D) 3

33. (v17-105-30) $(x^2+x-2)^2+(x^2+x-2)+2=x$ tenglamaning butun ildizlari ko'paytmasini toping.
A) 0 B) –1 C) –2 D) –4

34. (v17-112-7) $(x^2+1)^2+5(x^4-1)-(x^2-1)^2=0$ tenglamaning ildizlari yig'indisini toping.
A) 0 B) 2 C) –4 D) –2

35. (v17-122-8) Tenglamani yeching:
$\frac{2x^2+5x+15}{2x^2+5x+3}-\frac{2x^2+5x+13}{2x^2+5x+5}=1$.
A) $-3;\frac{1}{2}$ B) $3;\frac{1}{2}$ C) $\frac{1}{2}$ D) $-\frac{1}{2}$

36. (v17-123-9) $(x^2-x-3)^2-(x^2-x-3)-3=x$ tenglamaning butun yechimlari ko'paytmasini toping.
A) 0 B) –1 C) 1 D) –3

37. (v18-1-103)
$\frac{1+3+5+\ldots+(2x-1)}{\frac{1}{1\cdot2}+\frac{1}{2\cdot3}+\frac{1}{3\cdot4}+\ldots+\frac{1}{x(x+1)}}=110$
tenglamaning natural yechimini toping.
A) x = 1 B) x = 11
C) x = 10 D) x = 5

38. (v18-1-104) $5x^3-19x^2-38x+40=0$ tenglamaning ildizlari ko'paytmasini toping.
A) 8 B) –8 C) 10 D) –4

39. (v18-1-105) $2x^3+2x^2-(x+1)^2=0$ tenglamaning eng kichik ildizini toping.
A) –1 B) –2 C) 2,5 D) –2,5

40. (v18-1-106) $(x^2+2x)(x^2+2x+2)=3$ tenglamaning ildizlari yig'indisini toping.
A) 4 B) 2 C) –2 D) 0

41. (v18-1-108) Tenglamaning ildizlari yig'indisini toping: $(x^2-6x)(x^2-6x+4)=32$.
A) 6 B) –4 C) 12 D) –2

42. (v19/20-107-14) Tenglamaning ildizlari yig'indisini toping: $\frac{x+1}{x-1}=5-x$.
A) 5 B) –1 C) 6 D) –4

43. (v19/20-108-2) Agar $x-\frac{2}{x}=8$ bo'lsa, $x^3-\frac{8}{x^3}$ ifodaning qiymatini toping.
A) 560 B) 512 C) 585 D) 550

44. (v19/20-114-9) $\frac{3x-2}{4}-\frac{x}{3}=2$ tenglamani yeching.
A) 4 B) 2 C) 8 D) 6

45. (v19/20-114-11)
$\frac{3x}{x-1}-\frac{2x}{x+2}=\frac{3x-6}{(x-1)(x+2)}$ tenglamani yeching.
A) –3, –2 B) –3; 2
C) –3 D) 2

46. (v20/21-101-16) Agar $\frac{x^2-x+1}{x^2+x+1}=\frac{7}{9}\cdot\frac{x-1}{x+1}$ bo'lsa, $x^2-\sqrt{x+1}$ ifoda qiy-matini toping.
A) 3
B) 5
C) aniqlab bo'lmaydi
D) tenglama ildizga ega emas

47. (v20/21-102-30) Tenglamaning ildizlarini toping: $\frac{1}{x(x+2)}-\frac{1}{(x+1)^2}=\frac{1}{12}$.
A) $1;-3;\frac{-1+\sqrt{5}}{2};\frac{-1-\sqrt{5}}{2}$
B) 1 va –3
C) –1 va 3
D) $1;-3;\frac{1+\sqrt{5}}{2};\frac{1-\sqrt{5}}{2}$

48. (v20/21-105-24) Tenglamani yeching: $x^6+x^2-7\sqrt{6}=0$.
A) $\pm\sqrt[4]{6}$ B) $\pm\sqrt[3]{6}$ C) $\pm\sqrt[6]{6}$ D) $\pm\sqrt{6}$

49. (v20/21-106-7) Ushbu $\frac{1}{2+\frac{3}{x-4}}+\frac{4}{3-\frac{2}{x+1}}$ ifoda ma'noga ega bo'lmaydigan x ning barcha qiymatlari o'rta arifmetigini toping.
A) $\frac{31}{24}$ B) $\frac{11}{6}$ C) $\frac{7}{18}$ D) 1,5

50. (v20/21-108-10) $(10x+6)^2=(4x-7)^2$ tenglama ildizlari ko'paytmasini topinig.
A) $\frac{13}{84}$ B) $-\frac{13}{84}$
C) $\frac{21}{20}$ D) $-\frac{21}{20}$

51. (v20/21-109-2) Agar $\frac{x}{x^2+x+1}=\sqrt{10}$ bo'lsa, $\frac{x^2}{x^4+x^2+1}$ ni toping.
A) $\frac{13-4\sqrt{10}}{9}$ B) $\frac{13+4\sqrt{10}}{9}$
C) $19+6\sqrt{10}$ D) 10

52. (v20/21-110-21) Ushbu $(x^2-16)(x-3)^2+9x^2=0$ tenglama haqiqiy ildizlarining yig'indisini toping.
A) 6 B) 8 C) –2 D) 18

53. (v20/21-111-2) Tenglamani yeching: $x^3-7x+\sqrt{6}=0$.
A) $\sqrt{6}, \frac{\sqrt{6}\pm\sqrt{10}}{2}$ B) $\sqrt{6}, -\sqrt{3}\pm\sqrt{5}$
C) $\sqrt{6}, \sqrt{3}\pm\sqrt{5}$ D) $\sqrt{6}, \frac{-\sqrt{6}\pm\sqrt{10}}{2}$

54. (v20/21-111-22) Tenglamani yeching:
$(x^2+3x+2)^4-4(x^2+3x+2)^3(x^2+x+1)+6(x^2+3x+2)^2(x^2-x+1)^2+(x^2-x+1)^4=4(x^2+3x+2)(x^2-x+1)^3$.
A) $\frac{1}{4}$ B) $-\frac{1}{4}$
C) $x\in\varnothing$ D) $-\frac{1}{2}$

55. (v20/21-114-2) Agar
$2+\cfrac{4+\cfrac{2+\frac{1}{x}}{3+\frac{3}{4}}}{1+\cfrac{3+\frac{1}{x}}{2}}=6$ bo'lsa, $x+1$ ni toping.
A) –1402 B) 1404 C) $\frac{84}{61}$ D) $\frac{38}{61}$

56. (v20/21-114-8) Tenglamaning nechta ildizi bor: $\frac{x+1}{x-2}-\frac{x-1}{x+2}=\frac{x+3}{x-6}-\frac{x-3}{x+6}$?
A) Ildizi yo'q B) Uchta
C) Bitta D) Ikkita

57. (v20/21-115-3) Agar $x^3-x-0,4=0$ tenglamaning ildizlari x_1, x_2, x_3 bo'lsa, $x_1^2+x_2^2+x_3^2$ ni hisoblang.
A) –2 B) 0,8 C) 2 D) –0,8

58. (v20/21-116-3) Ushbu $x^3-7x^2+13x-7=0$ tenglamaning haqiqiy ildizlari yig'indisini toping.
A) 1 B) 7 C) 6 D) 5

59. (v20/21-121-9) Agar x o'zgaruvchining mumkin bo'lgan barcha qiymatlarida $\frac{a}{x-2}+\frac{b}{x+7}=\frac{8x+11}{x^2-5x-14}$ bo'lsa, ab ni toping.
A) 12 B) 15 C) –18 D) 20

60. (v20/21-121-28) Tenglamaning ildizlari sonini toping: $(x^2-4)(x^2-101x+198)(18,7x-37,4)=0$.
A) 3 B) 4 C) 5 D) 6

61. (v20/21-122-4) Ushbu $(x+3)^4-5(x-2)(x+8)=139$ tenglamaning haqiqiy ildizlari sonini toping.
A) 0 B) 1 C) 2 D) 4

62. (v20/21-122-17) Ushbu $x^4-10x^3+26x^2-10x+1=0$ tenglamaning haqiqiy ildizlari yig'indisini toping.
A) –10 B) 2 C) 10 D) –2

63. (v20/21-125-6) Ushbu $\frac{x+3}{x-2}+\frac{x-2}{x+3}=\frac{5}{2}$ tenglamaning ildizlari yig'indisini toping.
A) –1 B) 1 C) 15 D) 0

64. (v20/21-126-12) Agar $\frac{2x+1}{x-3}=\frac{4x+5}{2x-3}$ bo'lsa, $x(x+1)(x+2)(x+3)$ ni toping.
A) –24 B) 120 C) 0 D) 24

65. (v20/21-127-2) Tenglamani yeching:
$\frac{1}{x-2}+\frac{3}{x-1}=\frac{3-x}{x-2}+\frac{1}{x-1}$.
A) Ildizi yo'q B) 3
C) –1 D) –2

66. (v20/21-127-4) Ushbu $\left(\frac{4x-5}{3x+2}\right)^2+\left(\frac{3x+2}{5-4x}\right)^2=4,25$ tenglamaning ildizlari yig'indisini toping.
A) –4,4 B) $-\frac{14}{11}$
C) $\frac{172}{55}$ D) –2,1