MATEMATIKA + INFORMATIKA
(mavzulashtirilgan)

2017 - yil

ARIFMETIKA

1. $1-2+3-4+...+2017-2018+2019$ ni hisoblang.
A) 1010 B) -1009 C) -1010 D) 1009

2. $1-2+3-4+...+2015-2016+2017$ ni hisoblang.
A) -1008 B) 1009 C) 1010 D) -1009

3. $\left[\frac{1000}{8^2}\right]\cdot 8$ ni hisoblang. Bu yerda $[a]-a$ sonning butun qismi.
A) 112 B) 128 C) 140 D) 120

4. $\left[\pi^2\right]+\left[2{,}9\right]^2+\left[15{,}(99)\right]$; ni hisoblang. $[a]-a$ sonning butun qismi.
A) 28 B) 32 C) 33 D) 29

5. $\frac{2^5\cdot 11^8}{22^{10}}\cdot\frac{34^4\cdot 2057}{17^5}$ ni hisoblang.
A) 2 B) $\frac{1}{34}$ C) $\frac{1}{2}$ D) $\frac{2}{187}$

6. $\left[15\frac{5}{8}-2\frac{2}{8}\right]^2-\left[23\frac{7}{9}-12\frac{7}{8}\right]^2$ ni hisoblang.
Bu yerda $[a]-a$ sonning butun qismi.
A) 23 B) 69 C) 48 D) 44

7. $5\cdot\left[12\frac{2}{7}+5\frac{3}{7}\right]-8\cdot\left[3\frac{2}{3}\right]\cdot\left[2{,}(9)\right]$ ni hisoblang.
Bu yerda $[a]-a$ sonning butun qismi.
A) 12 B) 13 C) 37 D) 15

8. $\frac{0{,}(1)}{0{,}(5)}+\frac{0{,}(13)}{0{,}(65)}+\frac{0{,}(19)}{0{,}(95)}-0{,}(9)$ ni hisoblang.
A) -0,2 B) -0,4 C) -0,3 D) -0,1

9. $0{,}(7)+0{,}(77)+0{,}(777)+...+0{,}(\underbrace{77...7}_{54})$ ni hisoblang.
A) 28 B) 42 C) 7 D) 77

10. $\frac{71^2-23^2+94\cdot 42}{62^2-32^2}$ ni hisoblang.
A) $\frac{5}{6}$ B) $\frac{1}{3}$ C) 3 D) 4

11. $2017^3+1017^2-2016\cdot 2017\cdot 2018-289$ ni hisoblang.
A) 13402017 B) 1036017
C) 1132017 D) 1034017

12. Natural n sonining kvadratini 10 ga bo'lgandagi qoldiqlar yig'indisini toping.
A) 45 B) 21 C) 19 D) 25

13. Natural sonning kvadrati 3 ga bo'linganda nechta qoldiq hosil bo'lishi mumkin?
A) 0 B) 2 C) 1 D) 3

14. Natural n sonining kvadrati 8 ga bo'linganda hosil bo'lishi mumkin bo'lgan qoldiqlar yig'indisini toping.
A) 6 B) 4 C) 7 D) 5

15. Natural n sonining kvadrati 4 ga bo'linganda qanday qoldiqlarga ega bo'lishi mumkin?
A) 1; 2; 3 B) 1; 2 C) 1 D) 2

16. Natural n sonni kvadrati 10 ga bo'linganda qanday qoldiqlarga ega bo'lishi mumkin?
A) 2;3;7;6 B) 1;4;5;6;9
C) 2;3;5;8 D) 2;3;5;9

17. Bironta raqamning kvadratini 7 ga bo'lganda qanday qoldiq qolishi mumkin?
A) 1,2,3 B) 0,1,2,3 C) 1,2,4 D) 1,2,4

18. Dastlabki 48 ta natural sonlar orasida nechtasi 3 yoki 4 ga karrali emas?
A) 28 ta B) 23 ta C) 24 ta D) 16 ta

19. Dastlabki 24 ta natural sonlar orasidan nechtasi 2 yoki 3 ga karrali emas?
A) 9 ta B) 3 ta C) 4 ta D) 8 ta

20. Agar P soni 3 dan katta tub son bo'lsa, quyidagilarning qaysi biriga P^2-1 qoldiqsiz bo'linadi?
A) 130 B) 80 C) 6 D) 16

21. a va b natural sonlarning $EKUK$i 72 ga, $EKUB$i 12 ga teng bo'lsa, ularning ko'paytmasi toping.
A) 480 B) 360 C) 864 D) 960

22. a va b natural sonlarning $EKUB$i 30 ga, ko'paytmasi 36000 ga teng bo'lsa, shu sonlarning $EKUK$ ini toping.
A) 1800 B) 1000 C) 1200 D) 900

23. a sonining oxirgi raqami 1 va bu sonning o'nta natural bo'luvchisi bo'lsa, $10a$ sonining nechta natural bo'luvchisi bor? (1 va a ham kiradi).
A) 40 B) 50 C) 20 D) 30

24. a va b natural sonlarning eng katta bo'luvchisi 5 ga teng bo'lsa, $a+3b$ va b sonlarning eng katta umumiy bo'luvchisi nechaga teng?
A) 5 B) 4 C) 1 D) aniqlab bo'lmaydi

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25. a va b natural sonlarning eng katta umumiy bo'luvchisi 2 ga teng bo'lsa, $5a+b$ va a sonlarning eng katta umumiy bo'luvchisi nechaga teng?
A) aniqlab bo'lmaydi B) 4 C) 1 D) 2

26. a va $-b$ natural sonlarning eng katta umumiy bo'luvchisi 5 ga teng bo'lsa, $2a+b$ va a sonlarning eng katta umumiy bo'luvchisi nechaga teng?
A) aniqlab bo'lmaydi B) 5 C) 2 D) 3

27. a va b natural sonlarning umumiy bo'luvchilari soni 4 ga teng bo'lsa, $2a+b$ va a sonlarning umumiy bo'luvchilari nechta?
A) aniqlab bo'lmaydi B) 2 C) 1 D) 4

28. a va b natural sonlarning umumiy bo'luvchilari soni 6 ga teng bo'lsa, $2a+b$ va a sonlarning umumiy bo'luvchilari nechta?
A) 6 B) 4 C) 1 D) aniqlab bo'lmaydi

29. 123451234512345123451234512345 sonida 10 ta raqam shunday o'chirilganki, hosil bo'lgan son eng katta bo'ladi. Shu sonning 3-raqamini toping.
A) 3 B) 2 C) 4 D) 5

30. 123451234512345123451234512345 sonida 10 ta raqam shunday o'chirilganki, hosil bo'lgan son eng kichik bo'ladi. Shu sonning 4-raqamini toping.
A) 3 B) 2 C) 4 D) 5

31. 1,2,2,3,3,3,4,4,4,4,5,5,5,5,5, . . . ketma-ketlikning dastlabki 2018 ta hadlari yig'indisini toping.
A) 27353109 B) 2037171 C) 85408 D) 85472

32. Biror ikki xonali son va uning raqamlari o'rnini almashtirib, ularni qo'shganda biror sonning kvadrati bo'ladigan barcha ikki xonali sonlarni toping.
A) 29, 38, 47, 56, 65, 74, 83, 92
B) 29, 35, 45, 56, 65, 74, 83, 92
C) 29, 32, 47, 56, 65, 74, 83, 92
D) 29, 38, 45, 56, 65, 74, 83, 92

33. Dastlabki 10 ta tub son ketma – ket bir qatorga yozilib 6 ta raqam shunday o'chirildiki, natijada eng katta son hosil bo'ldi. Shu sonni to'qqizinchi raqamini toping.
A) 9 B) 3 C) 2 D) 7

34. Dastlabki 10 ta tub son ketma – ket bir qatorga yozilib 6 ta raqam shunday o'chirildiki, natijada eng katta son hosil bo'ldi. Shu sonni oltinchi raqamini toping.
A) 9 B) 3 C) 2 D) 7

35. Raqamlari yig'indisi 2001 ga teng bo'lgan eng kichik natural sonning birinchi raqami nimaga teng?
A) 1 B) 2 C) 4 D) 3

36. 2001 ta butun musbat sonning ko'paytmasi 105 ga, yig'indisi 2021 ga teng. Bu sonlarning eng kattasi nimaga teng?
A) 15 B) 105 C) 21 D) 35

37. Dastlabki o'n uchta natural sonlar yig'indisining kvadrati 8281 ga teng bo'lsa, shu sonlar kublarining yig'indisini toping.
A) 1296 B) 753571 C) 46656 D) 8281

38. Dastlabki to'qqizta natural sonlarning yig'indisining kvadrati 2025 ga teng bo'lsa, shu sonlarning kublarining yig'indisini toping.
A) 2025 B) 166375 C) 91125 D) 3025

39. $[200;1000]$ kesmada 2, 3, 5 va 7 sonlariga bo'lganda qoldiq 1 ga teng bo'ladigan natural sonlar nechta?
A) 2 B) 3 C) 4 D) 1

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

41. Oxirgi raqamini toping:
$2014^{2015}+2015^{2016}+2016^{2017}$
A) 5 B) 4 C) 3 D) 2

42. 3^{101} sonini 101 ga bo'lgandagi qoldiqni toping.
A) 1 B) 27 C) 3 D) 9

43. Qaysi javobda berilgan xossa 1 soni uchun o'rinli?
A) u tub son B) u murakkab son
C) u na tub na murakkab son
D) u eng kichik butun son

44. Qaysi javobda berilgan xossa 2 soni uchun o'rinli?
A) u tub son
B) u murakkab son
C) u na tub na murakkab son
D) u eng kichik butun son

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ARIFMETIK IFODALAR

1. Agar $5a^2-7ab-6b^2=0$ bo'lsa, a ni b orqali ifodalang.
A) $a=-0,6b; a=2b$ B) $a=-0,2b; a=b$
C) $a=-0,8b; a=-b$ D) $a=-2b; a=0,5b$

2. $a=11.4$, $b=-1.4$ bo'lsa, $a^3+a^2b-ab^2-b^3$ ni hisoblang.
A) 1280 B) 1270 C) 1250 D) 1290

3. Agar 0 ga teng bo'lmagan haqiqiy sonlar uchun $x+y+z=xyz$ va $x^2=yz$ shartlar qanoatlantirilsa x^2 ning eng kichik qiymatini toping.
A) 3 B) 5 C) 8 D) 4

4. $ab+bc=ac$, bo'lsa $a^2+b^2+c^2=4$, $|a-b+c|$ ni toping.
A) 3 B) 2 C) 1 D) 0

5. $\frac{(a-3)^2}{a}$ ifoda natural qiymatlar qabul qiladigan a ning natural qiymatlarini toping.
A) 3 va 6 B) cheksiz ko'p C) 1 va 9 D) 1 va 2

6. $\frac{(a-3)^2}{a}$ ifoda natural qiymatlar qabul qiladigan a ning barcha natural qiymatlarining yig'indisini toping.
A) 22 B) 10 C) 9 D) 13

7. Agar barcha x,y lar uchun $x^3+4x^2y+axy^2+3xy-bx^cy+7xy^2+dxy+y^2=x^3+y^2$ tenglik bajarilsa, $|a+b+c|(a-b)$ ni toping.
A) -1 B) -11 C) 2 D) 3

8. Agar barcha x,y lar uchun $x^3+4x^2y+axy^2+3xy-bx^cy+7xy^2+dxy+y^2=x^3+y^2$ tenglik bajarilsa, $a+b+c+d$ ni toping.
A) -1 B) -11 C) 2 D) - 4

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

10. a,b,c manfiy butun son uchun $a=b+2$; $a+b-c=13$, bo'lsa, c ning eng katta qiymatini toping.
A) -17 B) -18 C) -19 D) -20

11. a,b manfiy butun sonlar uchun $a=b+5$ va $a+b-c=13$ bo'lsa, c ning eng katta qiymatini toping.
A) -18 B) -19 + C) -20 D) -17

12. To'g'ri tenglikni aniqlang?
A) $\left(4\sin^2\frac{7\pi}{9}+4\sin^2\frac{5\pi}{18}+4\cos 4\left(\pi+\frac{\pi}{4}\right)\right)^0=1$
B) $\sqrt[3]{\log_2\frac{1}{256}}=-2$ C) $\left(\left(-5\right)^2\right)^{\frac{1}{2}}=-5$
D) $\frac{4\left(x^2-4\right)}{5\left(x-2\right)}=\frac{4}{5}\left(x+2\right), x\in R$

13. To'g'ri tenglikni aniqlang.
A) $\left(-124\right)^{\frac{7}{3}}=\sqrt[3]{124^7}$ B) $\sqrt{\left(x-2\right)^2}=|x-2|$
C) $\left(5^{\log_{25}9}-\log_{\frac{1}{3}}27\right)^{\left(\left(\sin^2 18^0+\sin^2 468^0\right)\sqrt[3]{2}-\sqrt{3}\right)}=0$
D) $\frac{4\left(2a^2-a-1\right)}{5\left(2a+1\right)}=\frac{4}{5}\left(a-1\right), a\in R$

14. To'g'ri tenglikni aniqlang. $\left(a\in R, \frac{m}{n}\in Q\right)$
A) $\left(a^2-1\right)^{-1}=\frac{1}{a^2-1}$ B) $\sqrt{\left(-a\right)^2}=|a|$
C) $a^{\frac{m}{n}}=\sqrt[n]{a^m}$ D) $\sqrt{\left(-a\right)^2}=a$

15. To'g'ri tenglikni aniqlang. $\left(a\in R\right)$
A) $a^0=1, a\neq 0$ B) $\left(\sqrt{a}\right)^2=a$
C) $a^{\frac{m}{n}}=\sqrt[n]{a^m}$ D) $\sqrt{a^2}=a$

16. To'g'ri javobni ko'rsating. Bu yerda $[a]-a$ sonning butun qismi.
A) Agar $a,b\in Q$ bo'lsa, $[a+b]=[a]+[b]$
B) Agar $a,b\in Z$ bo'lsa, $[a+b]<[a]+[b]$
C) Agar $a,b\in R$ bo'lsa, $[a+b]\geq[a]+[b]$
D) Agar $a,b\in R$ bo'lsa, $[a+b]=[a]+[b]$

17. To'g'ri javobni ko'rsating. Bu yerda $[a]-a$ sonning butun qismi.
A) Agar $a,b\in R$ bo'lsa $[a+b]=[a]+[b]$
B) Agar $a,b\in Z$ bo'lsa $[a+b]=[a]+[b]$
C) Agar $a,b\in Z$ bo'lsa $[a+b]<[a]+[b]$
D) Agar $a,b\in Q$ bo'lsa $[a+b]=[a]+[b]$

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18. $a,b\in R$; $[a]=[b]$; $a-b$ ni toping. Bu yerda $[a]-a$ sonning butun qismi

A) $(-1;1)$ B) $[-1;1]$ C) $(-1;1]$ D) $[-1;1)$

19. Agar $[m]=\{n\}$ bo'lsa ($[x]$ va $\{x\}$ mos ravishda x ning butun va kasr qismi), u holda m va n sonlar uchun qanday munosabat doim o'rinli?

A) $m,n\in Z$ B) $m-n=\pm1$

C) $m-n=\{m\}-\{n\}$ D) $m=n$

20. Ketma-ket x,y,z natural sonlar uchun $\frac{x}{y}+\frac{y}{x}+\frac{x}{z}+\frac{y}{x}+\frac{x}{z}+\frac{z}{y}$ son butun son bo'lsa, $x+y-z$ ni toping.

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

21. Ketma-ket x,y,z natural sonlar uchun $\frac{x}{y}+\frac{y}{z}+\frac{z}{x}+\frac{y}{x}+\frac{x}{z}+\frac{z}{y}$ son butun son bo'lsa, $x+y+z$ ni toping.

A) 9 B) 6 C) 15 D) 12

22. Barcha musbat a,b,c sonlar uchun $\frac{a}{b}+\frac{b}{c}+\frac{c}{a}$ ifodaning eng kichik qiymatini toping.

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

23. $a^2\frac{(x-b)(x-c)}{(a-b)(a-c)}+b^2\frac{(x-a)(x-c)}{(b-a)(b-c)}+c^2\frac{(x-a)(x-b)}{(c-a)(c-b)}$ ifodaning $x=3$ dagi qiymatini toping.

(Bu yerda $(a-b)(a-c)(b-c)\neq0$)

A) 9 B) 18 C) -9 D) -18

24. $\frac{(x-b)(x-c)}{(a-b)(a-c)}+\frac{(x-a)(x-c)}{(b-a)(b-c)}+\frac{(x-a)(x-b)}{(c-a)(c-b)}$ ifodaning $x=4$ dagi qiymatini toping.

(Bu yerda $(a-b)(a-c)(b-c)\neq0$)

A) 1 B) 16 C) -1 D) -16

25. $\frac{(x-b)(x-c)}{(a-b)(a-c)}+\frac{(x-a)(x-c)}{(b-a)(b-c)}+\frac{(x-a)(x-b)}{(c-a)(c-b)}$ ifodaning $x=15$ dagi qiymatini toping.

(Bu yerda $(a-b)(a-c)(b-c)\neq0$)

A) 1 B) 225 C) -1 D) -225

26. Agar $x=-1$ bo'lsa,

$a^2\frac{(x-b)(x-c)}{(a-b)(a-c)}+b^2\frac{(x-a)(x-c)}{(b-a)(b-c)}+c^2\frac{(x-a)(x-b)}{(c-a)(c-b)}$

ning qiymatini toping. $(a-b)(a-c)(b-c)\neq0$

A) 2 B) a,b,c ga bog'liq C) 0 D) 1

27. Agar $x=2$ bo'lsa,

$a^2\frac{(x-b)(x-c)}{(a-b)(a-c)}+b^2\frac{(x-a)(x-c)}{(b-a)(b-c)}+c^2\frac{(x-a)(x-b)}{(c-a)(c-b)}$

ning qiymatini toping. $(a-b)(a-c)(b-c)\neq0$

A) 2 B) a,b,c ga bog'liq C) 0 D) 4

28. Agar $a=-5$, $b=-4$ bo'lsa, $(a^3+a^2b+ab^2+b^3)(a-b)$ ifodani qiymatini toping.

A) 425 B) 330 C) 369 D) 544

29. $P(x)=4x^2+20x+25$, $Q(x)=x^3-3x^2+x+2$ ko'phadlar berilgan bo'lsin, $x=-2$ da

$\frac{(P(x))^3+(Q(x))^3}{(P(x))^2-P(x)Q(x)+(Q(x))^2}+\frac{(P(x))^3-(Q(x))^3}{(P(x))^2+P(x)Q(x)+(Q(x))^2}$

ifodaning qiymatini toping.

A) 2 B) 130 C) 80 D) 16

30. $a+b+c=-2,5$ va $\frac{1}{a+b}+\frac{1}{b+c}+\frac{1}{c+a}=1$ bo'lsa, $a+b+c-\left(\frac{a}{b+c}+\frac{b}{c+a}+\frac{c}{a+b}\right)$ ifodaning qiymatini toping.

A) 3 B) 8 C) a, b, c ga bog'liq D) 6

31. $a+b+c=-7$ va $\frac{1}{a+b}+\frac{1}{b+c}+\frac{1}{c+a}=1$ bo'lsa, $a+b+c-\left(\frac{a}{b+c}+\frac{b}{c+a}+\frac{c}{a+b}\right)$ ifodaning qiymatini toping.

A) -4 B) 3 C) a, b, c ga bog'liq D) -2

32. $a+b+c=-5$ va $\frac{1}{a+b}+\frac{1}{b+c}+\frac{1}{a+c}=1$ bo'lsa, $a+b+c-\left(\frac{c}{a+b}+\frac{a}{b+c}+\frac{b}{c+a}\right)$ ifodaning qiymatini toping.

A) 3 B) 8 C) 6 D) a,b,c ga bog'liq

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33. $a+b+c=4$ va $\frac{1}{a+b}+\frac{1}{b+c}+\frac{1}{c+a}=1$ bo'lsa, $a+b+c-\left(\frac{a}{b+c}+\frac{b}{a+c}+\frac{c}{a+b}\right)$ ifodaning qiymatini toping.
A) 6 B) a,b,c ga bog'liq C) 8 D) 3

34. $\frac{1}{a(a-b)(a-c)}+\frac{1}{b(b-a)(b-c)}+\frac{1}{c(c-a)(c-b)}$ ifodani soddalashtiring.
A) $\frac{1}{abc}$ B) $-\frac{1}{abc}$ C) $\frac{1}{bc}$ D) $\frac{abc}{2}$

35. Agar $c=4$ bo'lsa, $\frac{4c^2}{(c-2)^4}:\left(\frac{1}{(c+2)^2}+\frac{1}{(c-2)^2}+\frac{2}{c^2-4}\right)$ ifodaning qiymatini toping.
A) 12 B) 3 C) 9 D) 6

36. $\frac{x^3+y^3+z^3-3xyz}{x^2+y^2+z^2-xy-xz-yz}$ ifodani soddalashtiring.
A) $x+y+z$ B) $z-y+z$
C) $x-y-z$ D) $x+y-z$

37. $\left(\frac{\sqrt{y}-\sqrt{x}}{y-\sqrt{xy}+x}+\frac{x}{x\sqrt{x}+y\sqrt{y}}\right)\cdot\frac{x\sqrt{x}+y\sqrt{y}}{y}$ ifodani soddalashtiring.
A) 2 B) 1 C) 4 D) 3

38. $\left(\frac{x-2y}{x^3+y^3}+\frac{y}{x^3-x^2y+xy^2}\right):\frac{x^3-xy^2}{x^2+y^2}+\frac{2y^2}{x^3+x^2y+xy^2+y^3}$ ifodani soddalshtiring.
A) $\frac{1}{x+y}$ B) 0 C) $\frac{1}{x}+\frac{1}{y}$ D) 1

39. $\frac{1}{2}+\frac{1}{3}+\frac{1}{4}+\frac{1}{5}=p$ bo'lsa, $\frac{5}{2}+\frac{10}{3}+\frac{17}{4}+\frac{26}{5}$ yig'indi p dan qancha ko'p.
A) 15 B) 14 C) 8 D) 13

40. Agar $\frac{mn}{n^2+12m^2}=\frac{1}{7}$ ekanligi ma'lum bo'lsa, $\frac{3mn}{2n^2-5m^2}$ ni toping.
A) $\frac{4}{9}$ va $\frac{9}{13}$ B) $1\frac{5}{12}$ C) $\frac{12}{17}$ va $\frac{4}{9}$ D) $\frac{9}{13}$

41. $\frac{8ab-20b+2a-5}{a-8b^2+4ab-2b}$ kasrni qisqartiring.
A) $\frac{2a-5}{a-2b}$ B) $\frac{2a+5}{4b-1}$ C) $\frac{2a-5}{4b-1}$ D) $\frac{2a+5}{4b+1}$

42. Taqqoslang: $a=\frac{7}{15}$; $b=\frac{9}{20}$; $c=\frac{8}{17}$
A) $c>a>b$ B) $a>c>b$
C) $b>c>a$ D) $c>b>a$

43. $\frac{11n+3}{13n+4}$ kasr qisqaradigan $[2;30]$ kesmaga tegishli natural n sonlar nechta?
A) 9 B) 6 C) 3 D) 4

44. m,n natural sonlar $m^2=n^2+173$ tenglikni qanoatlantirsa, $m-n$ ni toping.
A) 1 B) 12 C) 173 D) aniqlab bo'lmaydi

45. m,n natural sonlar $m^2=n^2+229$ tenglikni qanoatlantirsa, $2m-n$ ni toping.
A) 115 B) 114 C) 116 D) 112

46. $0,\overline{(7a)}$ davriy kasrning qiymati $\frac{8}{11}$ ga teng bo'lsa, a ning qiymatini toping (bu yerda $\overline{7a}$ ikki xonali son).
A) 0 B) 7 C) 2 D) 5

47. $0,\overline{(8a)}$ davriy kasrning qiymati $\frac{28}{33}$ ga teng bo'lsa, a ning qiymatini toping.
A) 0 B) 7 C) 4 D) 5

48. $\overline{ab}$ va $\overline{ba}$ ikki xonali sonlar. Agar $\overline{ab}-\overline{ba}=27$ bo'lsa, a^2+b^2-2ab ning qiymatini toping.
A) 9 B) 27 C) 16 D) 25

49. $k\in N$ da $S_k=x^k+y^k$ darajali yig'indi, $\sigma_1=x+y$; $\sigma_2=xy$ bo'lsa, u holda quyidagi qaysi munosbat o'rinli?
A) $S_{n+1}=S_{n+1}\sigma_1-S_n\sigma_2$
B) $S_{n+1}=S_n\sigma_2-S_{n-1}\sigma_1$
C) $S_{n+1}=S_{n-1}\sigma_1+S_{n-1}\sigma_2$
D) $S_{n+1}=S_n\sigma_1-S_{n-1}\sigma_2$

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50. a natural sonining kanonik yoyilmasi $a=p_1^{\alpha_1}p_2^{\alpha_2}...p_n^{\alpha_n}$ bo'lsin. U holda uning har qanday d bo'luvchisining ko'rinishi qanday bo'ladi?

A) $d=p_1^{\beta_1}p_2^{\beta_2}...p_n^{\beta_n}, 0<\beta_k\le\alpha_k\left(\overline{k=1,n}\right)$

B) $d=p_1^{\beta_1}p_2^{\beta_2}...p_n^{\beta_n}, 0\le\beta_k\le\alpha_k\left(\overline{k=1,n}\right)$

C) $d=p_1^{\beta_1}p_2^{\beta_2}...p_n^{\beta_n}, 0\le\beta_k<\alpha_k\left(\overline{k=1,n}\right)$

D) $d=p_1^{\beta_1}p_2^{\beta_2}...p_n^{\beta_n}, 0<\beta_k<\alpha_k\left(\overline{k=1,n}\right)$

51. $\frac{1}{4};-\frac{1}{5};\frac{1}{6};-\frac{1}{7};...$ ketma-ketlikning umumiy hadi fo'rmulasini ko'rsating.

A) $a_n=\frac{(-1)^{n+1}}{n+2}$ B) $a_n=\frac{(-1)^n}{n+3}$

C) $a_n=\frac{(-1)^{n+1}}{n+3}$ D) $a_n=\frac{(-1)^n+1}{n+3}$

52. $\frac{1}{3};-\frac{1}{4};\frac{1}{5};-\frac{1}{6};...$ ketma-ketlikning umumiy hadi fo'rmulasini ko'rsating.

A) $a_n=\frac{(-1)^{n+1}}{n+1}$ B) $a_n=\frac{(-1)^n}{n+2}$

C) $a_n=\frac{(-1)^{n+1}}{n+2}$ D) $a_n=\frac{(-1)^n+1}{n+2}$

53. Ko'phadning o'zgaruvchili hadlari oldidagi koeffitsiyentlari yig'indisini toping.

$(x+y+z)^6-(2x-y+1)^3+(2z-x+2)^3$

A) 748 B) 741 C) 749 D) 740

54. Ko'phadning ozod hadini toping.

$f(x)=(5x^3-1)^{2017}\cdot(2016x^7+1)^5+x^{27}+14$

A) 12 B) 13 C) 15 D) 14

55. Ko'phad koeffitsiyentlari yig'indisini toping.

$P(x)=(3x-1)^{2017}\cdot(2x-1)^{2016}+(4x-3)^2\cdot(6x-5)^2+2$

A) 16 B) $2^{2017}+1$ C) 9 D) $2^{2017}+3$

56. Ko'phad koeffitsiyentlari yig'indisini toping.

$P(x)=(3x-1)^{2017}\cdot(x-1)^{2016}+(4x-1)^2\cdot(6x-5)^2$

A) 16 B) $2^{2017}+1$ C) 9 D) $2^{2017}+3$

57. a ning qanday qiymatlarida

$P(x)=2x^{12}-ax^6+4x^3-3x^2+5x+1$

ko'phadning koeffitsiyentlari yig'indisi 7 ga teng bo'ladi?

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

58. $(a+b)^5$ ko'phadni standart ko'rinishga keltiring va koeffitsiyentlar yig'indisini toping.

A) 64 B) 16 C) 32 D) 34

59. $(a+2b)^5$ ko'phadning to'rtinchi o'rinda turgan koeffitsiyentini toping.

A) 80 B) 90 C) 100 D) 110

60. $(a+2b)^6$ ko'phadning to'rtinchi o'rinda turgan koeffitsiyentini toping.

A) 160 B) 240 C) 128 D) 256

61. $(a+3b)^5$ ko'phadni standart ko'rinishga keltiring va to'rtinchi hadining koeffitsiyentini toping.

A) 81 B) 270 C) 405 D) 90

62. $(a+b)^6$ ko'phadni standart ko'rinishga keltiring va koeffitsiyentlar yig'indisini toping.

A) 64 B) 16 C) 32 D) 128

63. $-22x^5yz-x^2yz^3-4xyz$ ko'phadning darajasini aniqlang.

A) 6 B) 5 C) 3 D) 7

64. Musbat sonlardan tashkil topgan $a_1,a_2,a_3...$ ketma-ketlik uchun $a_1=a_2=1$ va barcha natural n larda $a_{n+2}=a_n\cdot a_{n+1}$ shartlar bajarilsin Ketma-ketlikning 80-hadini toping.

A) 1050 B) 0 C) 1 D) 10

65. Musbat sonlardan tashkil topgan $a_1,a_2,a_3...$ ketma-ketlik uchun $a_1=a_2=1$ va barcha natural n larda $a_{n+2}=a_n\cdot a_{n+1}$ shartlar bajarilsin Ketma-ketlikning 30-hadini toping.

A) 1050 B) 0 C) 1 D) 10

66. Musbat sonlardan tashkil topgan $a_1,a_2,...$ ketma-ketligi uchun $a_1=a_2=1$ va barcha natural n larda $a_{n+2}=a_n\cdot a_{n+1}$ sharti bajarilsin Ketma-ketlikning 100-hadini toping.

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

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67. $a_1, a_2, \ldots, a_8$ ketma-ketlikda ixtiyoriy uchta ketma-ket hadining yig'indisi 30 ga teng. Agar ketma-ketlikning uchinchi hadi 5 ga teng bo'lsa, birinchi va sakkizinchi hadlari yig'indisi nimaga teng?
A) 5 B) bir qiymatli aniqlab bo'lmaydi
C) 10 D) 25

68. x^3+x^2+18 ko'phadni ko'paytuvchilaraga ajrating.
A) $(x+3)(x^2-2x+6)$ B) $(x+3)(x^2-3x+6)$
C) $(x+3)(x^2+2x+6)$ D) $(x+3)(x^2-x+6)$

69. Ko'phadni ko'paytuvchilarga ajrating. $x^3-(\sqrt{6}+1)x^2+6$
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) $(x-\sqrt{6})(x^2+x-\sqrt{6})$

70. x^3+x^2+180 ko'phadni ko'paytuvchilarga ajrating.
A) $(x+6)\cdot(x^2-6x+30)$
B) $(x-6)\cdot(x^2-5x+30)$
C) $(x+30)\cdot(x^2+5x+6)$
D) $(x+6)\cdot(x^2-5x+30)$

71. Agar $x=y+4$ bo'lsa $\dfrac{x^2+3y-3x-xy}{2x-6}$ ifodani qiymatini toping.
A) 1,8 B) 2,5 C) 1 D) 2

72. Agar $x+\dfrac{1}{x}=3$ bo'lsa, x^4-7x^2+5 ifodani qiymatini toping.
A) 4 B) 5 C) 2 D) 3

73. Agar $x+\dfrac{1}{x}=3$ bo'lsa, x^4-7x^2+7 ifodani qiymatini toping.
A) 4 B) 5 C) 2 D) 6

74. $x\neq 2$ va $x^3=8$ bo'lsa, $\dfrac{x^2+3x+8}{x^2-4}$ ifodani qiymatini toping.
A) 0,(3) B) 0,(6) C) -0,25 D) -0,5

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ILDIZLAR QATNASHGAN IFODALAR

1. Kasrning maxrajini irratsionallikdan qutqaring. $\dfrac{6}{\sqrt[3]{11}-\sqrt[3]{5}}$
A) $\sqrt[3]{25}-\sqrt[3]{55}+\sqrt[3]{121}$ B) $\sqrt[3]{121}-\sqrt[3]{25}$
C) $\sqrt[3]{11}+\sqrt[3]{5}+\sqrt[3]{55}$ D) $\sqrt[3]{25}+\sqrt[3]{55}+\sqrt[3]{121}$

2. $5\sqrt{\dfrac{7}{5}}\cdot\left(2\sqrt{\dfrac{5}{7}}-8\sqrt{\dfrac{7}{20}}+4\sqrt{\dfrac{7}{5}}\right)$ soddalashtiring.
A) 10 B) 8 C) 12 D) $10-\sqrt{\dfrac{7}{5}}$

3. Hisoblang: $\sqrt{1-\frac{1}{2}}\cdot\sqrt{1-\frac{1}{3}}\cdot\sqrt{1-\frac{1}{4}}\cdot\sqrt{1-\frac{1}{5}}\times$
$\times\sqrt{1-\frac{1}{6}}\cdot\sqrt{1-\frac{1}{7}}\cdot\sqrt{1-\frac{1}{8}}\cdot\sqrt{1-\frac{1}{9}}$
A) $-\sqrt{13}$ B) $\dfrac{\sqrt{2}}{9}$ C) 3 D) $\dfrac{1}{3}$

4. Agar $x\in[-3;3]$ bo'lsa, $\sqrt{x^2+6x+9}+\sqrt{x^2-6x+9}$ ifodaning qiymatini hisoblang.
A) 4 B) 6 C) -4 D) $2x$

5. $\sqrt{\dfrac{a+1}{a-1}\cdot\sqrt{\left(\dfrac{a+1}{a-1}\right)^{-1}}}$ ni soddalashtiring. $(a>1)$
A) $\sqrt[4]{\dfrac{a+1}{a-1}}$ B) 1 C) $\dfrac{1}{\sqrt[4]{a+1}}$ D) $\sqrt{\dfrac{a+1}{a-1}}$

6. $\dfrac{1-a}{\sqrt{1-\sqrt{a}}}$ ifodani soddalashtiring. $(0\leq a<1)$
A) 1 B) $\sqrt{(1-\sqrt{a})(1+\sqrt{a})^2}$
C) $\sqrt{1-\sqrt{a}}$ D) $\sqrt{(1-\sqrt{a})(1+\sqrt{a})}$

7. $\sqrt[3]{26+15\sqrt{3}}\left(2-\sqrt{3}\right)+\sqrt[3]{9+\sqrt{80}}+\sqrt[3]{9-\sqrt{80}}$ ni hisoblang.
A) 2 B) 4 C) $2+\sqrt{3}$ D) $3+\sqrt{2}$

8. $\sqrt[3]{26+15\sqrt{3}}\left(2-\sqrt{3}\right)+\sqrt[3]{9+\sqrt{80}}\cdot\sqrt[3]{9-\sqrt{80}}$ ni hisoblang.
A) 2 B) 4 C) $2+\sqrt{3}$ D) $3+\sqrt{2}$

9. Agar $x=\dfrac{\sqrt{15}+1}{2}$ bo'lsa, $\dfrac{x^3-2x^2+6{,}5x-1}{x^2-x+1}$ kasrning qiymatini toping.
A) $\sqrt{15}+1$ B) $\sqrt{15}$ C) $\sqrt{15}-1$ D) $\sqrt{15}+2$

10. 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) $\sqrt{11}+1$

11. Agar $x=\frac{\sqrt{17}+1}{2}$ bo'lsa, $\frac{x^3-3x^2+8x-2}{x^2-x+1}$ kasrning qiymatini toping.

A) $\sqrt{17}+1$ B) $\sqrt{15}$ C) $\sqrt{17}-2$ D) $\sqrt{17}-1$

ALGEBRAIK TENGLAMALAR

1. $5\frac{1}{3}x:\frac{5}{8}=11\frac{1}{3}:1\frac{8}{9}$ tenglamani yeching.

A) $\frac{90}{101}$ B) $\frac{45}{64}$ C) $\frac{9}{13}$ D) $\frac{90}{131}$

2. $\frac{2{,}(99)-3{,}2}{x}=\frac{5\frac{1}{2}-3\frac{2}{3}}{7:2}$ proporsiyadan x ni toping.

A) $\frac{49}{73}$ B) $-\frac{21}{55}$ C) $-\frac{5}{7}$ D) $\frac{22}{59}$

3. $13\frac{1}{3}:1\frac{1}{3}=0{,}2x:26$ tenglamani yeching.

A) 1300 B) 1200 C) 1250 D) 1500

4. Tenglamaning haqiqiy ildizlari yig'indisini toping. $\frac{3}{(x+1)(x+4)}-\frac{1}{(x-1)(x+6)}=\frac{1}{24}$

A) 8 B) -5 C) -10 D) -14

5. $\frac{x+2}{3}=\frac{2x+3}{2}-\frac{5x-2}{3}$ tenglamani yeching.

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

6. $\frac{2x+1}{x}+\frac{4x}{2x+1}=5$ tenglamaning ildizlari yig'indisini toping.

A) -0,4 B) -0,3 C) -0,2 D) -0,5

7. $\frac{x^2+x-5}{x}+\frac{3x}{x^2+x-5}=-4$ tenglama nechta butun ildizga ega?

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

8. $\frac{x-2}{x+3}+\frac{3x+9}{x-2}=-4$ tenglama ildizlari yig'indisini toping.

A) -3 B) -2 C) -0,5 D) -2,25

9. $\frac{3}{2-\frac{x-2}{2-\frac{x+5}{7}}}=8$ tenglamani yeching.

A) $\frac{228}{69}$ B) $\frac{225}{69}$ C) $\frac{229}{69}$ D) $\frac{231}{69}$

10. $\frac{5}{4-\frac{3-2x}{3x-\frac{3+2x}{2}}}=1$ tenglamani yeching.

A) $\frac{137}{176}$ B) $\varnothing$ C) $\frac{3}{16}$ D) $\frac{139}{176}$

11. $\frac{3x}{4x-\frac{0{,}25+x}{3x+\frac{4-2x}{4}}}=1$ tenglamani yeching.

A) $-\frac{1}{2};\frac{1}{2}$ B) $-\frac{\sqrt{10}}{10};\frac{\sqrt{10}}{10}$ C) $-\frac{\sqrt{10}}{10}$ D) $\frac{\sqrt{10}}{10}$

12. $\frac{x^2}{3}+\frac{48}{x^2}=10\left(\frac{x}{3}-\frac{4}{x}\right)$ tenglamaning haqiqiy ildizlari sonini toping.

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

13. Quyidagi tenglamalardan qaysilari butun yechimga ega:

1) $6x+8y=9$ 2) $5x+10y=17$
3) $25x+10y=55$ 4) $12x+15y=22$

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

14. $x^2-10x+4=0$ tenglamaning haqiqiy ildizlari x_1,x_2 bo'lsa, $\left|\sqrt{x_1}-\sqrt{x_2}\right|=?$

A) $\sqrt{6}$ B) $\sqrt{3}$ C) 0 D) 1

15. $x^2-11x+9=0$ tenglamaning ildizlari x_1 va x_2 bo'lsa, $\left|\sqrt{x_1}-\sqrt{x_2}\right|$ ning qiymatini toping.

A) $2\sqrt{5}$ B) 5 C) 2,5 D) $\sqrt{5}$

16. a ning qanday qiymatida $ax-a-2(x-1)=-4x+a^2$ tenglama cheksiz ko'p yechimga ega bo'ladi?

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

17. a ning qanday qiymatida $ax-3a-2(x+1)=-3x+a^2$ tenglama cheksiz ko'p yechimga ega bo'ladi?

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

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18. $[2x-1]=x$ tenglama yechimlari ko'paytmasini (agar yechimlari bitta bo'lsa o'zini) toping. Bu yerda $[a]-a$ sonning butun qismi.
A) 3 B) 0 C) 2 D) 1

19. $[5x+2]=-3$ tenglamani yeching. Bu yerda $[a]-a$ sonning butun qismi.
A) $[-1;-0,8)$ B) $[-1;-0,18]$ C) $(-1;0,8)$ D) $\varnothing$

20. $x^2-(m-2)x-5=0$, tenglamaning ildizlari x_1 va x_2 orasida, $x_1+\frac{1}{x_2}=2$ munosabat o'rinli bo'lsa, m ni toping.
A) 2,9 B) 1,7 C) 7,4 D) 2,5

21. $|1-x^2|=|2x+2|$ tenglama yechimlari ayirmasining modulini toping.
A) 4 B) 2 C) 1 D) 3

22. $\frac{|x+1|}{x+1}-6=-ax+a$, a ning qanday qiymatida ifoda qiymatga ega bo'ladi.
A) $(-3,5;-2,5)$ B) $(-3,5;\infty)$
C) $(-\infty;-2,5)$ D) $(-3,5;2,5)$

23. Agar $|x+9|=\frac{x}{2}+a$ tenglama a parametrning nechta natural qiymatida yechimga ega emas?
A) 3 B) 2 C) 4 D) 1

24. Agar $|x+6|=\frac{x}{2}+a$ tenglama ikkita yechimga ega bo'lsa, a ning eng kichik butun qiymatini toping.
A) 4 B) 3 C) 2 D) 1

25. $|x^2+2x-8|=3a$ tenglama a ning qanday qiymatlarida 3 ta haqiqiy yechimga ega?
A) $a>3, a=0$ B) $a=3$
C) $(0;3)$ D) $1<a<3$

26. $|x-1|-2|x-2|+3|x-3|=4$ tenglamaning butun ildizlari yig'indisini toping.
A) 4 B) 8 C) 5 D) 9

27. $|x^2-3x-4|-2|x-4|=0$ tenglamaning butun ildizlari yig'indisini toping.
A) 3 B) 7 C) 2 D) 0

28. $(x^2+5x-5)^2-(x^2-5x-5)^2=0$ tenglamani barcha haqiqiy ildizlari yig'indisini toping.
A) 5 B) $2\sqrt{5}$ C) $\sqrt{5}$ D) 0

29. $\left(x^2+5x-5\right)^2-\left(x^2-5x-5\right)^2=0$ tenglamaning barcha haqiqiy ildizlari sonini toping.
A) 2 B) 1 C) 3 D) 4

30. $\left(x^2+3x-3\right)^2-\left(x^2-3x-3\right)^2=0$ tenglamaning barcha haqiqiy ildizlari sonini toping.
A) 1 B) 3 C) 2 D) 4

31. $(x^2+2x)^2-(x+1)^2=55$ tenglamaning haqiqiy ildizlari yig'indisini toping.
A) 0 B) -4 C) 1 D) -2

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

33. $(2x-1)^4-8x^2+8x-2=8$ tenglamaning haqiqiy ildizlari yig'indisini toping.
A) -1 B) -2 C) 1 D) 0

34. $\left(2x+1\right)^4-8x^2-8x-2=8$ tenglama ildizlarining yig'indisini toping.
A) -1 B) -2 C) -3 D) -4

35. $\left(x^2+1\right)^2+5\left(x^4-1\right)-6\left(x^2-1\right)^2=0$ tenglamaning ildizlari ko'paytmasini toping.
A) 2,5 B) $-\frac{5}{7}$ C) $\frac{5}{7}$ D) 0

36. $\left(x^2+3\right)^2-7\left(x^4-9\right)+6\left(x^2-3\right)^2=0$ tenglamaning ildizlari x_1 va x_2 bo'lsa, $\frac{1}{x_1}+\frac{1}{x_2}$ ning qiymatlarini toping.
A) -2 B) 0 C) 2,4 D) 1

37. $\left(2x+1\right)^4-3\left(2x+1\right)^2=4$ tenglama ildizlari yig'indisini toping.
A) -1 B) -2 C) -3 D) -4

38. $\left(x^2+1\right)\left(y^2+1\right)=\left(x+y\right)^2+1$ tenglamaning natural yechimlari juftliklari soni nechta?
A) 1 B) 2 C) ∞ D) 0

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39. $\left(x^2+2x+3\right)\cdot\left(y^2-4y+8\right)-8=0$ bo'lsa, $\frac{x+y}{y-x}$ ni toping?

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

40. $(x^2-9x+16)^2-9(x^2-9x+16)+16=x$ tenglamaning natural ildizlari nechta?

A) 2 B) natural ildizi yo'q C) 3 D) 1

41. $(x^2-9x+16)^2-9(x^2-9x+16)+16=x$ tenglamaning natural yechimlari ko'paytmasini toping.

A) 0 B) 1 C) 16 D) 10

42. $(x^2+x-2)^2+(x^2+x-2)-2=x$ tenglamaning natural ildizlari nechta?

A) 2 B) 3 C) 1
D) natural yechimga ega emas

43. $(x^2+x-2)^2+(x^2+x-2)-2=x$ tenglamaning butun ildizlari ko'paytmasini toping.

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

44. $(x^2-8x+18)^2-8(x^2-8x+18)+18=x$ tenglamaning natural yechimlari nechta?

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

45. $(x^2-9x+16)^2-9(x^2-9x+16)+16=x$ tenglamaning butun ildizlari yig'indisini toping.

A) 10 B) 16 C) - 1 D) 0

46. $(x^2-3x+3)^2-3(x^2-3x+3)+3=x$ tenglamaning natural ildizlari nechta?

A) 3 B) 2 C) 1 D) natural ildizi yo'q

47. $(a^2+b^2+9)x^2+2(a+b+3)x+3=0$ tenglama haqiqiy yechimlarga ega bo'lsa, $a+b$ ni toping.

A) -4 B) 0 C) 3 D) 6

48. $(a^2+b^2+9)x^2+2(a+b+3)x+3=0$ tenglama haqiqiy yechimlarga ega bo'lsa, $3a-b$ ni toping.

A) -4 B) 0 C) 3 D) 6

49. $(a^2+b^2+1)x^2+2(a+b+1)x+3=0$ tenglama haqiqiy yechimga ega bo'lsa, $2a-b=?$

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

50. $(a^2+b^2+4)x^2+2(a+b+2)x+3=0$ tenglama haqiqiy yechimga ega bo'lsa, $a-b=?$

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

51. $x^2+y^2+z^2=6x+8y+10z-50$ bo'lsa, x ni toping.

A) 27 B) cheksiz ko'p C) 1 D) 3

52. Qandaydir a,b uchun $(x+2)(x+a)=$ $=x^2+bx+6$ ayniyat bajarilsa, a ni toping.

A) -8 B) 4 C) -4 D) 3

53. Qandaydir a, b uchun $(x+2)(x+a)=$ $=x^2+bx+6$ ayniyat bajarilsa, $5a-2b$ ni toping.

A) 0 B) 9 C) 1 D) 5

54. $x^2+100x+4=0$ kvadrat tenglamaning haqiqiy yechimlari $x^2+mx+n=0$ tenglamaning haqiqiy yechimlarining kublariga teng. m^3-3mn ning qiymatini toping.

A) 125 B) 100 C) 50 D) 81

55. $x^2+100x+6=0$ kvadrat tenglamaning haqiqiy yechimlari $x^2+mx+n=0$ tenglama haqiqiy yechimlari kublariga teng. m^3-3mn ning qiymatini toping?

A) 50 B) 100 C) 81 D) 125

56. $x^2-\left(k+1\right)x+k^2+k-22=0$ tenglama ildizlaridan biri 2 dan katta, ikkinchisi esa 2 dan kichik bo'lsa, k ning butun qiymatlari yig'indisini toping.

A) 2 B) 4 C) 5 D) 0

57. $x^2-\left(k+1\right)x+k^2+k-32=0$ tenglama ildizlaridan biri 2 dan katta, ikkinchisi esa 2 dan kichik bo'lsa, k ning butun qiymatlari yig'indisini toping.

A) 6 B) 4 C) 5 D) 0

58. Nolga teng bo'lmagan a,b,c,d sonlari uchun c,d sonlari $x^2+ax+b=0$ tenglamaning haqiqiy yechimlari a,b sonlari esa, $x^2+cx+d=0$ tenglamaning haqiqiy yechimlari bo'lsa, $a-c+b-d$ ni toping.

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

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59. $a^3x^2+b^3x-a^3=0,\ a\neq 0$ tenglama nechta yechimga ega.
A) 2 ta B) cheksiz ko'p C) 8 ta D) 1 ta

60. $x^3-2x-1=0$ tenglamaning haqiqiy ildizlari ko'paytmasini toping.
A) -2 B) 1 C) -1 D) 0

61. $\begin{cases}\frac{1}{x}+\frac{4}{y}=\frac{1}{2}\\ \frac{2}{x}+\frac{3}{y}=\frac{4}{5}\end{cases}$ bo'lsa, y ning qiymatini toping.
A) 50 C) 20 C) 75 D) 25

62. Ushbu $\begin{cases}y=x^8\\ y=x+5\end{cases}$ tenglamalar sistemasi nechta $x^2+100x+6=0$ yechimga ega?
A) 0 B) 2 C) 4 D) 1

63. $\begin{cases}x^3+y^6=91\\ x+y^2=7\end{cases}$ tenglamalar sistemasining barcha haqiqiy yechimlari $(x_1;y_1);\ldots;(x_n;y_n)$ bo'lsin $x_1\cdot y_1\cdot\ldots\cdot x_n\cdot y_n$ ni toping.
A) 864 B) 36 C) 576 D) 1728

64. $\begin{cases}y=-x+a\\ x^2+y^2=3\end{cases}$ tenglamalar sistemasi yechimga ega bo'ladigan a ning barcha qiymatlari to'plamini toping.
A) $\left[-\sqrt{6};\sqrt{6}\right]$ B) $\left[-\sqrt{3};\sqrt{3}\right]$ C) $\left[-\sqrt{3};\sqrt{6}\right]$ D) $[0;3]$

65. Tenglamalar sisteemasi nechta yechimga ega: $\begin{cases}\left(x^2+y^2-13\right)\left(x+y-7\right)=0\\ xy=6\end{cases}$
A) 5 B) 3 C) 6 D) 0

66. $\begin{cases}\frac{1}{x+y}+\frac{1}{x-y}=\frac{4}{9}\\ \frac{1}{x-y}-\frac{1}{x+y}=\frac{2}{9}\end{cases}$ bo'lsa, $x\cdot y$ ning qiymatini toping.
A) 16 B) 18 C) 15 D) 24

67. $\begin{cases}2x-y=5\\ xy=-3\\ x^2-y^2=3\\ x^2+y^2=5\end{cases}$ tenglamalar sistemalarining birlashmasini $(x;y)$ juftlikdagi yechimi nechta?
A) 6 ta B) yechimga ega emas C) 4 ta D) 2 ta

68. $x^2+ax+3=0, x^2-3x-a=0$ tenglamalar faqat bitta umumiy haqiqiy yechimga ega bo'lsa, a ni toping.
A) 5 B) 3 C) 4 D) -3

69. $\begin{cases}x^2+ax+5=0\\ x^2-5x-a=0\end{cases}$ tenglamalar faqat bitta umumiy haqiqiy yechimga ega bo'lsa, a ni toping?
A) 5 B) 6 C) 7 D) 12

70. $\begin{cases}\frac{1}{2x+y}+\frac{1}{2x-y}=\frac{4}{9}\\ \frac{1}{2x-y}-\frac{1}{2x+y}=\frac{2}{9}\end{cases}$ bo'lsa, $x\cdot y$ ning qiymatini toping
A) 6 B) 12 C) 15 D) 9

71. $\begin{cases}\frac{1}{x+y}+\frac{1}{x+z}=\frac{7}{12}\\ \frac{1}{x+y}+\frac{1}{y+z}=\frac{8}{15}\\ \frac{1}{z+y}+\frac{1}{x+z}=\frac{9}{20}\end{cases}$ bo'lsa, $x+y+z$ toping.
A) 6 B) -2 C) 3 D) 7

72. $(x;y)$ juftlik $\begin{cases}EKUB(x;y)=12\\ \frac{x}{y}=\frac{3}{4}\end{cases}$ tenglamalar sistemasining yechimi bo'lsa, $x+y$ ni hisoblang. $(x;y\in N)$
A) 168 B) 216 C) 108 D) 84

74. $\begin{cases}EKUB(x;y)=12\\ \frac{x}{y}=\frac{3}{4}\end{cases}$ tenglamalar sistemasining yeching. $(x;y\in N)$
A) (48; 60) B) (24; 36)
C) (36; 48) D) (60; 72)

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75. $(x;y)$ juftlik $\begin{cases} EKUB(x,y)=30 \\ \dfrac{x}{y}=\dfrac{3}{5} \end{cases}$ tenglamalar sistemasining yechimi bo'lsa, $x+y$ ni hisoblang. $(x,y\in N)$

A) 240 B) 480 C) 300 D) 510

76. $\begin{cases} y-x=3 \\ y-z=4 \\ x^2+y^2+z^2=30 \end{cases}$ tenglamalar sistemasini yeching.

A) (1; 4; 0), (2; 5; 1)

B) (3; 1; 4), $\left(-\frac{2}{3};-\frac{5}{3};-\frac{1}{3}\right)$

C) (-3,3; -0,3; -4,3), (2; 5; 1)

D) $\left(-3\frac{1}{3};-\frac{1}{3};-4\frac{1}{3}\right)$, (2; 5; 1)

77. Agar $\begin{matrix} x_2+x_3+\ldots+x_{10}+x_{11}=1 \\ x_1+x_3+\ldots+x_{10}+x_{11}=2 \\ \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \\ x_1+x_2+x_3+\ldots+x_{10}=11 \end{matrix}$ bo'lsa, x_{11} nechaga teng?

A) -4,4 B) -5,4 C) -6,3 D) -8,3

78. Agar $\begin{matrix} x_2+x_3+\ldots+x_{10}+x_{11}=1 \\ x_1+x_3+\ldots+x_{10}+x_{11}=2 \\ \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \\ x_1+x_2+x_3+\ldots+x_{10}=11 \end{matrix}$ bo'lsa, $x_1+x_2+x_3+x_4+x_5$ ni toping?

A) 16 B) 17 C) 18 D) 13

TENGSIZLIKLAR

1. $2(x-3)^2-(x-1)(x+3)\le 0$ tengsizlikning butun yechimlari yig'indisini toping?

A) 77 B) 78 C) 84 D) 90

2. $x^4-13x^2+36\le 0$ tengsizlik nechta butun yechimga ega?

A) 2 B) 4 C) 6 D)butun yechimga ega emas

3. $x^2-4x+4\le 0$ tengsizlik o'rinli bo'lgan barcha haqiqiy sonlar uchun $|x-2|$ ifodaning qiymatini toping.

A) 0 B) $-x+2$ C) $x-2$ D) $-x-1$

4. $x^2-6x+9\le 0$ tengsizlik o'rinli bo'lgan barcha x haqiqiy sonlar uchun $|x-3|$ ifodaning qiymatini toping.

A) $-x-3$ B) 0 C) $3-x$ D) $x-3$

5. $x^6-28x^3+27\le 0$ tengsizlik nechta butun yechimga ega?

A) 1 B) 3 C) 27 D) cheksiz ko'p

6. $2x+8\le x^2<6x$ tengsizlikning butun yechimlari yig'indisini toping.

A) 12 B) 9 C) 6 D) 10

7. $a^2<422$ tengsizlikni qanoatlantiruvchi eng katta natural sonning natural bo'luvchilari yig'indisini toping.

A) 40 B) 42 C) 45 D) 48

8. $x<\frac{a-b}{2}$, $c<a-2y$, $b>c+2z$ bo'lsa, u holda $x+y+z$ ni toping.

A) $x+y+z<a-b-c$ B) $x+y+z<a-c$
C) $x+y+z<b-c$ D) $x+y+z<a+b-c$

9. $x<8$ bo'lsa, $3x+2y-6=0$ tenglamadan y ning qiymatlarini toping.

A) $y<-6$ B) $y>0$
C) $y>1$ D) $y>-9$

10. $x<2$ bo'lsa, $3x+2y-6=0$ tenglamadan y ning qiymatlarini toping.

A) $y<-2$ B) $y>0$
C) $-1<y<1$ D) $y>-2$

11. Agar $a<0$ bo'lsa, $\frac{4}{x}<\frac{1}{a}$ tengsizlikni yeching.

A) $4a<x<0$ B) $0<x<4a$
C) $x>4a$ D) $x<4a$

12. Agar $a<0$ bo'lsa, $\frac{3}{x}<\frac{1}{a}$ tengsizlikni yeching.

A) $3a<x<0$ B) $x<3a$ C) $0<x<3a$ D) $x>3a$

13. Agar $a>b$ bo'lsa, $bx+b^2>a^2+ax$ tengsizlikni yeching.

A) $x>a-b$ B) $x<-a-b$
C) $x<a+b$ D) $x>-a-b$

14. $a<0, b>0$ bo'lsa, $ax+a>bx+b$ ni yeching.

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

15. Agar $a<0$ va $b>0$ bo'lsa, $ax+a>bx+b$ tengsizlikning eng katta butun yechimini toping.

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

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16. a va b sonlar berilgan $a^2<a$, $b>1$ bo'lsa quydagilardan qaysi biri har doim o'rinli?
A) $ab>a$ B) $ab>b$ C) $b<a$ D) $ab>2$

17. x va y butun sonlar uchun $-3\le x<5$ va $-6\le y<5$ bo'lsa, x^3-y^2 ning eng kichik qiymatini toping.
A) 0 B) - 63 C) -36 D) 64

18. x va y butun sonlar uchun $-3\le x<5$ va $-6\le y<5$ bo'lsa, x^3-y^2 ning eng katta qiymatini toping.
A) 124 B) 64 C) 125 D) 28

19. x va y butun sonlar uchun $-2\le x<4$ va $-5\le y<1$ bo'lsa, x^3-y^2 ning eng kichik qiymatini toping.
A) -1 B) -33 C) -8 D) 0

20. x va y butun sonlar uchun $-2\le x<4$ va $-5\le y<1$ bo'lsa, x^3-y^2 ning eng katta qiymatini toping.
A) 63 B) 39 C) 27 D) 64

21. x va y butun sonlar uchun $-4\le x<4$ va $-5\le y<5$ bo'lsa, x^3-y^2 ning eng kichik qiymatini toping.
A) - 39 B) -89 C) 0 D) -64

22. x va y butun sonlar uchun $-4\le x<4$ va $-5\le y<5$ bo'lsa, x^3-y^2 ning eng katta qiymatini toping.
A) 64 B) 27 C) 0 D) 2

23. x,y butun sonlar uchun $-2\le x<4$ va $-5\le y<4$ bo'lsa, x^3-y^2 ning eng kichik qiymatini toping.
A) -24 B) -33 C) -8 D) -32

24. $x<0$ da $|x-|x-11||-11$ ifodani modul belgisiz yozing.
A) $2x$ B) 0 C) $2x-22$ D) $-2x$

25. $x<0$ da $|x-|x-7||-7$ ifodani modul belgisiz yozing.
A) 0 B) $2x-4$ C) $2x$ D) $-2x$

26. $a>0$, $b<0$ haqiqiy sonlar uchun qanday munosabat doimo o'rinli?
A) $|a-b|<a+b$ B) $|a-b|>a+b$
C) $|a-b|\le a+b$ D) $|a-b|<a-b$

27. Agar $x<0$ va $0<y<z$ bo'lsa, $\dfrac{|z+y|-|x-y|}{|x|+|z|}$ ifodani soddalashtiring
A) 1 B) $\dfrac{x+z}{z-x}$ C) $\dfrac{x+z}{x-z}$ D) -1

28. a, b haqiqiy sonlar uchun qanday munosabat doimo o'rinli?
A) $|a-b|\le|a|-|b|$ B) $|a-b|>|a|-|b|$
C) $|a-b|\ge|a|-|b|$ D) $|a-b|<|a|-|b|$

29. $m>0$, $n<0$ haqiqiy sonlar uchun qanday munosabat doimo o'rinli?
A) $|mn|<-|m|\cdot|n|$ B) $|m+n|\le m-n$
C) $|m+n|\ge m-n$ D) $|m+n|<m-n$

30. $\dfrac{1}{|x+1|-1}\ge\dfrac{2}{|x+1|-2}$ tengsizlikning manfiy butun yechimlarining yig'indisini toping.
A) -3 B) -6 C) -1 D) -5

31. Agar $|x-3|<4$ bo'lsa, $|x+1|+|x-4|+|x-6|=10$ tenglamaning ildizlari yig'indisini toping.
A) $7\frac{1}{3}$ B) 1 C) $6\frac{1}{3}$ D) 0

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32. $\dfrac{|x^2-5x+4|}{x^2-4}\le 1$ tengsizlikni qanoatlantirmaydigan tub sonni toping.
A) 5 B) 7 C) 2 D) 3

33. $|x^2-2x|\le x$ tengsizlikni yeching.
A) $\{0\}\cup[1;3]$ B) $[-1;3]$ C) $\varnothing$ D) $(-1;3)$

34. $\begin{cases}|4+x|\le 7,\\ |2x+3|\ge 9\end{cases}$ tengsizliklar sistemasi nechta butun yechimga ega?
A) 6 B) 7 C) 4 D) 5

35. $\begin{cases}|x+7|\le 13,\\ |2x+9|\ge 21\end{cases}$ tengsizliklar sistemasi nechta butun yechimga ega?
A) 8 B) 7 C) 4 D) 6

36. $\begin{cases}|x+5|\le 9\\ |2x+5|\ge 13\end{cases}$ tengsizliklar sistemasi nechta butun yechimga ega?
A) 5 B) 7 C) 4 D) 6

37. $\dfrac{|x+2|+x}{x+1}>1$ tengsizlikning manfiy butun yechimlari nechta?
A) 1 B) 3 C) 2 D) cheksiz ko'p

38. $\dfrac{|x+3|+x}{x+2}>1$ tengsizlikning manfiy butun yechimlari nechta?
A) 1 B) 3 C) 2 D) 0

39. $\dfrac{|x+4|+x}{x+3}\ge 1$ tengsizlikning manfiy butun yechimlari nechta?
A) 5 B) 3 C) 4 D) cheksiz ko'p

IRRATSIONAL TENGLAMALAR VA TENGSIZLIKLAR

1. $\sqrt{2x+6}=\sqrt{x-1}+\sqrt{3x-11}$ tenglamaning ildizlari yig'indisini toping.
A) 6 B) 9 C) 4 D) 5

2. $\sqrt{2x^3-5x^2-8x+2}=\sqrt{2}(x-1)$ tenglama nechta yechimga ega?
A) 1 B) 0 C) 2 D) 3

3. $x^2-\sqrt{x^2-10x+25}=-5$ tenglamaning haqiqiy ildizlari yig'indisini toping.
A) -1 B) -2 C) 1 D) 0

4. $x^2-\sqrt{x^2-4x+4}=-2$ tenglamaning haqiqiy ildizlar sonini toping.
A) 1 B) 4 C) 2 D) 3

5. $2x-3\sqrt{2x-1}+1=0$ tenglamaning ildizlari ayirmasining modulini toping.
A) 3 B) 2,5 C) 2 D) 1,5

6. $2x-3\sqrt{2x-1}+1=0$ tenglamani yeching.
A) 2 va 2,5 B) -1 va -2,5
C) -2 va -2,5 D) 1 va 2,5

7. Tenglamani yeching: $x+\sqrt{x+\frac{1}{2}+\sqrt{x+\frac{1}{4}}}=2$
A) $2-\sqrt{2}$ C) $2\pm\sqrt{2}$ C) 0 D) 1

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

9. $\sqrt{3-x}>x-1$ tengsizlikni yeching.
A) $(2;3)$ B) $(1;3]$ C) $(-\infty;2)$ D) $(0;3]$

10. $\sqrt{3-x}<x-1$ tengsizlikni yeching.
A) $(-\infty;2)$ B) $(1;3]$ C) $(2;3]$ D) $(0;3]$

11. $\sqrt{x+3}>x+1$ tengsizlikning butun musbat yechimlari nechta?
A) 3 B) 5 C)butun musbat yechimi yo'q D) 2

12. $\sqrt{x+2}+|x-4|\le 6$ tengsizlikning butun sonlardan iborat yechimlari yig'indisini toping.
A) 6 B) 18 C) -2 D) 25

13. $\sqrt{x+2}+|x-3|\le 5$ tengsizlikning butun sonlardan iborat yechimlari yig'indisini toping.
A) 18 B) 16 C) 16 D) 12

14. $\sqrt{x+2}+|x-3|\le 6$ tengsizlikning butun sonlardan iborat yechimlari yig'indisini toping.
A) 22 B) 18 C) 6 D) 16

15. $\sqrt{x+1}+|x-4|\le 6$ tengsizlikning butun sonlardan iborat yechimlari yig'indisni toping.
A) 8 B) 25 C) 7 D) 27

16. $\frac{2}{x}+3\le\sqrt{41-\frac{16}{x}}$ tengsizlikni yeching.
A) $x<0$ B) $x\le 0$ yoki $x\ge 2$
C) $x\ge 1$ D) $x<0$ yoki $x\ge 1$

★17. $\frac{x-\sqrt{x}-2}{x-\sqrt{x}-6}<0$ tengsizlikni butun sonlardan iborat yechimlari nechta?
A) 4 B) 6 C) 5 D) 2

★18. $\frac{1-x}{\sqrt{3+2x-x^2}}\ge 0$ tengsizlik nechta butun yechimga ega?
A) 2 B) cheksiz ko'p C) 3 D) 1

19. Nomanfiy x,y sonlar uchun $a=5x+\frac{1}{5}y$ va $b=2\sqrt{xy}$ bo'lsin. Qaysi tengsizlik har doim o'rinli?
A) $a\le b$ B) $a\ge b$ C) $a>b$ D) $a<b$

20. Nomanfiy x,y sonlar uchun $a=4x+\frac{1}{4}y$ va $b=2\sqrt{xy}$ bo'lsin. Qaysi tengsizlik har doim o'rinli?
A) $a\le b$ B) $a\ge b$ C) $a>b$ D) $a<b$

21. Nomanfiy x,y sonlar uchun $a=\frac{x+4y}{2}$ va $b=2\sqrt{xy}$ bo'lsin. Qaysi tengsizlik har doim o'rinli?
A) $a>b$ B) $a\ge b$ C) $a<b$ D) $a\le b$

22. Musbat butun sonlar uchun $H=\frac{2ab}{a+b}$, $G=\sqrt{ab}$, $A=\frac{a+b}{2}$, $Q=\sqrt{\frac{a^2+b^2}{2}}$ kattaliklarni

qaraylik. Quyidagi munosabatlardan qaysilari doimo o'rinli?

A) $Q \le G \le A \le H$ B) $G \le H \le A \le Q$
C) $G \le A \le H \le Q$ D) $H \le G \le A \le Q$

23. Agar $xy + \sqrt{(1+x^2)(1+y^2)} = \sqrt{5}$ va $xy \le \sqrt{5}$ bo'lsa, $x\sqrt{1+y^2} + y\sqrt{1+x^2}$ ni toping.

A) 3 B) ± 3 C) ± 2 D) 2

PROSENTGA DOIR MASALALAR

1. Sonning 8 foizi 40 foizining necha foizini tashkil qiladi?
A) 5 B) 15 C) 25 D) 20

2. Ish kuni 9 soatdan 8 soatga qisqardi. Ish haqi avvalgicha baholanganda 4% ga ortishi uchun ish unumdorligini necha prosentga orttirish kerak?
A) 7% B) 17% C) 27% D) 10%

3. Ta'lim muassasasida barcha o'quvchilar kamida bitta-ingliz yoki nemis tilida so'zlasha oladilar, ayrimlari esa ikkala tilni ham biladilar. O'quvchilarning 85% i ingliz tilini, 65% i esa nemis tilini biladilar. Ikkala tilini ham biladigan o'quvchilar barcha o'quvchilarning necha foizini tashkil etadi.
A) 60% B) 45% C) 50% D) 75%

4. Olma mevasining 90%i, quritilgan mevaning esa 12%i suvdan iborat. 88 kg olmadan necha kg quritilgan olma olish mumkin?
A) 10 B) 20 C) 30 D) 40

5. Olma mevasining 90%i, quritilgan mevaning esa 12%i suvdan iborat. 55 kg olmadan necha kg quritilgan olma olish mumkin?
A) 6,25 B) 5,25 C) 3,25 D) 4,25

6. 10 ta ot bilan 14 ta sigirni boqish uchun kuniga 180 kg pichan berilar edi. Pichan normasi otlar uchun 25%, sigirlar uchun $33\frac{1}{3}\%$ orttirilgandan keyin, kuniga ularga 232 kg pichan beriladigan bo'ldi. Dastlab kuniga har bir otga va har bir sigirga necha killogramdan pichan berilar edi?
A) 6; 9,6 B) 9; 6,6 C) 9,6; 6 D) 6,6; 9

7. Quti sirtining 70%ini bo'yash uchun 350 gr bo'yoq kerak. Qutining qolgan qismini bo'yash uchun qancha bo'yoq kerak?
A) 250 B) 180 + C) 150 D) 12

8. Quti sirtining 75%ini bo'yash uchun 450 gr bo'yoq sarflangan bo'lsa, to'liq bo'yash uchun necha gramm bo'yoq kerak bo'ladi?
A) 625 B) 650 C) 600 D) 500

9. Korxonada mahsulot ishlab chiqarish birinchi yili 10% ga, ikkinchi yili 15% ga oshdi. Mahsulot ishlab chiqarish shu ikki yilda necha foizga oshgan?
A) 26,5% B) 24,4% C) 22,5% D) 25%

10. Sotuvchi mahsulotni A so'mdan sotmoqda. Agar mahsulot narxini 20% ga oshirib, so'ngra 20% ga kamaytirilsa, u holda sotuvchi foyda ko'radimi yoki zarar?
A) 2% foyda B) 4% zarar
C) 1,8% foyda D) 2% zarar

11. Dengiz suvi 5% tuzga ega. 80 kg dengiz suviga qancha (kg) chuchuk suv qo'shilsa, undagi tuzning miqdori 4% ga aylanadi?
★A) 20 B) 24 C) 18 D) 12

12. Mahsulotning bozordagi narxi uning tannarxidan 20% ga qimmat. Bozorda mahsulot yaxshi sotilmagani uchun, uning sotuvdagi narxi 5% ga kamaytirilganda narxi 285 so'm bo'lgan bo'lsa, uning tannarxini toping.
A) 250 B) 240 C) 285 D) 225

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MATNLI MASALALAR

1. Bir guruh bolalarning o'rtacha og'irligi 40 kg ga teng. Qiz bolalarning o'rtacha og'irligi 35 kg, o'g'il bolalarning o'rtacha og'irligi esa 50 kg ligi ma'lum. Agar guruh a'zolarining 20 nafari qiz bolalar bo'lsa, o'g'il bolalar sonini toping.
A) 25 B) 10 C) 11 D) 18

2. Bir guruh bolalarning o'rtacha og'irligi 40 kg ga teng. Qiz bolalarning o'rtacha og'irligi 35 kg, o'g'il bolalarning o'rtacha og'irligi esa 50 kg ligi ma'lum. Agar guruh a'zolarining 22 nafari qiz bolalar bo'lsa, o'g'il bolalar sonini toping.
A) 12 B) 13 C) 11 D) 10

3. Bir guruh bolalarning o'rtacha og'irligi 40 kg ga teng. Qiz bolalarning o'rtacha og'irligi 35 kg, o'g'il bolalarning o'rtacha og'irligi esa 50 kg ligi ma'lum. Agar guruh a'zolarining 28 nafari qiz bolalar bo'lsa, o'g'il bolalar sonini toping.
A) 12 B) 13 C) 14 D) 18

4. Bir guruh bolalarning o'rtacha og'irligi 40 kg ga teng. Qiz bolalarning o'rtacha og'irligi 35 kg, o'g'il bolalarning o'rtacha og'irligi esa 50 kg ligi ma'lum. Agar guruh a'zolarining 26 nafari qiz bolalar bo'lsa, o'g'il bolalar sonini toping.
A) 12 B) 13 C) 11 D) 18

5. Bir nechta matematiklar va 14 nafar fiziklardan tashkil topgan bir guruh olimlarning o'rtacha yoshi 40 ga teng. Matematiklarning o'rtacha yoshi 35 ga, fiziklarning o'rtacha yoshi esa 50 ga tengligi ma'lum bo'lsa, matematiklar sonini toping.
A) 28 B) 22 C) 26 D) 24

6. Bir nechta matematiklar va 10 nafar fiziklardan tashkil topgan bir guruh olimlarning o'rtacha yoshi 40 ga teng. Matematiklarning o'rtacha yoshi 35, fiziklarning o'rtacha yoshi esa 50 ga tengligi ma'lum bo'lsa, matematiklar sonini toping.
A) 20 B) 24 C) 18 D) 12

7. Bir nechta matematiklar va 8 nafar fiziklardan tashkil topgan bir guruh olimlarning o'rtacha yoshi 40 ga teng. Matematiklarning o'rtacha yoshi 35, fiziklarning o'rtacha yoshi esa 50 ga tengligi ma'lum bo'lsa, matematiklar sonini toping.
A) 16 B) 24 C) 18 D) 12

8. Bir nechta matematiklar va 12 nafar fiziklardan tashkil topgan bir guruh olimlarning o'rtacha yoshi 40 ga teng. Matematiklarning o'rtacha yoshi 35, fiziklarning o'rtacha yoshi esa 50 ga tengligi ma'lum bo'lsa, matematiklar sonini toping.
A) 16 B) 24 C) 18 D) 12

9. "Tutgan balig'ining og'irligi qancha?" - degan savolga baliqchi: "Balqning dumi 2 kg, boshi uning dumi hamda tanasi yarmining og'irligiga teng, tanasi esa boshi va dumining og'irligiga teng", deb javob berdi Baliqning og'irligini (kg) toping.
A) 12 B) 3 C) 6 D) 18

10. "Tutgan balig'ingning og'irligi qancha?" – degan savolga baliqchi: "Baliqning dumi 1 kg, boshi uning dumi hamda tanasi yarmining og'irligiga teng, tanasi esa boshi va dumining og'irligiga teng", deb javob berdi. Baliqning og'irligini (kg) toping.
A) 5 B) 7 C) 6 D) 8

11. "Tutgan balig'ingning og'irligi qancha?" – degan savolga baliqchi: "Baliqning dumi 3 kg, boshi uning dumi hamda tanasi yarmining og'irligiga teng, tanasi esa boshi va dumining og'irligiga teng", deb javob berdi. Baliqning og'irligini (kg) toping.
A) 15 B) 20 C) 18 D) 24

12. "Tutgan balig'ingning og'irligi qancha?" – degan savolga baliqchi: "Baliqning dumi 4 kg, boshi uning dumi hamda tanasi yarmining og'irligiga teng, tanasi esa boshi va dumining og'irligiga teng", deb javob berdi. Baliqning og'irligini (kg) toping.
A) 25 B) 24 C) 27 D) 18

13. Samandar doskaga ikkita son yozdi. Uchinchi son sifatida u birinchi va ikkinchi sonlarning yig'indisini, to'rtinchi son sifatida ikkinchi va uchinchi sonlarning yig'indisini va hk yozdi, lekin yettinchi sonni yozmadi. So'ng dastlabki oltita sonni qo'shdi va bu yig'indini bilgan holda qo'shiluvchilardan birini aniq hisoblash mumkinligini ko'rdi. Bu qaysi qo'shiluvchi edi?
A) beshinchi B) uchinchi
C) oltinchi D) to'rtinchi

★ XORAZM ILM ZIYO ★

14. Maktab hovlisida 986 ta atirgul ekilgan. Samandar barcha atirgullarning yarimini, Diyora ham barcha atirgullarning yarimini suv quyib sug'ordi. Bunda aynan uchta atirgul, ham Diyora ham Samandar tomonidan sug'orilganligi aniqlandi. Nechta atirgul sug'orilmay qoldi?
A) 0 B) 3 C) 1 D) 6

15. Maktab hovlisida 1006 ta atirgul ekilgan. Samandar barcha atirgullarning yarimini, Diyora ham barcha atirgullarning yarimini suv quyib sug'ordi. Bunda aynan uchta atirgul, ham Diyora ham Samandar tomonidan sug'orilganligi aniqlandi. Nechta atirgul sug'orilmay qoldi?
A) 0 B) 3 C) 1 D) 6

16. Samandarning o'g'il bola sinifdoshlari soni qiz bola sinfdoshlari sonidan 7 taga ko'p. Sinfda o'g'il bolalar soni qiz bolalar sonidan 2 marta ko'p. Diyora- Samandarning sinfdoshi. Diyoraning sinfdosh dugonalri nechta?
A) 9 B) 6 C) 7 D) 8

17. Sinfda 40 ta o'quvchi bor. Ulardan 32 tasi "Matematika" to'garagida, 21 tasi "Yosh rassomlar" to'garagida shug'ullanadi. 15 ta o'quvchi ikkalasida ham shug'ullanadi. Qancha o'quvchi ikkalasida ham shug'ullanmaydi?
A) 2 B) 28 C) 3 D) 38

18. Shaxmat musobaqasida 15 nafar sportchi ishtirok etdi. Har ikki nafar ishtirokchilar bir-biri bilan bir marta o'ynashi kerak edi. Musobaqa paytida bitta shaxmatchi kasal bo'lib, musobaqani tark etdi. Natijada jami bo'lib 97 ta o'yin oynaldi. Kasal bo'lgan shaxmatchi nechta o'yin o'ynamadi?
A) 12 B) aniqlab bo'lmaydi C) 8 D) 5

19. Shaxmat musobaqasida 17 nafar sportchi ishtirok etadi. Har ikki nafar ishtirokchilar bir-biri bilan bir marta o'ynashi kerak edi. Musobaqa paytida bitta shaxmatchi kasal bo'lib, musobaqani tark etdi. Natijada jami bo'lib 130 ta o'yin o'ynaldi. Kasal bo'lgan shaxmatchi nechta o'yin o'ynadi?
A) aniqlab bo'lmaydi B) 12 C) 6 D) 10

20. 10 nafar pochta xodimlaridan har biri 12 ta pochta qutisiga bittadan gazeta soldi. Ma'lumki, har bir pochta qutisiga 5 ta gazeta solindi. Jami bo'lib nechta pochta qutisi mavjud?
A) 16 B) 22 C) 24 D) 12

21. 10 nafar pochta xodimlaridan har biri 11 ta pochta qutisiga bittadan gazeta soldi. Ma'lumki, har bir pochta qutisida 5 ta gazeta solindi. Jami bo'lib nechta pochta qutisi mavjud?
A) 24 B) 16 C) 11 D) 22

22. Bir nechta bola 36 dona olmani yeyishmoqchi edi. Ali "Men olmalarni shunday taqsimlay olamanki, har birimizda 5 tadan ko'p olma bo'lmaydi" dedi. Vali esa "Men olmalarni shunday taqsimlay olamanki, xech birimiz olmasiz qolmaymiz va barchamizda olmalar soni turlicha bo'ladi". Bolalar sonini aniqlang.
A) 10 B) 11 C) 8 D) 9

23. 8-mart bayrami 10 ta o'g'il bola o'quvchi 8 ta qizga har biri 1 tadan sovg'a berdi va hamma qizlar 5 tadan sovg'a olishdi. Guruhda nechta qiz bor?
A) 24 B) 18 C) 16 D) 32

24. Aloqa binosida 50 ta kompyuter bor. Ularni bir-biriga ulash davomida 8 ta sim chiqsa kompyuterlarni ulash uchun nechta sim kerak?
A) 200 B) 100 C) 50 D) 150

25. Axborot – resurs markazida 18 ta kompyuter o'rnatilmoqda, bunda ayrimlari kabel bilan ulanmoqda. Har bir kompyuterdan 10 ta kabel chiqishi lozim bo'lsa, jami bo'lib nechta kabel kerak?
A) 90 B) 40 C) 180 D) 200

26. Axborot – resurs markazida 30 ta kompyuter o'rnatilmoqda, bunda ayrimlari kabel bilan ulanmoqda. Har bir kompyuterdan 6 ta kabel chiqishi lozim bo'lsa, jami bo'lib nechta kabel kerak?
A) 90 B) 40 C) 180 D) 200

27. Berilgan uchta musbat kasrning suratlari 2, 3, 4 sonlariga proporsional, maxrajlarining teskari miqdorlari esa $1, \frac{1}{4}$ va 0,2 sonlariga proporsionaldir. Agar berilgan kasrlarning o'rta arifmetigi 1,42 bo'lsa, sonlarning eng kichigini toping.
A) $\frac{9}{5}$ B) $\frac{8}{5}$ C) $\frac{3}{5}$ D) $\frac{9}{10}$

28. Quyon itdan 40 ta sakrash oldinda. It 7 marta sakrasa, quyon 9 marta sakraydi, ammo itning 3 ta sakrash masofasi quyonning 5 ta sakrash masofasiga teng. Nechta sakrashda it quyonga yetib oladi.
A) 105 B) 96 C) 84 D) 112

29. Dastlabki 10 ta ketma-ket tub sonlar yonmayon yozildi. Hosil bo'lgan sondan 6 ta raqam ochirildi. Natijada eng katta son hosil bo'ladi. ★Hosil bo'lgan sonning uchinchi raqamini toping?
A) 1 B) 130 C) D) 4

30. Dastlabki 10 ta tub son ketma-ket bir qatorga yozilib 6 ta raqam shunday o'chirildiki, natijada eng katta son hosil bo'ldi. Shu sonnig sakkizinchi raqamini toping.
A) 3 B) 1 C) 2 D) 7

★ XORAZM ILM ZIYO

31. Bir kishi omonat kassadan hamma pulning $\frac{1}{4}$ qismini, keyin qolgan pulining $\frac{4}{9}$ qismini va 64000 so'm oldi. Shundan keyin uning jamg'armasida hamma pulning $\frac{3}{20}$ qismi qoldi. Jamg'armaning miqdori (so'm) qancha bo'lgan?
A) 240000 B) 180000 C) 120000 D) 300000

32. Yuk tashish mashinasi 240 km yo'lni bosib o'tishi kerak edi. Mashina yo'lning o'rtasida 30 daqiqa to'xtab qolgach tezligini 20 km/soatga oshirib, belgilangan joyga o'z vaqtida yetib keldi. Mashinaning yo'lning ikkinchi yarmini bosib o'tishda ketgan vaqtini (soat) toping.
A) 1,5 B) 2,4 C) 1,8 D) 1,2

33. Yuk tashish mashinasi 240 km yo'lni bosib o'tishi kerak edi. Mashina yo'lning o'rtasida 30 daqiqa to'xtab qolgach tezligini 20 km/soatga oshirib, belgilangan joyga o'z vaqtida yetib keldi. Mashinaning boshlang'ich tezligini (km/soat) toping.
A) 20 B) 45 C) 70 D) 60

34. 1350 metr uzunlikka ega bo'lgan aylanada bir yo'nalishda ikkita velosipedchi harakatlanmoqda. Birinchisi har 27 minutda ikkinchisini quvib o'tadi. Qarama-qarshi harakat bo'lsa, ular har 3 minutda uchrashadi. Velosipedchilarning tezliklarini (km/soat) toping.
A) 15; 10 B) 12; 10 C) 15; 12 D) 12; 9

35. Birinchi omborda 500 tonna, ikkinchi omborda 600 tonna ko'mir bor. Birinchi ombordan har kuni 9 tonna, ikkinchisidan esa 11 tonna ko'mir olib ketiladi. Necha kundan keyin ombordagi ko'mir miqdorlari teng bo'ladi?
A) 42 B) 55 C) 30 D) 50

36. Tarozining bir pallasiga bitta g'isht qo'yildi va muvozanatni saqlash uchun tarozining ikkinchi pallasiga yarimta g'isht va 1 kg tosh qo'yildi. G'ishtning og'irligini (kg) toping.
A) 2 B) 1 C) 1,5 D) 3

37. Bir gala chumchuqlar bittadan shoxga qo'nganda bitta chumchuq ortib qoladi, ikkitadan qo'nsa, bitta shox ortib qoladi. Nechta chumchuq va nechta shox bo'lgan?
A) 6; 8 B) 8; 6 C) 4; 3 D) 3; 4

38. Birinchi poyezdda 792 ta, ikkinchi poyezdda 864 ta, uchinchi poyezdda 936 ta yo'lovchilar uchun joy bor. Agar vagonlardagi yo'lovchilar uchun mo'ljallangan joylarning soni bir xil bo'lsa, har bir poyezd eng kamida nechta vagonga ega bo'ladi?
A) 11; 12; 13 B) 9; 12; 24
C) 8; 16; 24 D) 11; 13; 14

39. To'p $2m43sm$ balandlikdan tashlandi va yerga urilib, har gal balandlikning $\frac{2}{3}$ qismiga teng. balandlikka ko'tarildi. To'p necha marta urilishdan keyin $32sm$ balandlikka ko'tariladi?
A) 4 B) 5 C) 8 D) 7

PROGRESSIYALAR

1. Arifmetik progressiyaning ikkinchi va o'n yettinchi hadlari yig'indisi 35 ga, o'n to'qqizinchi va o'n yettinchi hadlari ayirmasi 5 ga teng. Progressiyaning dastlabki yigirmata hadi yig'indisini toping.
A) 400 B) 410 C) 250 D) 380

2. Beshta a_1,a_2,a_3,a_4,a_5 tub son ayirmasi 6 ga teng bo'lgan arifmetik progressiyani tashkil qiladi. $a_1+a_3-a_2$ ni hisoblang.
A) bir qiymatli aniqlab bo'lmaydi.
B) 11 C) 13 D) 17

3. Beshta a_1,a_2,a_3,a_4,a_5 tub son ayirmasi 6 ga teng bo'lgan arifmetik progressiyani tashkil etadi. $2a_2+a_5$ ni toping.
A) bir qiymatli aniqlab bo'lmaydi
B) 53 C) 45 D) 51

4. $\{a_n\}$ – arifmetik progressiyaning dastlabki 43 ta va 17 ta hadining yig'indisi mos ravishda $S_{43}=105$ va $S_{17}=13$ ga teng bo'lsa, $\frac{13}{60}\cdot S_{60}=?$
A) 46 B) 21 C) 17 D) 19

5. Agar arifmetik progressiyada $S_{20}=2018$, $S_{30}=2016$ bo'lsa , S_{10} ni toping.
A) 1346 B) 1344 C) 1350 D) 1354

6. Agar arifmetik progressiyada $S_{10}=100$, $S_{15}=201$ bo'lsa , S_5 ni toping.
A) 46 B) 34 C) 101 D) 33

7. Agar arifmetik progressiyada $S_{2n}=2013$, $S_{3n}=2001$ bo'lsa , S_n ni toping.
A) 1346 B) 1344 C) 1350 D) 1354

8. Juft sondagi hadlardan tashkil topgan arifmetik progressiyaning ayirmasi 3 ga teng. Toq nomerli va juft nomerli hadlari yig'indisi mos ravishda 12 va 24 ga teng. Uning barcha hadlari nechta?
A) 6 B) 7 C) 8 D) 4

9. Juft sondagi hadlardan tashkil topgan arifmetik progressiyaning ayirmasi 3 ga teng. Toq nomerli va juft nomerli hadlari yig'indisi mos ravishda 14 va 26 ga teng. Uning barcha hadlari nechta?
A) 6 B) 7 C) 8 D) 4

10. Arifmetik progressiya uchun $a_1=2,5$; $b_1=7,5$ va $a_{100}+b_{100}=10$ bo'lsa, $a_1+b_1,a_2+b_2,\ldots a_n+b_n$ ketma-ketlikning dastlabki 100 ta hadi yig'indisini toping.
A) 10 B) 100 C) 1000 D) 10000

11. Arifmetik progressiya uchun $a_1=2,5$; $b_1=7,5$ va $a_{100}+b_{100}=10$ bo'lsa, $a_1+b_1,a_2+b_2,\ldots a_n+b_n$ ketma-ketlikning dastlabki 10 ta hadi yig'indisini toping.
A) 10 B) 100 C) 1000 D) 10000

12. Arifmetik progressiya uchun $a_1=2,5$; $b_1=7,5$ va $a_{100}+b_{100}=10$ bo'lsa, $a_1+b_1, a_2+b_2, \ldots a_n+b_n$ ketma-ketlikning dastlabki 200 ta hadi yig'indisini toping.
A) 20 B) 200 C) 2000 D) 20000

13. Arifmetik progressiya uchun $a_1=2,5$; $b_1=7,5$ va $a_{100}+b_{100}=10$ bo'lsa, $a_1+b_1, a_2+b_2, \ldots a_n+b_n$ ketma-ketlikning dastlabki 300 ta hadi yig'indisini toping.
A) 30 B) 300 C) 3000 D) 30000

14. Arifmetik progressiyada $a_3+a_7+a_{10}+a_{12}+a_{15}+a_{19}=81$ bo'lsa, a_5+a_{17} ni toping.
A) 27 B) -5 C) 9 D) 81/4

15. Arifmetik progressiyada $a_3+a_8+a_{10}+a_{12}+a_{14}+a_{19}=78$ bo'lsa, a_5+a_{17} ni toping.
A) 26 B) 13 C) 39 D) 36

16. $a_1, a_2, a_3, \ldots$; $b_1, b_2, b_3, \ldots$ arifmetik progressiya hadlari uchun $a_1=b_1=3$, $a_4=b_5\neq 3$ bo'lsa, $\frac{a_2-a_1}{b_2-b_1}=?$

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

17. Arifmetik progressiyaninng o'ninchi hadi 7, yettinchi hadi 10 ga teng. Progressiyaning birinchi hadini toping?
A) 16 B) 15 C) 14 D) 13

18. Arifmetik progressiyaning o'ninchi hadi 7 ga, yettinchi hadi esa 10 ga teng. Progressiyaning yigirmanchi hadini toping.
A) -3 B) 4 C) 2 D) -2

19. Arifmetik progressiyaning o'nninchi hadi 7 ga, yettinchi hadi esa 10 ga teng Progressiyaning beshinchi hadini toping.
A) 15 B) 14 C) 12 D) 13

20. Arifmetik progressiyaning o'ninchi hadi 7 ga, yettinchi hadi esa 10 ga teng. Progressiyaning yigirma birinchi hadini toping.
A) -13 B) -5 C) -14 D) -4

21. Arifmetik progressiya n-hadi formulasi $a_n=-\frac{n+3}{5}$ ga teng. Progressiyaning ayirmasini toping.
A) -0,2 B) -2 C) -1 D) -0,5

22. Oxirgi raqami 1 bo'lgan va (50; 350) intervalga tegishli bo'lgan barcha natural sonlar yig'indisini toping.
A) 5880 B) 5208 C) 4877 D) 5539

23. Oxirgi raqami 1 bo'lgan va (47; 350) intervalga tegishli bo'lgan barcha natural sonlar yig'indisini toping.
A) 5880 B) 5208 C) 4877 D) 5539

24. Oxirgi raqami 1 bo'lgan va $[50;350]$ kesmaga tegishli bo'lgan barcha natural sonlar yig'indisini toping.
A) 5880 B) 5208 C) 4877 D) 5539

25. Oxirgi raqami 1 bo'lgan [41; 350] kesmaga tegishli barcha natural sonlar yig'indisini toping.
A) 5980 B) 5880 C) 5921 D) 5780

★ XORAZM ILM ZIYO ★

26. $2+5+8+\ldots+x=100$ tenglamani qanoatlantiradigan x musbat butun sonni toping.
A) 17 B) 29 C) 23 D) 20

27. $5+6,5+8+\ldots+\frac{10+3x}{2}=182$ bo'lsa, x ni toping.
A) 12 B) 14 C) 17 D) 74

28. $\frac{1}{2}+\frac{1}{2+4}+\frac{1}{2+4+6}+\ldots+\frac{1}{2+4+6+\ldots+26}$ yig'indini hisoblang.

A) $\frac{10}{11}$ B) $\frac{13}{14}$ C) $\frac{12}{13}$ D) $\frac{11}{12}$

29. $1+\frac{1}{1+2}+\frac{1}{1+2+3}+\ldots+\frac{1}{1+2+3+\ldots+100}$ hisoblang.

A) $\frac{200}{101}$ B) $\frac{199}{101}$ C) $\frac{201}{101}$ D) 2

30. $\frac{1}{2}+\frac{1}{2+4}+\frac{1}{2+4+6}+\ldots+\frac{1}{2+4+\ldots+24}$ yig'indini hisoblang.

A) $\frac{13}{14}$ B) $\frac{10}{11}$ C) $\frac{11}{12}$ D) $\frac{12}{13}$

31. x ning qanday qiymatlarida $1; 2(x-1); 4(x-1)^2$ cheksiz kamayuvchi geometrik progressiya bo'ladi.
A) $(0,5;1)\cup(1;1,5)$ B) $[0,5;1]\cup(1;1,5)$
C) $(0,5;1)\cup[1;1,5]$ D) $[0,5;1]\cup[1;1,5]$

32. Cheksiz kamayuvchi geometrik progressiyaning barcha hadlari yig'indisi $f(x)=x^3+3x-9$ funksiyaning $[-2;3]$ kesmadagi eng katta qiymatiga teng. $b_1-b_2=f'(0)$ munosabat o'rinli bo'lsa, cheksiz kamayuvchi geometrik progressiyaning maxrajini toping.

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

33. Cheksiz kamayuvchi geometrik progressiyaning yig'indisi, dastlabki n ta had yig'indisidan 2 marta katta. Agar birinchi hadi $\sqrt{2}$ ga teng bo'lsa, dastlabki n ta had ko'paytmasini toping.

A) 2 B) $2\sqrt{2}$ C) 4 D) $\sqrt{2}$

FUNKSIYALAR

1. $\sqrt[4]{\frac{7-x}{\sqrt[6]{4x^2-19x+12}}}$ funksiyaning aniqlanish sohasini toping.

A) $\left(\frac{3}{7};7\right]$ B) $\left(-\infty;\frac{3}{4}\right)\cup(4;7]$ C) $\left(\frac{3}{4};4\right)$ D) $\left[\frac{3}{4};7\right]$

2. $y=\sqrt[4]{\frac{7-x}{\sqrt[6]{4x^2-19x+12}}}$ nechta natural son funksiyaning aniqlanish sohasiga tegishli?

A) 2 ta B) 3 ta C) 4 ta D) 7 ta

3. $y=\frac{\sqrt{x+1}+\sqrt{7x-6-x^2}}{|5x-x^2|}$ funksiyaning aniqlanish sohasini toping.

A) $[1;5)$ B) $[1;5)\cup(5;6]$ C) $(5;6]$ D) $[1;6]$

4. $y=\frac{\sqrt{2x-1}+\sqrt{x-1}}{x^2-5x+8}$ funksiyaning aniqlanish sohasini toping.

A) $[1;+\infty)$ B) $\left(-\infty;\frac{1}{2}\right]$ C) $\left[\frac{1}{2};+\infty\right)$ D) $\left[\frac{1}{2};1\right]$

5. $y=\frac{\sqrt{6x-x^2-5}+\sqrt{x-3}}{\sqrt{x^2+8x+18}}$ funksiyaning aniqlanish sohasini toping.

A) $[5;+\infty)$ B) $[1;3]$ C) $[3;5]$ D) $[1;5]$

6. $y=\frac{|x^2-x-12|}{\sqrt{11x-x^2-18}}$ funksiyaning aniqlanish sohasini toping.

A) $(2;9)$ B) $(4;9)$ C) $(2;4]$ D) $(-3;9)$

7. $y=\arcsin\frac{x-3}{2}$ funksiyaning aniqlanish sohasini toping.

A) $[1;5]$ B) $[1;3]$ C) $[1;4]$ D) $[1;2]$

8. $y=\lg(4-x)$ funksiyaning aniqlanish sohasini toping.

A) $(-\infty;0)$ B) $(-\infty;2)$
C) $(-\infty;4)$ D) $(-\infty;1)$

9. $y=f(x)$ funksiyaning aniqlanish sohasi $D(f)=[-3;6]$ oraliq. $y=f(x)$ funksiya grafigini OX o'qdan 2 marta, OY o'qdan 3 marta cho'zish orqali hosil qilingan funksiyaning aniqlanish sohasini toping.

A) $[-9;18]$ B) $[-1;2]$ C) $[-6;12]$ D) $\left[-\frac{3}{2};3\right]$

10. $y=f(x)$ funksiyaning aniqlanish sohasi $[-2;6]$ oraliq bo'lsa, $y=-\frac{1}{2}f(3-2x)+5$ funksiyaning aniqlanish sohasini toping.

A) $\left[-\frac{3}{5};\frac{5}{2}\right]$ B) $[-9;7]$ C) $[0;4]$ D) $[-15;1]$

11. Agar $D(f)-$ $y=f(x)$ funksiyasi aniqlanish sohasi bo'lsa, $E(f)$- qiymatlar sohasi uchun to'g'ri tenglikni ko'rsating.

A) $E(f)=\{f(x)\,|\,x\in D(f)\}$
B) $D(f)=\{f(x)\,|\,x\in E(f)\}$
C) $D(f)=\{x\,|\,f(x)\in E(f)\}$
D) $E(f)=\{x\,|\,x\in D(f)\}$

12. $y=\frac{x^3+1}{x+1}$ funksiyaning eng kichik butun qiymatini toping.

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

13. $y=\frac{x^3-64}{x-4}$ funksiyaning eng kichik butun qiymatini toping.

A) 6 B) 9 C) 15 D) 12

14. $y=\dfrac{x^2+1}{x}$ funksiyaning qiymatlar sohasini toping.
A) $(-\infty;0)\cup(0;+\infty)$ B) $(-\infty;-2]\cup[2;+\infty)$
C) $[2;+\infty)$ D) $(-\infty;-2]$

15. $y=\dfrac{3}{x^2+3}$ funksiyaning qiymatlar sohasini toping.
A) $(1;+\infty]$ B) $[1;+\infty)$ C) $(0;1]$ D) $(0;+\infty]$

16. $y=\dfrac{3}{x^2+3}$ funksiyaning qiymatlar sohasiga tegishli bo'lmagan eng kichik butun musbat sonni toping.
A) 3 B) 1 C) 2 D) 4

17. $y=\dfrac{x^2+16}{x}$ funksiyaning qiymatlar sohasiga tegishli bo'lmagan butun sonlar yig'indisini toping.
A) -8 B) 0 C) -2 D) 4

18. $y=\dfrac{x+1}{x}$ funksiyaning qiymatlar sohasini toping.
A) $(-\infty;1)$ B) $(1;+\infty)$
C) $(-\infty;1)\cup(1;+\infty)$ D) $(-\infty;+\infty)$

19. $y=\dfrac{x^3+8}{x+2}$ funksiyaning qiymatlar sohasini toping.
A) $(3;+\infty)$ B) $[3;12)\cup(12;+\infty)$
C) $(-\infty;12)\cup(12;+\infty)$ D) $[-3;12)\cup(12;+\infty)$

20. $y=2-\dfrac{3}{2x^2-8x+9}$ funksiyaning qiymatlar sohasini toping.
A) $[-1;+\infty)$ B) $(-\infty;2]$ C) $[-1;2)$ D) $[-1;2]$

21. $y=4-\dfrac{3}{2x^2-8x+9}$ funksiyaning qiymatlar sohasini toping.
A) $[-1;4)$ B) $(-\infty;4]$ C) $[1;4)$ D) $[-1;4]$

22. $y=|x|+|x-1|+|x-2|$ funksiya x ning qanday qiymatida eng kichik qiymatga erishadi?
A) 0 B) 2 C) 3 D) 1

23. $y=3-\sqrt{16-\sqrt{4x^2-4\sqrt{3}x+3}}$ funksiyaning qiymatlar sohasiga tegishli bo'lmagan eng kichik natural sonni toping?
A) 5 B) 4 C) 3 D) 1

24. $y=3-\sqrt{16-\sqrt{4x^2-4\sqrt{3}x+3}}$ funksiyaning qiymatlar sohasiga tegishli bo'lmagan eng kichik natural va eng katta manfiy butun sonlar nisbatini toping.
A) -1 B) -3 C) -2 D) - 4

25. $y=1-\sqrt{9-\sqrt{2x^2+6\sqrt{2}x+9}}$ funksiyaning qiymatlar sohasiga tegishli bo'lmagan eng kichik natural va eng katta manfiy butun sonlar nisbatini toping.
A) - 4 B) - 5 C) $-\dfrac{2}{3}$ D) - 6

26. $y=3-\dfrac{5}{\sqrt{x+1}+1}$ funksiyaning qiymatlar sohasiga tegishli butun sonlar yig'indisini toping.
A) 2 B) 0 C) 1 D) 3

27. $y=2-\dfrac{5}{\sqrt{x-2}+1}$ funksiyaning qiymatlar sohasini toping.
A) $[-3;+\infty)$ B) $(-\infty;2)$ C) $[-3;2)$ D) $[-2;2)$

28. $y=\sqrt{x^2-2x+1}+\sqrt{x^2-6x+9}$ funksiyaning qiymatlar sohasini toping.
A) $[1;\infty)$ B) $[3;\infty)$ C) $[4;\infty)$ D) $[2;\infty)$

29. $y=\sqrt{x^2+2x+1}+\sqrt{x^2-6x+9}$ funksiyaning eng kichik qiymatini toping.
A) 1 B) 2 C) 4 D) 3

30. $f(x)=\dfrac{x^2-ax+1}{x^2+x+1}$ funksiyaning qiymatlar to'plami $(-3;3)$ interval bo'ladigan a ning barcha qiymatlarini toping.
A) $a\in(-2;1)$ B) $a\in[-2;1)$
C) $a\in(-5;1)$ D) $(-2;2)$

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31. $y=4\cos^2 x+\sin^2 x$ funksiya butun qiymatlari yig'indisini toping.
A) bunday qiymatlar cheksiz ko'p B) 10
C) 9 D) bunday qiymatlar mavjud emas

32. $y=\sqrt{4\cos x-3\sin x}-1$ funksiyaning eng katta qiymatini toping.
A) 4 B) $\sqrt{5}-1$ B) $2\sqrt{3}-1$ D) 5

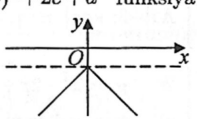
33. $y=\ln\left(6+2\left(\sin^2 x-3\sin 4x\right)+\cos 8x+\cos 2x\right)$ funksiyaning qiymatalr sohasiga kirmaydigan eng kichik butun sonni toping.
A) 3 B) -3 C) 2 D) 2

34. $y=\ln\left(-6\sin^2 x+0{,}75\cos^2 2x+5{,}25\right)$ funksiyaning qiymatlar sohasiga tegishli butun sonlar nechta?
A) 1 B) 3 C) 2 D) cheksiz ko'p

35. $y=1+2\left(\sin^2 x-3\sin 4x\right)+\cos 8x+\cos 2x$ funksiyaning qiymatlar sohasiga tegishli nomanfiy butun sonlar nechta?
A) 6 ta B) 8 ta C) 7 ta D) 9 ta

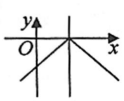
36. $y=\sqrt{6+2\left(\sin^2 x-3\sin 4x\right)+\cos 2x+\cos 8x}$ funksiyaning eng katta qiymati a bo'lsa, a^2 ni toping.
A) 14 B) 9 C) 12 D) 4

37. Rasmda $y=a\cdot\sqrt{(x-b)^2+2c}+d$ funksiya grafigi tasvirlangan. Quyidagi javoblardan qaysi biri doim noto'g'ri?



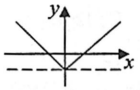
A) $bc+a<0$ B) $a+d\sqrt{c}\le 0$
C) $a\sqrt{c}+d<0$ D) $ab+c<0$

38. Rasmda $y=a\sqrt{\left(x-b\right)^2+c}+d$ funksiya grafigi tasvirlangan. Quyidagi javoblardan qaysi biri doimo noto'g'ri?



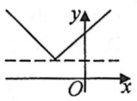
A) $\frac{bc}{a}\le 0$ B) $a\sqrt{c}+d=0$
C) $bc+a<0$ D) $(b-a)\cdot c<0$

39. Rasmda $y=a\sqrt{\left(x-b\right)^2+c}+d$ funksiyaning grafigi tasvirlangan. Quyidagi javoblardan qaysi biri doimo o'rinli.



A) $\frac{dc}{a}<0$ B) $\frac{bc}{a}<0$
C) $ad<0$ D) $abc>0$

40. Rasmda $y=a\sqrt{\left(x-b\right)^2+c}+d$ funksiya grafigi tasvirlangan. Quyidagi javoblardan qaysi biri doimo noto'g'ri?



A) $a-bc\le 0$ B) $a\sqrt{c}+d>0$
C) $2ad+bc>0$ D) $a^2bc\le 0$

★41. $y=4x-13$ va $y=-5-6x$ funksiyalarning grafiklari qaysi koordinatalar choragida kesishadi?
A) II B) III C) IV D) I

42. x ning barcha qiymatlarida $x^2+2zx+1$ kvadrat uchhad musbat, z ning barcha qiymatlarini toping.
★A) (0;1) B) (-1;1) C) [0;1] D) [-1;1]

43. $f(x)=x^2-4x$ va $f(x)=-2x^2+8x-p$ funksiyalar umumiy uchga ega bo'lsa, p ning qiymatini toping.
A) 12 B) 6 C) 18 D) 24

44. $g(x)=mx^2-(m-12)x-2$ funksiyaning simmetrik o'qi tenglamasi $x=-1$ bo'lsa, m ning qiymatini toping.
A) 2 B) 4 C) 8 D) 16

45. Agar $f(x)=mx^2-(m-14)x-2$ parabolaning simmetriya o'qi tenglamasi $x=-3$ bo'lsa, m ning qiymatini toping.
A) 5,4 B) 4 C) 2 D) 3

46. Agar $f(x)=mx^2-(m-9)x-2$ parabolaning simmetriya o'qi tenglamasi $x=-1$ bo'lsa, m ning qiymatini toping.
A) 3 B) 2 C) 5 D) 9

47. Agar $f(x)=mx^2-(m-10)x-2$ parabolaning simmetriya o'qi tenglamasi $x=-2$ bo'lsa, m ning qiymatini toping.
A) 1,2 B) 3 C) 2 D) 1,8

48. Agar $f(x)=(m-2)x^2+8x-m^2+4$ funksiya grafigi koordinatalar boshidan o'tsa, simmetriya o'qi tenglamasi toping.
A) $x=1$ B) $x=-1$ C) $x=0$ D) $x=3$

49. $f(x)=-3x^2+9x+t-1$ funksiyaning maksimumi 6 ga teng. t ning qiymatini toping.
A) 1 B) 2 C) 0,75 D) 0,25

50. $f(x)=-3x^2+9x+t-3$ funksiyaning maksimumi 4 ga teng. t ning qiymatini toping.
A) 0,75 B) 1 C) 2 D) 0,25

51. $f(x)=-3x^2+9x+t-3$ funksiyaning maksimumi 3 ga teng. t ning qiymatini toping.
A) -0,75 B) -1 C) -2 D) -1,75

52. $f(x)=-3x^2+9x+t-3$ funksiyaning maksimumi 5 ga teng. t ning qiymatini toping.
A) 1,25 B) 1 C) 2 D) 1,75

52. $y=x^2+2x+4$ va $y=x^2+4x+2$ parabolalarning umumiy urinmasi tenglamasini yozing.

A) $y=6x+2$ B) $y=5x+\frac{3}{4}$
C) $y=5x+\frac{7}{4}$ D) $y=\frac{7}{4}x+5$

53. $f(x)=ax^2+bx+c$ funksiya uchun $a\neq 0$ va barcha x lar uchun $f(x)<0$ (ekanligi ma'lum) bo'lsa quyidagilarning qaysi biri doim o'rinli?
A) $a(a+b+c)<0$ B) $a\cdot c<0$
C) $\frac{b}{c}<\frac{c}{a}+1$ D) $(a-b+c)\cdot c<0$

54. Agar $f(x)=a\sin x+b\sin 2x-2$ funksiya uchun $f(-3)=-2$ shart bajarilsa, $f(3)$ qiymatini toping.
A) -2 B) -1 C) 1
D) bir qiymatli aniqlanmaydi

55. Asimptotalaridan biri $y=2$ bo'lgan va $N(0;-2)$, $M(-1;0)$ nuqtalardan o'tuvchi giperbolaning ordinatasi $y=3$ nuqtasining absissasini toping.
A) 5 B) -5 C) 4 D) 6

56. Agar $a>0$ bo'lsa, $y=\frac{a}{|x-a|}$ funksiyaning vertikal asimptotasini toping.
A) $x=a$ B) $y=1-a$ C) $y=-a$ D) $x=-a$

57. Agar $a>0$ bo'lsa, $y=\frac{a}{|x+a|}$ funksiyaning vertikal asimptotasini toping.
A) $x=a$ B) $y=-a$
C) $y=1-a$ D) $x=-a$

58. Agar $a>1$ bo'lsa, $y=\log_a(x-a)$ funksiyaning vertikal asimptotasini toping.
A) $y=1-a$ B) $x=a$ C) $y=a$ D) $x=-a$

59. $f(x)=ax^2+x+b$ kvadrat uchhad uchun quyidagini hisoblang.
$f(1)+f(4)+f(6)+f(7)-f(2)-f(3)-f(5)-f(8)$
A) 1 B) 0 C) -1 D) a,b ga bog'liq

60. Agar $f(a,b,c)=\frac{a}{b-c}$ bo'lsa,
$f(f(1,2,3),f(2,3,1),f(3,1,2))$ ni toping.
A) 1 B) 0 C) $-\frac{1}{2}$ D) $-\frac{1}{4}$

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61. $f(x)=ax+b$ funksiya uchun $f(1)\leq f(2)$, $f(4)\leq f(3)$, $f(2017)=1$ shartlar bajarilsa, $f(4)-f(2)$ ni toping.
A) 0 B) 1 C) 2 D) 3

62. $f(x)=\cos^4 x+\sin^4 x$ funksiya berilgan. Agar $\sin 2\alpha=\frac{2}{3}$ ekanligi ma'lum bo'lsa, $f(\alpha)$ ni toping.

A) $\frac{2}{3}$ B) $\frac{1}{3}$ C) $\frac{7}{9}$ D) 1

63. $f(0)=15$, $f(2)=30$ va $f(4)=90$, $f(x)=a+b\cdot c^x$ bo'lsa, $f(x)$ ni ko'rinishini toping.
A) $f(x)=10+5\cdot 2^x$ B) $f(x)=5+10\cdot 2^x$
C) $f(x)=2+10\cdot 5^x$ D) $f(x)=5+2\cdot 5^x$

64. $f(x)=\begin{cases}2ax+3, & x\leq 2\\ b^2x+2\\ x^2+bx+1, & x>2\end{cases}$ funksiya berilgan $f(1)=2$ va $f(3)=4$ bo'lsa, $a+b$ ning qiymatini toping.
A) 1,(6) B) 5 C) 6,5 D) 2,5

65. Agar $f(x)=7x^2+4x+5$ bo'lsa, $f(\cos x)$ ni toping.
A) $7\cos^2 x-4\cos x+5$ B) $12+4\cos x-7\sin^2 x$
C) $2+4\cos x-7\sin^2 x$ D) $7\cos^2 x+4\cos x-5$

66. Agar $f(x)=\frac{x^2}{\sqrt{1+x^2}}$ bo'lsa, $f(ctgx)$ ni toping.

A) $f(ctgx)=\sin x tgx$ B) $f(ctgx)=\cos x$
C) $f(ctgx)=\cos x ctgx$ D) $f(ctgx)=tgx$

67. Agar $f(x)=\frac{x^2}{\sqrt{1+x^2}}$ bo'lsa, $f(tgx)$ ni toping.

A) $f(tgx)=\frac{1}{tgx}$ B) $f(tgx)=1$
C) $f(tgx)=\sin x$ D) $f(tgx)=\sin x\cdot tgx$

68. $f(x)=\frac{x^2+x}{x+4}$, $g(x)=\frac{x+4}{x^2+x}$ funksiyalar bir xil qiymat qabul qiladigan x ning haqiqiy qiymatlari ko'paytmasini toping.

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

69. $f(x)=\frac{x^2+x}{x+9}$, $g(x)=\frac{x+9}{x^2+x}$ funksiyalar bir xil qiymat qabul qiladigan x ning haqiqiy qiymatlari ko'paytmasini toping.

A) 18 B) -9 C) -3 D) 6

70. $y=f(x)$ funksiya D to'plamda yuqoridan chegaralangan bo'lsin. U holda qaysi munosabat ixtiyoriy $x\in D$ uchun o'rinli?

A) biror K haqiqiy soni uchun $f(x)<K$
B) biror K haqiqiy soni uchun $|f(x)|>K$
C) biror K musbat haqiqiy son uchun $|f(x)|>K$
D) biror K musbat haqiqiy son uchun $|f(x)|<K$

71. $y=f(x)$ funksiya D to'plamda quyidan chegaralangan bo'lsin. U holda qaysi munosabat ixtiyoriy $x\in D$ uchun o'rinli?

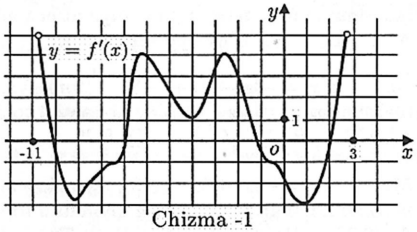
A) biror K haqiqiy soni uchun $f(x)>K$
B) biror K haqiqiy soni uchun $|f(x)|>K$
C) biror K musbat haqiqiy son uchun $|f(x)|>K$
D) biror K musbat haqiqiy son uchun $|f(x)|<K$

72. $y=f(x)$ funksiya D to'plamda chegaralangan bo'lsin. U holda qaysi munosabat ixtiyoriy $x\in D$ uchun o'rinli?

A) biror K haqiqiy soni uchun $f(x)<K$
B) biror K haqiqiy soni uchun $|f(x)|>K$
C) biror K musbat haqiqiy son uchun $|f(x)|>K$
D) biror K musbat haqiqiy son uchun $|f(x)|<K$

73. "Chizma-1" da $(-11;3)$ oraliqda aniqlangan $f(x)$ funksiya hosilasining grafigi tasvirlangan. Nechta nuqtada $f(x)$ funksiya grafigiga urinma $y=-x-3$ to'g'ri chiziqqa parallel bo'ladi yoki u bilan ustma-ust tushadi?

A) 0 B) 1 C) 6 D) 4



Chizma -1

74. "Chizma-1" da $(-11;3)$ oraliqda aniqlangan $f(x)$ funksiya hosilasining grafigi tasvirlangan. Nechta nuqtada $f(x)$ funksiya grafigiga urinma $y=x-3$ to'g'ri chiziqqa parallel bo'ladi yoki u bilan ustma-ust tushadi?

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

75. "Chizma-1" da $(-11;3)$ oraliqda aniqlangan $f(x)$ funksiya hosilasining grafigi tasvirlangan. Nechta nuqtada $f(x)$ funksiya grafigiga urinma $y=-2x-1$ to'g'ri chiziqqa parallel bo'ladi yoki u bilan ustma – ust tushadi?

A) 6 B) 4 C) 0 D) 1

76. "Chizma-1" da $(-11;3)$ oraliqda aniqlangan $f(x)$ funksiya hosilasining grafigi tasvirlangan. Nechta nuqtada $f(x)$ funksiya grafigiga urinma $y=-x-3$ to'g'ri chiziqqa parallel bo'ladi yoki u bilan ustma – ust tushadi?

A) 6 B) 4 C) 0 D) 1

77. "Chizma-1" da $(-11;3)$ oraliqda aniqlangan $f(x)$ funksiya hosilasining grafigi tasvirlangan. Nechta nuqtada $f(x)$ funksiya grafigiga urinma $y=2x+3$ to'g'ri chiziqqa parallel bo'ladi yoki u bilan ustma – ust tushadi?

A) 6 B) 4 C) 0 D) 1

78. $y=\sin^2 x$ funksiya grafigi berilgan bo'lib, uni parallel ko'chirish yordamida $y=\sin^2(x+a)-b$ funksiya grafigi hosil qilingan. Bunday parallel ko'chirishda koordinata boshi qanday nuqtaga ko'chadi?

A) $N(b;a)$ B) $N(-a;-b)$
C) $N(a;b)$ D) $N(-a;b)$

79. $y=\sin^2 x$ funksiya grafigi berilgan bo'lib, uni parallel ko'chirish yordamida $y=\sin^2(x+a)+b$ funksiya grafigi hosil qilingan. Bunday parallel ko'chirishda koordinata boshi qanday nuqtaga ko'chadi?

A) $N(b;a)$ B) $N(-a;-b)$
C) $N(a;b)$ D) $N(-a;b)$

80. $y=\cos^2 x$ funksiya grafigi berilgan bo'lib, uni parallel ko'chirish yordamida $y=\cos^2(x-a)-b$ funksiya grafigi hosil qilingan. Bunday parallel ko'chirishda koordinata boshi qanday nuqtaga ko'chadi?

A) $N(b;a)$ B) $N(-a;-b)$
C) $N(a;-b)$ D) $N(-a;b)$

81. $y=\ln^3 x$ funksiya grafigi berilgan bo'lib, uni parallel ko'chirish yordamida $y=\ln^3(x-a)+b$ funksiya grafigi hosil qilingan. Bunday parallel ko'chirishda koordinata boshi qanday nuqtaga ko'chadi? Bunda, $x>a, x>0$

A) $N(b;a)$ B) $N(a;-b)$
C) $N(a;b)$ D) $N(-a;b)$

82. $y=\ln^4 x$ funksiya grafigi berilgan bo'lib, uni parallel ko'chirish yordamida $y=\ln^4(x+a)+b$ funksiya grafigi hosil qilingan. Bunday parallel ko'chirishda koordinata boshi qanday nuqtaga ko'chadi? Bunda, $x>-a, x>0$

A) $N(b;a)$ B) $N(a;-b)$
C) $N(a;b)$ D) $N(-a;b)$

83. $y=f(x)$ funksiya grafigi berilgan bo'lib, uni parallel ko'chirish yordamida $y=f(x-m)-n$ funksiya grafigi hosil qilingan. Bunday parallel ko'chirishda koordinata boshi qanday nuqtaga ko'chadi?

A) $N(-m;-n)$ B) $N(m;n)$
C) $N(m;-n)$ D) $N(-m;n)$

84. $y=g(x)$ funksiya grafigi berilgan bo'lib, uni parallel ko'chirish yordamida $y=g(x+a)+b$ funksiya grafigi hosil qilingan. Bunday parallel ko'chirishda koordinata boshi qanday nuqtaga ko'chadi?

A) $N(b;a)$ B) $N(-a;-b)$
C) $N(a;b)$ D) $N(-a;b)$

85. $y=x^2-4x+7$ funksiya grafigining $(1;1)$ nuqtaga nisbatan simmetriyasini toping.

A) $y=x^2+1$ B) $y=x^2+4x+7$
C) $y=-x^2+4x-7$ D) $y=-x^2-1$

86. $y=f(x)$ funksiya D to'plamda noqat'iy o'suvchi bo'lsin. D to'plamdan olingan ixtiyoriy a va b elementlar uchun $(a>b)$ quyidagi munosabatlardan qaysi biri o'rinli?

A) $f(b)\le f(a)$ B) $f(b)<f(a)$
C) $f(a)=f(b)$ D) $f(a)\le f(b)$

87. $y=f(x)$ funksiya D to'plamda o'suvchi bo'lsin. D to'plamdan olingan ixtiyoriy a va b elementlar uchun $(a>b)$ quyidagi munosabatlardan qaysi biri o'rinli?

A) $f(a)<f(b)$ B) $f(b)<f(a)$
C) $f(a)=f(b)$ D) $f(a)\le f(b)$

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88. Har qanday $x\in(x_1;x_2)$ uchun $y=f(x)$ funksiya hosilasi manfiy bo'lsin. $(x_1;x_2)$ oraliqqa tegishli ixtiyoriy a va b $(a<b)$ uchun qanday tengsizlik o'rinli?

A) $f(b)\ge f(a)$ B) $f(b)<f(a)$
C) $f(a)<f(b)<0$ D) $f(a)<f(b)$

89. Har qanday $x\in(x_1;x_2)$ uchun $y=f(x)$ funksiya hosilasi musbat bo'lsin. $(x_1;x_2)$ oraliqqa tegishli ixtiyoriy a va b $(a>b)$ uchun qanday tengsizlik o'rinli?

A) $f(b)\ge f(a)$ B) $f(b)<f(a)$
C) $0<f(a)<f(b)$ D) $f(a)<f(b)$

90. $[1;10]$ kesmada berilgan $f(x)$ funksiyaning eng katta va eng kichik qiymatlari teng bo'lsin. U holda $f(9)-f(5)$ ifodaning eng katta qiymatini toping.

A) 4 B) $f(4)$ C) 0 D) 9

91. $[1;10]$ kesmada berilgan $f(x)$ funksiyaning eng katta va eng kichik qiymatlari teng bo'lsin. U holda $f(8)-f(2)$ ifodaning eng katta qiymatini toping.

A) 4 B) $f(4)$ C) 0 D) 9

KO'RSATKICHLI TENGLAMA VA TENGSIZLIKLAR

1. Agar $\frac{4^x+8^x+12^x}{5^x+10^x+15^x}=\frac{250}{128}$ bo'lsa, x ni toping.
A) -2 B) 4 C) -5 D) -3

2. Agar $\frac{4^x+8^x+12^x}{5^x+10^x+15^x}=\frac{128}{250}$ bo'lsa, x ni toping.
A) 4 B) 5 C) 3 D) 2

3. Agar $\frac{3^x+6^x+9^x}{5^x+10^x+15^x}=\frac{50}{18}$ bo'lsa, x ni toping.
A) 4 B) 5 C) 3 D) -2

4. Agar $\frac{3^x+6^x+9^x}{5^x+10^x+15^x}=\frac{18}{50}$ bo'lsa, x ni toping.
A) 4 B) 5 C) 3 D) 2

5. Agar $2^x=a$ bo'lsa, $2^{2(x+2)}$ ni a orqali ifodalang.
A) $4a^2$ B) $16a^2$ C) $32a^2$ D) $8a^2$

6. $|x-2|^{10x^2-3x-1}=1$ tenglamaning nechta butun yechimi ega?
A) 4 B) 3 C) 2 D) 1

7. $x^{x^2-x-6}=1$ tenglamaning ildizlari ko'paytmasini toping $(x>0)$.
A) 6 B) -6 C) 3 D) ∅

8. $3^{|x|}=\cos x$ tenglamani yeching.
A) $x=0$ B) $\frac{\pi}{2}+\pi k, k\in Z$
C) ∅ D) $2\pi k, k\in Z$

9. $3^{|x|}=\cos x$ tenglama nechta ildizga ega.
A) 1 B) 2 C) 5 D) ∞

10. $\frac{3^x}{3^x-2^x}<3$ tengsizlikning eng katta butun manfiy va eng kichik butun musbat yechimlari ko'paytmasini toping.
A) -2 B) 2 C) 4 D) -1

11. $\frac{5^x}{5^x-4^x}<5$ tengsizlikning eng katta butun manfiy va eng kichik butun musbat yechimlari yig'indisini toping.
A) 1 B) -3 C) 2 D) -1

12. $\frac{7^x}{7^x-6^x}<7$ tengsizlikning eng katta butun manfiy va eng kichik butun musbat yechimlari ko'paytmasini toping.
A) -2 B) 2 C) 4 D) 1

13. $\frac{2^x-3^x}{3\cdot 2^{x-1}}>3+\left(\frac{2}{3}\right)^x$ tengsizlikning butun sonlardan iborat yechimlari nechta?
A) 2 B) 1 C) 3 D) 0

14. $\frac{3\cdot 2^{2x-1}}{4^x-9^x}>3+\left(\frac{4}{9}\right)^x$ tengsizlikning butun sonlardan iborat yechimlari nechta?
A) 2 B) 1 C) 3 D) 0

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15. $\frac{2^{x-1}-1}{2^{x-1}+1}<2$ tengsizlikni yeching.
A) ∅ B) $(-\infty;0)$ C) $(-\infty;\infty)$ D) $(0;\infty)$

16. $\frac{3^{x-1}-1}{3^{x+1}+1}<3$ tengsizlikni yeching.
A) ∅ B) $(-\infty;0)$ C) $(-\infty;\infty)$ D) $(0;\infty)$

17. $\left(\sqrt{5}-2\right)^{x^2}<\left(\sqrt{5}-2\right)^{2x}$ tengsizlikning yechimi bo'lmaydigan natural sonlarni toping.
A) 1; 2; 3 B) 2; 3 C) 1; 2 D) 1; 3

LOGARIFMLAR

1. $\log_7(\log_2 10\cdot\lg 2)$ ni hisoblang.
A) 1 B) 0 C) $\log_7 2$ D) 2

2. $\log_3 10\cdot\lg 9$ dan kichik bo'lgan natural sonlar nechta?
A) 1 B) 2 C) 0 D) 3

3. $\log_5 10\cdot\lg 8$ dan katta bo'lmagan natural sonlar nechta?
A) 1 B) 3 C) 0 D) 2

4. $\log_3(\log_3 10\cdot\lg 27)$ ni hisoblang.
A) $\log_3 2$ B) 1 C) 2 D) 4

5. $\log_{\sqrt{6}-\sqrt{5}}(241+44\sqrt{30})$ ni hisoblang.
A) 4 B) -5 C) -4 D) 6

6. $\log_{\sqrt{3}-\sqrt{2}}(49+20\sqrt{6})$ ni hisoblang.
A) 4 B) 5 C) -4 D) 2

7. $\log_{\sqrt{3}+\sqrt{2}}(49-20\sqrt{6})$ ni hisoblang.
A) 4 B) 5 C) -4 D) 2

8. $\log_{\sqrt{3}+1}(28+16\sqrt{3})$ ni hisoblang.
A) 4 B) 5 C) -4 D) 2

9. $\log_2\left(\frac{1+\sqrt{7}}{\sqrt{4+\sqrt{7}}}-\frac{1-\sqrt{5}}{\sqrt{3-\sqrt{5}}}\right)$ hisoblang.
A) 1 B) -1,2 C) 1,5 D) 0

10. $\frac{\lg(2\cos 15^0)}{\lg(2\sin 15^0)}$ ni hisoblang.
A) 3 B) 1 C) -1 D) -2

11. Agar $a, b, c>0$ va $a^b=81$, $b^c=2$, $a^c=3$ teng bo'lsa, $(4c)^c$ ni toping.
A) 2 B) 8 C) 3 D) 4

12. Agar $\log_3 5=a$, $\log_{25}8=b$ bo'lsa, $\log_2 3$ ni a va b orqali ifodalang
A) $\frac{3ab}{2}$ B) $\frac{2ab}{3}$ C) $\frac{3}{2ab}$ D) $\frac{2}{3ab}$

13. Agar $\log_9 5=a$, $\log_{25}8=b$ bo'lsa, $\log_2 3$ ni a va b orqali ifodalang.
A) $\frac{3ab}{4}$ B) $\frac{4ab}{3}$ C) $\frac{3}{4ab}$ D) $\frac{4}{3ab}$

14. Agar $\log_9 25=a$, $\log_{25}8=b$ bo'lsa, $\log_2 3$ ni a va b orqali ifodalang.
A) $\frac{3}{2ab}$ B) $\frac{2}{3ab}$ C) $\frac{3ab}{2}$ D) $\frac{2ab}{3}$

15. Agar $\log_3 25=a$, $\log_{25}8=b$ bo'lsa, $\log_2 3$ ni a va b orqali ifodalang.
A) $\frac{3}{ab}$ B) $\frac{1}{3ab}$ C) $\frac{3ab}{2}$ D) $\frac{ab}{3}$

16. Ayrim a, b, c, d sonlar uchun $a\lg 2+b\lg 3+c\lg 5+d\lg 7=2017$ bo'lsa, $a+b+c+d$ ni toping
A) 4025 B) 4034 C) 2017 D) 0

17. $64-x^{5-\log_2 x}=0$ tenglamaning ildizlari ko'paytmasini toping.
A) 8 B) 64 C) 32 D) 16

18. $5\cdot x^{\log_5 4}-7\cdot 2^{\log_5 x}-6=0$ tenglama ildizlari ko'paytmasini (agar ildizi bitta bo'lsa ildizini) toping.
A) 10 B) 5 C) 1 D) 25

19. $2\lg x^2-\left(\lg(-x)\right)^2=4$ tenglamani yeching.
A) -100 B) -1 C) -4 D) -10

20. $\log_2\left(2\sqrt{x+5}+5\right)+\log_{0,5}(-x-5)=1$ butun yechimlari nechta?
A) 1 B) 0 C) 2 D) 3

21. $\log_2\left(2\sqrt{x+5}+5\right)+\log_{0,5}(-x-0,5)=1$ butun yechimlari nechta?
A) 1 B) 0 C) 2 D) 3

22. $x\cdot\lg 10^{x+3}+\lg 100=0$ tenglamaning ildizlari yig'indisini toping.
A) -1 B) -3 C) -2 D) -4

23. x qaysi oraliqa tegishli: $x^{\frac{1}{\lg x}}=10$
A) $(0;1)\cup(1;\infty)$ B) $(0;1)$ C) $(1;\infty)$ D) $\varnothing$

24. $\log_2\left(x^2-4x\right)^2=2\log_2(18-5x)$ tenglamaning kichik ildizini toping:
A) $\frac{-1-\sqrt{73}}{2}$ B) $\frac{-1+\sqrt{73}}{2}$
C) $\frac{-1-\sqrt{73}}{3}$ D) $\frac{-1+\sqrt{73}}{3}$

25. $\frac{1}{\lg x+1}+\frac{6}{\lg x+5}=1$ tenglama ildizlari ko'paytmasini toping.
A) 0,1 B) 10 C) 0,01 D) 100

26. $\begin{cases}x+y=7\\ \lg x+\lg y=1\end{cases}$ tenglamalar sistemasining yechimlaridan iborat barcha x va y larning yig'indisini toping.
A) 20 B) 14 C) 7 D) 12

27. $\begin{cases}x-y=3\\ \lg x+\lg y=1\end{cases}$ tenglamalar sistemasining yechimlaridan iborat barcha x va y larning yig'indisini toping.
A) 10 B) 14 C) 7 D) 6

28. $\log_x 8>3$ tengsizlikni yeching.
A) $(2;+\infty)$ B) $(2;3)$ C) $(0;2)$ D) $(1;2)$

29. $\log_{3,5}\left(\sqrt{2x+3}-x\right)>0$ tengsizlikni yeching
A) $\left[-1,5;\sqrt{2}\right)$ B) $(0;2)$ C) $[0;2)$ D) $[3;5)$

30. $\log_2^4 x-\log_{0,5}^2\frac{x^3}{8}+9\log_2\frac{32}{x^2}<4\log_{0,5}^2 x$ tengsizlikning eng katta natural yechimini toping.
A) 7 B) 6 C) 8 D) 5

31. $x\cdot 5^{\log_x 6}<30$ tengsizlikni butun sonlardan iborat yechimlari nechta?
A) 0 B) 1 C) 2 D) 5

32. $x\cdot 2^{\log_x 3}<6$ tengsizlikni butun sonlardan iborat yechimlari nechta?
A) 0 B) 1 C) 2 D) 3

33. $x\cdot 6^{\log_x 7}\le 42$ tengsizlikni butun sonlardan iborat yechimlari nechta?
A) 0 B) 1 C) 2 D) 5

34. $x^{\lg^2 x-4\lg x+1}>10000$ tengsizlikning eng kichik natural yechimini toping.
A) 1001 B) 10001 C) 100 D) 10000

35. $x^{\lg^2 x-4\lg x+1}<10000$ tengsizlikning eng katta natural yechimini toping.
A) 1001 B) 10001 C) 999 D) 9999

36. $3^{\log_9 x\cdot\log_3(2x^2-7x+12)}-x\le 0$ tengsizlikni yeching.

A) $\left(0;\frac{1}{2}\right]\cup(2;3]$ B) $[1;3]$

C) $\left(0;\frac{1}{2}\right]\cup[1;3]$ D) $\left(0;\frac{1}{2}\right]\cup\left[1;\frac{3}{2}\right)\cup(2;3]$

TRIGONAMETRIYA

1. $tg4\alpha=-\frac{2}{3}$. bo'lsa, $ctg\alpha-tg\alpha-2tg2\alpha$ ning qiymatini toping.
A) -8 B) -6 C) -12 D) -2

2. Agar $ctg4\alpha=-\frac{1}{2}$ bo'lsa, $ctg\alpha-tg\alpha-2tg2\alpha$ ning qiymatini toping.
A) -2 B) -8 C) -6 D) -12

3. Agar $tg4\alpha=-\frac{1}{3}$ bo'lsa, $ctg\alpha-tg\alpha-2tg2\alpha$ ning qiymatini toping.
A) -2 B) -8 C) -6 D) -12

4. Agar $tg4\alpha=-\frac{2}{5}$ bo'lsa, $ctg\alpha-tg\alpha-2tg2\alpha$ ning qiymatini toping.
A) -5 B) -8 C) -10 D) 12

5. Agar $tg\alpha=-2$ bo'lsa, $\frac{3\cos 2\alpha+2}{1-3\cos^2\alpha}$ ning qiymatini toping.
A) 0,5 B) -3,16 C) -0,5 D) -0,95

6. Agar $tg\alpha=-2$ bo'lsa, $\frac{2\cos 2\alpha+1}{1-3\cos^2\alpha}$ ning qiymatini toping.
A) -0,95 B) -1,75 C) -0,5 D) -3,16

7. Agar $tg\alpha=-4$ bo'lsa, $\frac{2\cos 2\alpha-1}{2-9\cos^2\alpha}$ ning qiymatini toping.
A) -0,5 B) -9,5 C) -3,16 D) -1,88

8. Agar $\cos\left(\frac{\pi}{4}-\alpha\right)=\sqrt{\frac{3}{8}}$ bo'lsa, $\sin 2\alpha$ ning qiymatini toping
A) -0,75 B) 0,25 C) -0,5 D) -0,25

9. Agar $\sin\left(\frac{\pi}{4}-\alpha\right)=\sqrt{\frac{3}{8}}$ bo'lsa, $\sin 2\alpha$ ning qiymatini toping.
A) 0,5 B) 0,25 C) -0,5 D) -0,75

10. Agar $\cos\left(\frac{\pi}{4}-\alpha\right)=\sqrt{\frac{1}{8}}$ bo'lsa, $\sin 2\alpha$ ning qiymatini toping.
A) -0,5 B) -0,75 C) 0,25 D) 0,75

11. $3\left(\sin^4\alpha+\cos^4\alpha\right)-2\left(\sin^6\alpha+\cos^6\alpha\right)$ ifodaning $\alpha=\frac{7\pi}{12}$ bo'lgandagi qiymatini toping.
A) 1 B) $\frac{\sqrt{3}}{2}$ C) $\sqrt{3}$ D) $\frac{\sqrt{2}}{2}$

12. $\cos 9\alpha=4\cos\alpha$ bo'lsa, $\left(4\cos^2 3\alpha-3\right)\times\left(4\cos^2\alpha-3\right)$ ning qiymatini toping.
$\alpha\ne\frac{\pi}{2}+\pi n, n\in Z$
A) 2 B) 4 C) -2 D) -4

13. $\sin\frac{(x-y)}{2}\cdot\sin\frac{(y-z)}{2}\cdot\sin\frac{(z-x)}{2}=\frac{1}{4}$ bo'lsa, $\sin(x-y)+\sin(y-z)+\sin(z-x)$ ning qiymatini toping.
A) 2 B) 1 C) -1 D) -2

14. $\alpha+\beta+\gamma=\pi$, $\cos\alpha\cos\beta\cos\gamma=-\frac{1}{2}$ bo'lsa, $\sin^2\alpha+\sin^2\beta+\sin^2\gamma$ ning qiymatini toping.
A) $\sqrt{2+\sqrt{2}}$ B) 2 C) $-\sqrt{2}$ D) 1

15. $\sin^4 4\alpha-\cos^4 4\alpha+\sin 8\alpha$ ifodani soddalashtiring.

A) $\sin(4\alpha-45^0)$ B) $\sqrt{2}\sin(8\alpha-45^0)$
C) $\sqrt{2}\cos(8\alpha-45^0)$ D) $\sqrt{2}\sin(45^0-8\alpha)$

16. $\cos^2 2\alpha+\sin 4\alpha-\sin^2 2\alpha$ ifodani soddalashtiring.

A) $\sqrt{2}\cos\left(4\alpha+\frac{\pi}{4}\right)$ B) $\sqrt{2}\cos\left(4\alpha-\frac{\pi}{4}\right)$
C) $\cos\left(4\alpha+\frac{\pi}{4}\right)$ D) $\sqrt{2}\sin\left(4\alpha-\frac{\pi}{4}\right)$

17. $\cos^2\alpha+\cos^2\beta+\cos^2(\alpha+\beta)-2\cos\alpha\cos\beta\times$ $\times\cos(\alpha+\beta)$ ifodani soddalashtiring.
A) $1-\sin\alpha\sin\beta$ B) 1 C) 0 D) $\cos(\alpha+\beta)$

18. $\cos^2\alpha-\frac{1+\cos\alpha}{1-\cos\alpha}\cdot tg^2\frac{\alpha}{2}$ ni soddalashtiring.
A) $\cos^2\alpha$ B) $-\sin^2\alpha$ C) $tg\alpha$ D) $\sin\alpha$

19. Ifodani soddalashtiring:
$\frac{tg(x+y)-tgx-tgy}{tgxtg(x+y)}$, $x,y\in\left(\frac{3\pi}{2};2\pi\right)$
A) tgx B) tgy C) $ctgx$ D) $ctgy$

20. Ifodani soddalashtiring:
$\frac{tg(\alpha+\beta)-tg\alpha-tg\beta}{tg\beta\cdot tg(\alpha+\beta)}$, $\alpha,\beta\in\left(\frac{3\pi}{2};2\pi\right)$
A) $tg\alpha$ B) 1 C) $-tg\alpha$ D) $tg\beta$

21. $\frac{tg(\alpha+\beta)-tg\alpha-tg\beta}{tg\beta\cdot tg(\alpha+\beta)}$ ifodaning son qiymatini toping, bu yerda $\alpha=\frac{2\pi}{3}$, $\beta=\frac{3\pi}{5}$
A) $\sqrt{3}$ B) 1 C) $-\sqrt{3}$ D) - 1

22. $3-4\sin^2\alpha$ ifodani ko'paytma ko'rinishiga keltiring.
A) $4\cos(\alpha-60^0)\cdot\sin(\alpha+60^0)$
B) $4\sin(\alpha-60^0)\cdot\cos(\alpha+60^0)$
C) $4\sin(60^0-\alpha)\cdot\sin(\alpha+60^0)$
D) $-4\sin(60^0-\alpha)\cdot\sin(\alpha+60^0)$

23. $4\cos^2\alpha-1$ ifodani ko'paytma ko'rinishiga keltiring.
A) $-4\sin(30^0-\alpha)\cdot\sin(\alpha+30^0)$
B) $4\sin(30^0-\alpha)\cdot\sin(\alpha+30^0)$
C) $4\cos(\alpha-30^0)\cdot\cos(\alpha+30^0)$
D) $4\sin(\alpha-30^0)\cdot\cos(\alpha+30^0)$

24. $4\sin^2\alpha-1$ ifodani ko'paytma ko'rinishiga keltiring.
A) $-4\sin(30^0-\alpha)\cdot\sin(\alpha+30^0)$
B) $4\sin(30^0-\alpha)\cdot\sin(\alpha+30^0)$
C) $4\cos(\alpha-30^0)\cdot\sin(\alpha+30^0)$
D) $4\sin(\alpha-30^0)\cdot\cos(\alpha+30^0)$

25. $3-4\cos^2\alpha$ ifodani ko'paytma ko'rinishiga keltiring.
A) $4\cos(\alpha-30^0)\cdot\sin(\alpha+30^0)$
B) $4\sin(\alpha-30^0)\cdot\sin(\alpha+30^0)$
C) $4\sin(\alpha-30^0)\cdot\cos(\alpha+30^0)$
D) $-4\sin(\alpha-30^0)\cdot\sin(\alpha+30^0)$

26. Qandaydir a,b,c uchun $\cos 4x=a\cos^4 x+$ $+b\cos^2 x+c$ ayniyat bajarilsa, $a+2b$ ni toping.
A) -4 B) -8 C) 0 D) 3

27. Qandaydir a,b,c uchun $\cos 4x=a\cos^4 x+$ $+b\cos^2 x+c$ ayniyat bajarilsa, $a+2b+c$ ni toping.
A) 0 B) -4 C) 3 D) -7

28. Qandaydir a,b uchun $\cos 4x=a\cos^4 x-$ $-8\cos^2 x+b$ ayniyat bajarilsa, a ni toping.
A) 8 B) -8 C) 4 D) -4

29. Qandaydir a,b uchun $\cos 4x=a\cos^4 x-$ $-8\cos^2 x+b$ ayniyat bajarilsa, $a-b$ ni toping.
A) 0 B) 6 C) 3 D) 7

30. Hisoblang: $\cos 20^0+2\cdot\sin^2 55^0-\sqrt{2}\sin 65^0$
A) $\sqrt{2}$ B) 1 C) 2 D) $\sin 5^0$

31. Hisoblang: $\sin 45^0\cdot\sin 15^0\cdot\sin 105^0$.
A) $-\frac{\sqrt{2}}{4}$ B) $\frac{\sqrt{2}}{4}$ C) $-\frac{\sqrt{2}}{8}$ D) $\frac{\sqrt{2}}{8}$

32. Hisoblang: $\cos\frac{4\pi}{7}\cdot\cos\frac{5\pi}{7}\cdot\cos\frac{8\pi}{7}$.
A) $-\frac{1}{8}$ B) $\frac{1}{8}$ C) $-\frac{1}{4}$ D) $\frac{1}{4}$

33. $\cos 80^0\cdot\cos 10^0$ ni hisoblang.
A) $\sin 20^0$ B) $\frac{1}{2}\sin 20^0$ C) $\frac{1}{4}\sin 20^0$ D) $\frac{1}{2}$

34. $ctg70^0+4\cos 70^0$ ni hisoblang.
A) $\sqrt{2}$ B) $\sqrt{3}$ C) $\sqrt{5}$ D) $\sqrt{6}$

35. Hisoblang: $\frac{1}{\sin 10^0}-4\sin 70^0$.
A) 0 B) 1 C) 2 D) 3

36. $ctg60^0+ctg^260^0+ctg^360^0...$ yig'indini hisoblang.

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

37. $tg9+tg15-tg27-ctg27+ctg15+ctg9$ hisoblang.

A) 16 B) 4 C) 8 D) 32

38. Hisoblang: $tg^2\left(\arccos\frac{1}{5}\right)-2$

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

39. Hisoblang: $2\sqrt{13}\cos\left(arctg\frac{2}{3}\right)$

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

40. $\cos3+\cos\{\pi\}$ ni hisoblang.

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

41. $\sin3-\sin\{\pi\}$ ni hisobalng.

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

42. Hisoblang: $\sqrt{\frac{1}{2}-\frac{1}{2}\sqrt{\frac{1}{2}+\frac{1}{2}\cos x}}$, $(\pi<x<2\pi)$

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

43. Hisoblang: $\sqrt{\frac{1}{2}+\frac{1}{2}\sqrt{\frac{1}{2}+\frac{1}{2}\cos2x}}$, $(\frac{3\pi}{2}<x<2\pi)$

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

44. Agar x quyidagi tenglamani qanoatlantirsa, $tg4x$ ning barcha qiymatlari ko'paytmasini toping. $1+\cos4x-3\sin2x=0$

A) 0 B) -3 C) $\sqrt{3}$ D) -1

45. $tg5x=tg(3x+4)$ tenglamaning butun ildizini toping ?

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

46. $\arcsin\left(\frac{x^2}{4}-x\right)=\frac{5\pi}{6}$ tenglamaning ildizlari yig'indisini toping:

A) -4 B) 4 C) 8 D) $\varnothing$

47. $\cos2x=\sin\left(\frac{\pi}{3}+x\right)$ tenglamaning eng kichik musbat ildizini toping.

A) $\frac{\pi}{36}$ B) $\frac{\pi}{6}$ C) $\frac{\pi}{24}$ D) $\frac{\pi}{18}$

48. $3+5\sin2x=\cos4x$ tenglamani $[0;\pi]$ kesmadagi ildizlari sonini toping.

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

49. Agar $\sin x+\cos x=\frac{1}{5}$ bo'lsa, $tg\frac{x}{2}$ ni toping.

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

50. $|\sin x|=\sin x\cdot\cos x$ tenglamani yeching:

A) $2\pi n$ B) $\frac{\pi n}{2}$ C) $\frac{\pi n}{3}$ D) πn

51. $\cos5x\cos3x=\cos5x\cos7x$ tenglamaning eng kichik musbat ildizini toping.

A) $\frac{\pi}{20}$ B) $\frac{\pi}{30}$ C) $\frac{\pi}{10}$ D) $\frac{\pi}{10n}$

52. $3\sin^2x-4\sin x<0$ tengsizlikning $[0;\pi]$ kesmadagi yechimlari to'plamini toping.

A) $\left[\frac{\pi}{6};\frac{\pi}{3}\right]$ B) $\left(0;\frac{\pi}{2}\right]\cup\left[\frac{3\pi}{2};2\pi\right]$

C) $(0;\pi)$ D) $[0;\pi]$

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53. $\alpha=30^0, a=(tg\alpha)^{tg\alpha}, b=(ctg\alpha)^{ctg\alpha}, c=(ctg\alpha)^{tg\alpha}$ bo'lsa, quyidagilardan qaysi biri o'rinli?

A) $b>a>c$ B) $a>c>b$

C) $c>b>a$ D) $b>c>a$

54. $\alpha=37{,}5^0, a=(tg\alpha)^{tg\alpha}, b=(ctg\alpha)^{ctg\alpha}, c=(ctg\alpha)^{tg\alpha}$, bo'lsa, quyidagilardan qaysi biri o'rinli?

A) $a>b>c$ B) $b>c>a$

C) $a>c>b$ D) $c>a>b$

55. $\frac{1}{4}\cos2\alpha-\sin^2\alpha$ ifodaning eng katta qiymatini toping:

A) 0,75 B) 1 C) 0,25 D) 1,5

56. $y=2\cos^2x+\sin^2x$ funksiyanig butun qiymatlari yig'indisini toping.

A) 3 B) bunday qiymatlar mavjud emas

C) 2 D) bunday qiymatlar chaeksiz ko'p

57. $f(x)=\cos^4x+\sin^4x$ agar $\sin2x=\frac{2}{3}$ bo'lsa, $f(x)$ ni toping.

A) $\frac{7}{9}$ B) $\frac{7}{19}$ C) $\frac{9}{7}$ D) $\frac{14}{9}$

58. $\frac{\sin x-\sin y}{1-\sin x\sin y}$ ifodaning eng kichik qiymatini toping.

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

59. $f(x)=3\cos x-4\sin x+3$ ning qiymatlar sohasini toping.
A) [-2;8] B) [2;8] C) (-2;8) D) (2;8)

60. $y=\log_2\left(\sin^2 3x+\cos^2 3x\right)$ funksiyaning eng kichik musbat davrini toping
A) mavjud emas B) π C) $\frac{\pi}{2}$ D) 2π

61. $y=\ln\left(\sin^2 3x+\cos^2 3x\right)$ funksiyaning eng kichik musbat davrini toping.
A) mavjud emas B) $\frac{\pi}{2}$ C) π D) 2π

62. $\begin{cases}y=2x^3\\y=\cos x\end{cases}$ tenglamalar sistemasi nechta yechimga ega?
A) 1 B) 2 C) 3 D) 4

63. $\begin{cases}y=3x^3\\y=\cos x\end{cases}$ tenglamalar sistemasi nechta yechimga ega?
A) 1 B) 2 C) 3 D) 4

64. $\begin{cases}y=-2x^3\\y=\cos x\end{cases}$ tenglamalar sistemasi nechta yechimga ega?
A) 1 B) 2 C) 3 D) 4

65. $\begin{cases}y=x^3\\y=\cos x\end{cases}$ tenglamalar sistemasi nechta yechimga ega?
A) 0 B) 3 C) 2 D) 1

66. $\begin{cases}tgx+ctgy=2\\\sin y\cos x=0,2\end{cases}$ bo'lsa, $\cos(x-y)=?$
A) 0,4 B) -5 C) -8 D) -7

67. Agar $\begin{cases}tg\alpha-ctg\beta=3\\\sin\beta\cdot\cos\alpha=0,2\end{cases}$ bo'lsa, $\cos(\alpha+\beta)$ ning qiymatini toping.
A) -0,4 B) -0,6 C) 0,8 D) 0,6

68. Agar $\begin{cases}tg\alpha+ctg\beta=3\\\sin\beta\cdot\cos\alpha=0,2\end{cases}$ bo'lsa, $\cos(\alpha-\beta)$ ning qiymatini toping.
A) -0,4 B) -0,6 C) 0,8 D) 0,6

69. $x^3-33x^2+3x-2=0$ tenglamaning ildizlari $tg^2 20^0$, $tg^2 40^0$, $tg^2 80^0$ bo'lsa, $\frac{1}{\cos^2 20^0}+\frac{1}{\cos^2 40^0}+\frac{1}{\cos^2 60^0}+\frac{1}{\cos^2 80^0}$ ni toping.
A) 80 B) 30 C) 90 D) 40

70. $tg[x]\cdot tg\{x\}=1$ tenglamani yeching.
A) $\frac{\pi}{2}$ B) 1 C) $\pi n,\ n\in Z$ D) $\frac{\pi}{2}+\pi n,\ n\in Z$

71. $tg[x]\cdot ctg\{x\}=-1$ tenglamani yeching.
A) $\frac{\pi}{2}$ B) 1 C) $\pi n,\ n\in Z$ D) $\frac{\pi}{2}+\pi n,\ n\in Z$

HOSILA

XORAZM ILM ZIYO

★1. Agar $f(2x-1)=4x^3-3x^2+10x+4$ bo'lsa, $f'(1)$ ni hisoblang.
A) 16 B) 6 C) 8 D) 4

2. $f(x)=x(x+1)...(x+10)$ bo'lsa, $f'(0)$ ni toping.
A) 3628800 B) 3682800 C) 3688200 D) 3862800

★3. Agar $f(x)=2^x\cdot 2x$ bo'lsa, $f'(x)=0$ tenglamani yeching.
A) 0 B) $-\log_2 e$ C) $\ln 2$ D) $\log_2 e$

4. Agar $f(x)=x\cdot\sqrt{x^3+8}$ bo'lsa, $f'(2)$ ni toping.
A) 1 B) 4 C) 7 D) 16

5. Agar $f(x)=\frac{2}{x^2+1}$ bo'lsa, $f'(-4)$ ni toping.
A) $\frac{16}{289}$ B) $\frac{64}{289}$ C) $-\frac{16}{289}$ D) $-\frac{4}{289}$

6. Agar $f(x)=\frac{x^2+3x}{x^2+1}$ bo'lsa, $f'(0)$ ni toping.
A) 4 B) 5 C) 0 D) 3

7. Agar $f(x)=\frac{x^2+5x}{x^2+1}$ bo'lsa, $f'(0)$ ni toping.
A) 0 B) 3 C) 4 D) 5

8. $f(x)=x\sin x$ bo'lsa, $f'(0)$ ni toping.
A) 2 B) 1 C) 7 D) 0

9. Agar $f(x)=\ln e^x+\log_x x^2$ bo'lsa, $f'(1)+f(e)$ ning qiymatini toping.
A) $e+3$ B) 2 C) $e+2$ D) e

10. Agar $f(2x)=6x^3+4x^2+2x+1$ bo'lsa, $f'(2)-f(2)$ ning qiymatini toping.
A) 2 B) 3 C) 1 D) 4

11. Agar $f(x)=5^{2\cos x}$ bo'lsa, $f'\left(\frac{\pi}{2}\right)$ ni toping.

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

12. Agar $f(x)=3^{\cos x}$ bo'lsa, $f'\left(\frac{\pi}{2}\right)$ ni hisoblang.
A) $-\ln 3$ B) $\ln 3$ C) 0 D) $3\ln 3$

13. Agar $f(x)=5^{-\cos x}$ bo'lsa, $f'\left(\frac{\pi}{2}\right)$ ni hisoblang.
A) $\ln 5$ B) 0 C) $5\ln 5$ D) $-\ln 5$

14. Agar $f(x)=\ln\left(2x+\sqrt{x^2+1}\right)$ bo'lsa, $f'(0)$ ni qiymatini toping.
A) 3 B) 4 C) 6 D) 2

15. Agar $f(x)=\ln\left(4x+\sqrt{x^2+1}\right)$ bo'lsa, $f'(0)$ ni qiymatini toping.
A) 3 B) 5 C) 6 D) 4

16. Agar $f(x)=\ln\left(3x+\sqrt{x^2+1}\right)$ bo'lsa, $f'(0)$ ni toping.
A) 4 B) 2 C) 0 D) 3

17. Agar $f(x)=\frac{1}{2}\ln^2 x$ bo'lsa, $f'(e)$ ni toping.

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

18. Agar $f(x)=2^x\cdot x$ bo'lsa, $f'(x)>0$ tengsizlikni yeching.
A) $\left(-\infty;-\log_2 e\right)$ B) $\left(-\log_2 e;e\right)$
C) $\left(-\log_2 e;\infty\right)$ D) $\left(-2\log_2 e;\infty\right)$

19. $f(x)=x^{2x}$ funksiyaning hosilasini toping.
A) $x^{2x}(\ln x+1)$ B) $2x^{2x}(\ln x+1)$
C) $-2x^{-2x}(\ln x+1)$ D) $-x^{2x}(\ln x+1)$

20. $f(x)=x^{-2x}$ funksiyaning hosilasini toping.
A) $x^{2x}(\ln x+1)$ B) $-2x^{-2x}(\ln x+1)$
C) $2x^{2x}(\ln x+1)$ D) $-x^{2x}(\ln x+1)$

21. Agar $f(x)=x^{\sin 4x}$ bo'lsa, $f'\left(\frac{\pi}{8}\right)$ ni toping.

A) $\frac{\pi}{4}$ B) 0 C) $\frac{\pi}{2}$ D) 1

22. Agar $f(x)=x^{\sin 3x}$ bo'lsa, $f'\left(\frac{\pi}{6}\right)$ ni toping.

A) $\frac{\pi}{4}$ B) 0 C) $\frac{\pi}{2}$ D) 1

23. $g(x)=x^{\sin 2x}$ bo'lsa, $g'\left(\frac{\pi}{4}\right)=?$
A) 1 B) 2 C) 3 D) 4

24. Agar $f(x)=x^{\sin x}$ bo'lsa, $f'\left(\frac{\pi}{2}\right)$ ni toping.

A) $\frac{\pi}{4}$ B) 0 C) $\frac{\pi}{2}$ D) 1

25. $f(x)=(\cos x)^{\sin 2x}$ bo'lsa, $f'(0)$ ni hisoblang.
A) 1 B) 0 C) 3 D) -1

26. $y=x^2+7x-6$ funksiya grafigiga o'tkazilgan urinma $y=6x+9$ to'g'ri chiziqqa parallel. Urinish nuqtasining absissasini toping.
A) 0,5 B) - 0,5 C) - 3,5 D) - 1,5

27. Moddiy nuqta to'g'ri chiziq bo'ylab $x(t)=\frac{1}{2}t^3-3t^2+2t+4$ qonun bo'yicha harakatlanmoqda, bu yerda x-koordinatalar boshidan nuqtagacha bo'lgan masofa (metrlarda o'lchanadi) t-vaqt (sekundlarda o'lchanadi) $t=6$ sekund bo'lganda nuqtaning tezligini (m/s) toping.
A) 23 B)12 C) 20 D) 0

28. Moddiy nuqta to'g'ri chiziq bo'ylab $x(t)=\frac{1}{2}t^3-3t^2+2t+3$ qonun bo'yicha harakatlanmoqda, bu yerda $x-$ koordinatalar boshidan nuqtagacha bo'lgan masofa (metrda o'lchanadi), $t-$ vaqt (sekundlarda o'lchanadi), $t=6$ sekunt bo'lganda nuqtaning tezligini (m/c) toping.
A) 20 B) 23 C) 12 D) 0

29. Moddiy nuqta to'g'ri chiziq bo'ylab $x(t)=\frac{1}{2}t^3-3t^2+2t-3$ qonun bo'yicha harakatlanmoqda, bu yerda $x-$ koordinatalar boshidan nuqtagacha bo'lgan masofa (metrda o'lchanadi), $t-$ vaqt (sekundlarda o'lchanadi), $t=6$ sekunt bo'lganda nuqtaning tezligini (m/c) toping.
A) 20 B) 23 C) 12 D) 0

30. Moddiy nuqta to'g'ri chiziq bo'ylab $x(t)=\frac{1}{2}t^3-3t^2+2t+5$ qonun bo'yicha harakatlanmoqda, bu yerda $x-$ koordinatalar boshidan nuqtagacha bo'lgan masofa (metrda o'lchanadi), $t-$ vaqt (sekundlarda o'lchanadi), $t=6$ sekunt bo'lganda nuqtaning tezligini (m/c) toping.
A) 20 B) 23 C) 12 D) 0

31. Agar $f(x)=x^3-5x^2+x+a$ va $f''(2)=f(2)$ bo'lsa, a ni toping.
A) 10 B) 5 C) 6 D) 12

32. Agar $f(x)=x^3+2ax^2+3bx+11$ va $f''(-2)=4$ bo'lsa, a ni toping.
A) 2 B) 3 C) 1 D) 4

33. Agar $f(x)=x^3+2ax^2+3bx+8$ va $f''(3)=22$ bo'lsa, a ni toping.
A) 2 B) 3 C) 1 D) 4

34. Agar $f(x)=x^3-5x^2+2x+a$ va $f''(1)=f(1)$ bo'lsa, a ni toping.
A) 6 B) 10 C) 2 D) -2

35. $y=\ln x, x>0$ funksiyaning ikkinchi tartibli hosilasini toping.
A) $\frac{1}{x^2}$ B) $-\frac{1}{x^2}$ C) $\frac{3}{x^2}$ D) $-\frac{1}{2x^2}$

36. $y=\log_2(arctgx+arcctgx)$ funksiyaning $x=\frac{1}{2}$ nuqtadagi ikkinchi tartibli hosilasining qiymatini toping.
A) 1 B) 0 C) $\log_2 3$ D) $-\log_2 3$

37. $y=\log_5(\sin^2 2x+\cos^2 2x)$ funksiyaning ikkinchi tartibli hosilasining qiymatini toping.
A) 0 B) 1 C) $\log_5 2$ D) $-\log_5 2$

38. $y=\ln(\sin^2 2x+\cos^2 2x)$ funksiayning $x=\frac{1}{2}$ nuqtadagi ikkinchi tartibli hosilasining qiymatini toping.
A) ln2 B) 1 C) $-\ln 2$ D) 0

39. $y=x^3(x^3+54)$ funksiya ekstremumini toping
A) 3 B) -3; 0 C) -243 D) -3

40. $y=x^3\cdot(x^3+2)$ funksiya ekstremumini toping.
A) -2; 0 B) -1 C) -1; 0 D) -2

41. $y=x^3\cdot(x^3-16)$ funksiya ekstremumini toping.
A) 2; 0 B) -2 C) -1; 0 D) 2

42. $y=(x+8)e^{x-8}$ funksiya berilgan. Bu funksiya x ning qanday qiymatida eng kichik qiymatga erishadi?
A) -9 B) -2 C) -8 D) -6

43. $y=(x+6)e^{x-6}$ funksiya berilgan. Bu funksiya x ning qanday qiymatida eng kichik qiymatga erishadi?
A) -7 B) -6 C) -9 D) -2

44. $y=(x+5)e^{x-5}$ funksiya berilgan. Bu funksiya x ning qanday qiymatida eng kichik qiymatga erishadi?
A) -6 B) -7 C) -2 D) -4

45. $f(x)$ funksiya berilgan $(a;b)$ intervalda noldan farqli va differensiallanuvchi bo'lsin. $(f(x))^{-1}$ funksiyaning $(a;b)$ intervalda hosilasini toping.
A) $-(f(x))^{-2}\cdot f'(x)$ B) $(f(x))^{-2}\cdot f'(x)$
C) $(f(x))^{-2}$ D) $2(f(x))^{-2}\cdot f'(x)$

46. $f(x)$ funksiya berilgan $(a;b)$ intervalda differensiallanuvchi bo'lsin. $(f(x))^4$ funksiyaning $(a;b)$ intervalda hosilasini toping.
A) $3(f(x))^3\cdot f'(x)$ B) $(f(x))^3\cdot f'(x)$
C) $3(f(x))^3$ D) $4(f(x))^3\cdot f'(x)$

47. $F(x)=\int_4^{x^2}(t^2-8)dt$ bo'lsa, $F'(2)$ ni toping.
A) 16 B) 32 C) 64 D) 128

48. $F(x)=\int_4^{x^2}(t^2-4)dt$ bo'lsa, $F'(2)$ ni toping.
A) 12 B) 24 C) 48 D) 96

49. Agar $F(x)=\int_4^{x^2}(t^2-3)dt$ bo'lsa, $F'(2)$ ni toping.
A) 26 B) 16 C) 48 D) 52

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50. $f(x)=\frac{(x-b)(x-c)}{(a-b)(a-c)}+\frac{(x-a)(x-c)}{(b-a)(b-c)}+\frac{(x-a)(x-b)}{(c-a)(c-b)}$ funksiyaning $x=-2$ da hosilasini toping.
(Bu yerda $(a-b)(a-c)(b-c)\neq 0$)
A) a,b,c ga bog'liq B) 2 C) 0 D) 1

51. $f(x)=a^2\frac{(x-b)(x-c)}{(a-b)(a-c)}+b^2\frac{(x-a)(x-c)}{(b-a)(b-c)}+c^2\frac{(x-a)(x-b)}{(c-a)(c-b)}$ funksiyaning $x=1$ da hosila sini toping.
(Bu yerda $(a-b)(a-c)(b-c)\neq 0$)
A) 2 B) a,b,c ga bog'liq C) 0 D) 1

52. $f(x)=\frac{(x-b)(x-c)}{(a-b)(a-c)}+\frac{(x-a)(x-c)}{(b-a)(b-c)}+\frac{(x-a)(x-b)}{(c-a)(c-b)}$ funksiyaning $x=-1$ da hosila sini toping.
(Bu yerda $(a-b)(a-c)(b-c)\neq 0$)
A) 2 B) a,b,c ga bog'liq C) 0 D) 1

INTEGRAL

1. $\int_{-1}^{1}(x^5-x^3+5x+5)dx$ integralni hisoblang.

A) 10 B) $\frac{7}{3}$ C) $\frac{5}{24}$ D) 2

2. $\int_{-1}^{1}(2x^5-3x^3+x+1)dx$ integralni hisoblang.

A) $\frac{3}{4}$ B) $\frac{7}{3}$ C) $\frac{5}{24}$ D) 2

3. $\int_{-1}^{1}(x^5-5x^3+5x+3)dx$ integralni hisoblang.

A) 2 B) 0,75 C) 6 D) $\frac{5}{24}$

4. $\int_{-1}^{1}(x^5-2x^3+2x+4)dx$ integralni hisoblang.

A) $\frac{3}{4}$ B) 8 C) 2 D) $\frac{5}{24}$

5. $\int_{-1}^{1}(x^5-3x^3+x+2)dx$ integralni hisoblang.

A) $\frac{3}{4}$ B) $\frac{7}{3}$ C) $\frac{5}{24}$ D) 4

6. $\int_{-1}^{1}(2x^5-x^3+2x)dx$ aniq integralni hisoblang.

A) $\frac{3}{4}$ B) 0 C) $\frac{7}{3}$ D) $\frac{5}{24}$

7. $\int_{-1}^{1}(x^5-3x^3+3x)dx$ aniq integralni hisoblang.

A) 0 B) $\frac{7}{3}$ C) $\frac{5}{24}$ D) $\frac{3}{4}$

8. $\int_{-1}^{1}(5x^5-x^3+5x)dx$ aniq integralni hisoblang.

A) 0 B) $\frac{7}{3}$ C) $\frac{5}{24}$ D) $\frac{3}{4}$

9. $\int_{2}^{3}\frac{5x}{x-1}dx$ integralni hisoblang.

A) $5\ln 2e$ B) 5 C) $5\ln 4e$ D) $5\ln 3e^3$

10. $\int_{0}^{1}\frac{5x}{x+1}dx$ integralni hisoblang.

★A) $5\ln\frac{e}{2}$ B) 5 C) $\frac{5}{3}$ D) 3

★11 $\int_{0}^{1}\frac{2x}{x+1}dx$ integralni hisoblang.

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

★12. $\int_{1}^{e}\frac{4}{x}dx$ integralni hisoblang.

A) $6\ln 2$ B) $12\ln 4$ C) $12\ln 2$ D) $18\ln 2$

13. $\int_{1}^{2}-4x^{-4}dx$ integralni hisoblang.

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

14. Ushbu $f(x)=\frac{x-7}{x-6}$ funksiyaning boshlang'ich funksiyasini toping.
A) $x+2\ln|x-6|+C$ B) $x-\ln|x-6|+C$
C) $\ln(x-6)^2+C$ D) $\frac{2x^2}{(x-6)^2}+C$

15. $\int\frac{dx}{3+x^2}$ ni hisoblang
A) $\frac{1}{\sqrt{3}}arctgx+C$ B) $\frac{1}{3}arctg\frac{x}{3}+C$
C) $\frac{1}{\sqrt{3}}arctg\frac{x}{3}+C$ D) $\frac{1}{\sqrt{3}}arctg\frac{x}{\sqrt{3}}+C$

16. $\int \frac{dx}{4+x^2}$ ni hisoblang

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

C) $\frac{1}{4}arctg\frac{x}{2}+C$ D) $\frac{1}{2}arctgx+C$

17. $\int_{-\frac{\pi}{3}}^{\frac{\pi}{3}}\left(4\sin 2x-3\sin x+\frac{3}{2\pi}\right)dx$ aniq integralni hisoblang.

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

18. $\int_{-\frac{\pi}{3}}^{\frac{\pi}{3}}(\sin 2x-\sin x)dx$ integralni hisoblang.

A) 0 B) $\frac{\sqrt{3}}{3}$ C) $\frac{\sqrt{3}}{3}-\frac{1}{2}$ D) $\frac{3}{4}$

19. $\int_{-\frac{\pi}{3}}^{\frac{\pi}{3}}(3\sin 2x-2\sin x)dx$ integralni hisoblang.

A) 0 B) $\frac{\sqrt{3}}{3}$ C) $\frac{\sqrt{3}}{3}-\frac{1}{2}$ D) $\frac{3}{4}$

20. Ushbu $f(x)=\frac{2x-1}{x^2-x-6}$ funksiyaning boshlang'ich funksiysini toping.

A) $\frac{2x^2}{x-3}+C$ B) $\ln(|x-3|+|x+2|)+C$

C) $\ln|x+2|+C$ D) $\ln(|x-3|\cdot|x+2|)+C$

21. $\int_{0}^{-\frac{\pi}{2}}\cos x\cdot\sin x\cdot e^{\sin^2 x}dx$ ni hisoblang.

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

22. $\int_{1}^{e}\frac{\sin(\ln x)}{x}dx$ integralni hisoblang.

A) sin1 B) 1−cos1 C) 1 D) 0

23. $\int e^{\cos x}\cdot\sin x dx$ integralni hisoblang.

A) $-e^{\sin x}+C$ B) $-e^{\cos x}+C$

C) $-\sin x-e^{\cos x}+C$ D) $\frac{e^{\cos x}}{\sin x}+C$

24. $\int e^{2\sin x}\cdot\cos x dx$ integralni hisoblang.

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

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

25. $\int\frac{dx}{\sqrt{9-x^2}}$ ni hisoblang.

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

C) $\frac{1}{3}\arcsin x+C$ D) $\arcsin x+C$

26. $\int\frac{dx}{\sqrt{4-x^2}}$ ni hisoblang.

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

C) $\arcsin\frac{x}{2}+C$ D) $\frac{1}{2}\arcsin x+C$

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27. Agar $\int_{a}^{b}(4x+5)dx=225$ va $a+b=10$ bo'lsa, $b-a$ ni toping.

A) 9 B) 2 C) 7 D) 6

28. Agar $\int_{a}^{b}(4x+5)dx=150$ va $a+b=10$ bo'lsa, $b-a$ ni toping.

A) 2 B) 7 C) 6 D) 9

29. Agar $\int_{a}^{b}(4x+5)dx=200$ va $a+b=10$ bo'lsa, $b-a$ ni toping.

A) 9 B) 4 C) 8 D) 7

30. Agar $\int_{a}^{b}(4x+5)dx=175$ va $a+b=10$ bo'lsa, $b-a$ ni toping.

A) 9 B) 2 C) 6 D) 7

31. $a=-4$ bo'lsa, $\int_{a}^{a+1}(\sin^2 2x+\cos^2 2x)dx$ aniq integralni hisoblang.

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

32. Agar $\int_{a}^{b}(3x^2+1)dx=36$ va $a^2+ab+b^2=17$ bo'lsa, $b-a$ ni toping.

A) 7 B) 9 C) 2 D) 6

33. $\int_a^b \left(3x^2+1\right)dx=126$, $a^2+ab+b^2=17$ bo'lsa, $b-a$ ni toping.
A) 5 B) 6 C) 7 D) 8

34. $\int_a^b \left(3x^2+1\right)dx=108$, $a^2+ab+b^2=17$ bo'lsa, $b-a$ ni toping.
A) 2 B) 9 C) 6 D) 7

35. $y=\frac{1}{x^2}$, $y=0$, $x=1$, $x=3$ chiziqlar bilan chegaralangan shaklning yuzini toping?
A) 2 B) 0,5 C) $\frac{1}{3}$ D) $\frac{2}{3}$

36. $y=\sin\frac{x}{2}$; $y=0$; $x=\frac{\pi}{2}$; $x=\pi$ chiziqlar bilan chegaralangan shakilning yuzini toping.
A) $\sqrt{2}$ B) 1,5 C) $0{,}5\sqrt{2}$ D) 2

37. Tekislikda $y=1-x^2$ va $y=x^2-7$ chiziqlar bilan chegaralangan shakilning yuzini toping.
A) 21,(6) B) 21 C) 21,(2) D)21,(3)

38. $y=2\sqrt{x}$ va $y=2x^3$ egri chiziqlar bilan chegaralangan soha yuzini toping.
A) $\frac{5}{3}$ B) $\frac{5}{6}$ C) $\frac{5}{4}$ D) $\frac{5}{12}$

39. $y=-6\sqrt{x}$ va $y=-6x^3$ egri chiziqlar bilan chegaralangan soha yuzini toping.
A) $\frac{5}{2}$ B) $\frac{5}{3}$ C) $\frac{5}{6}$ D) $\frac{5}{4}$

40. $y=\sqrt{4-(x-3)^2}$ va $y=0$ funksiya grafiklari bilan chegaralangan soha yuzini toping.
A) 2π B) 3π C) 4π D) π

41. $f(x)=2^{x-4}$ bo'lsa, $\int_2^3 d\left(f\left(2x+3\right)\right)$ ning qiymatini toping.
A) 8 B) 18 C) 24 D) 32

42. Agar $f'(x)=\frac{3}{e^x}$, $f(\ln 3)=0$ bo'lsa, $f(x)$ ni toping.
A) $-3e^{-x}-1$ B) $3e^{-x}+1$
C) $-3e^{-x}+1$ D) $3e^{-x}+2$

TO'PLAMLAR

1. $\{x|x\in N,\ 0\le x<5\}$ to'plamning nechta qism to'plami mavjud?
A) 16 B) 5 C) 4 D) 32

2. $\{x|x\in N,\ -5<x\le 5\}$ to'plamning nechta qism to'plami mavjud?
A) 32 B) 16 C) 10 D) 5

3. 5 ta elementli toplamni nechta usul bilan ikkita kesishmaydigan qism-to'plamlarga ajratish mumkin?
A) 5 B) 16 C) 32 D) 10

4. $\{x|x\in N;\ -3{,}2<x<4{,}8\}$ to'plamning nechta qism-to'plamlari mavjud?
A) 8 B) 32 C) 4 D) 16

5. $\{x|x\in N;\ 5{,}6<x^2<39{,}6\}$ to'plamning nechta qism-to'plamlari mavjud?
A) 5 B) 32 C) 16 D) 8

6. $\{6, 7, 8, 9, 10\}$ to'plamni nechta usul bilan ikkita kesishmaydigan qism-to'plamlarga ajratish mumkin?
A) 5 B)10 C) 16 D) 32

7. $\{x|x\in N,\ x^2<35{,}8\}$ to'plamning nechta - qism to'plamlari mavjud?
A) 5 B) 32 C) 16 D) 35

8. $\{x|x\in N,\ x^2<17{,}8\}$ to'plamning nechta - qism to'plamlari mavjud?
A) 4 B) 32 C) 16 D) 18

9. $\{x|x\in N:\ -2{,}1<x\le 5{,}1\}$ to'plamni nechta usul bilan ikkita kesishmaydigan qism - to'plamlarga ajratish mumkin?
A) 16 B) 32 C) 7 D) 8

10. Ratsional sonlar to'plami qanday ko'rinishida yoziladi.
A) $Q=\{r|r=\frac{p}{q},\ p\in N,\ q\in N\}$
B) $Q=\{r|r=\frac{p}{q},\ p\in Z,\ q\in Q\}$
C) $Q=\{r|r=\frac{p}{q},\ p\in Z,\ q\in Z\}$
D) $Q=\{r|r=\frac{p}{q},\ p\in Z,\ q\in N\}$

11. M va N to'plamlarning keshishmasi qanday belgilanadi?
A) $M\cdot N$ B) $M\cup N$ C) $M\cap N$ D) MN

12. Agar $A \subset B$ bo'lsa, quyidagilardan qaysi biri o'rinli bo'ladi?
A) $A \cup B = A \cap B$ B) $A \cup B = A$
C) A – xos qism to'plam D) $A \cup B = B$

13. M va N to'plamlarning kamida bittasida mavjud bo'lgan barcha elementlardan tuzilgan to'plam qanday nomlanadi?
A) M yoki N to'plamlarning ko'paytmasi
B) M va N to'plamlarning birlashmasi
C) M va N to'plamlarning kesishmasi
D) Universal to'plam

KOMBINATORIKA ELEMENTLARI VA EHTIMOLLAR NAZARIYASI

1. 9 nafar ishchidan 3 ta kishidan iborat brigada kerak. Bu ishni nechta usulda amalga oshirsa bo'ladi.
A) 27 B) 36 C) 84 D) 120

2. 1,2,...,9 raqamlaridan nechta har xil to'rt xonali sonlar tuzish mumkin (bu yerda to'rt honali sonlar turli raqamlardan tashkil topgan)?
A) 15120 B) 3024 C) 1612 D) 504

3. $1!+2!+\ldots+9!+10!$ sonning oxirgi ikkita raqamini toping.
A) 12 B) 11 C) 10 D) 13

4. 1, 2, 3, ... , 7 raqamlaridan nechta to'rt xonali sonlar tuzish mumkin (bu yerda to'rt xonali sonlar turli raqamlardan tashkil topgan)
A) 840 B) 720 C) 2520 D) 210

5. Aziz Lutfullaga qarab: "Hozir men senga kartadan fokus ko'rsataman", dedi va 36 talik kartadan Aziz istalgan ikkita kartani tanladi. So'ng Lutfulla 36 ta kartadan ikkita kartani oldi. Olgan kartalari Aziz tanlagan kartalar chiqish ehtimolini toping.

A) $\frac{1}{630}$ B) $\frac{2}{611}$ C) $\frac{1}{611}$ D) $\frac{1}{606}$

6. 10 ta o'quvchi bor. Ularni 3 tadan qilib necha xil usul bilan gurux qilish mumkin?
A) 120 B) 130 C) 80 D) 60

7. 9 ta xatni 9 xil joyga 2 ta odam necha xil usul bilan tarqatadi?
A)150 B) 1024 C) 512 D) 128

8. 3462 sonini raqamlar o'zgarmagan holda, necha xil usul bilan yozish mumkin.
A) 24 B) 8 C) 12 D) 32

9. Raketa so'zidan nechta turli so'z yozish mumkin.
A) 360 B) 130 C) 80 D) 16

10. 5498 sonining raqamlardan foydalanib nechta to'rt xonali son yozish mumkin.
A) 24 B) 130 C) 48 D) 36

11. Basketbol musobaqasida 10 ta odam bor 5 tadan qilib 2 ta guruhni necha xil usul bilan tanlash mumkin.
A) 126 B) 252 C) 115 D) 100

12. 30 ta o'quvchi bor sinfda boshliq, yordamchi va kotib necha xil usul bilan saylash mumkin.
A) 24360 B) 34360 C) 12180 D) 17630

13. Talaba 4 ta imtihonni 6 kun davomida topshirishi kerak. Buni necha xil usul bilan amalga oshirish mumkin? Bunda talabaga 1 kunda ko'pi bilan bitta imtihon qo'yilishi mumkin.
A) 360 B) 24 C) 30 D) 120

14. 12 nafar o'quvchilardan iborat guruhda 4 nafar a'zodan tashkil topgan qo'mitani tanlab olish kerak. Bu ishni necha usulda amalga oshirsa bo'ladi?
A) 48 B) 84 C) 495 D) 120

15. Bir kunlik dars jadvalda 3 ta turli fan bor 11 ta fanni huddi shunday qilib nechta xil usul bilan yaratish mumkin?
A) 445 B) 990 C) 330 D) 110

16. Bir kunlik dars jadvalida turli fanlar bo'yicha 3 ta dars bor. 10 ta fandan iborat bo'lgan shunday jadvallar sonini toping.
A) 720 B) 990 C) 120 D) 210

17. Bir kunlik dars jadvalida turli fanlar bo'yicha 4 ta dars bor. 9 ta fandan iborat bo'lgan shunday jadvallar sonini toping.
A) 126 B) 4940 C) 504 D) 3024

UCHBURCHAKLAR

1. To'g'ri burchakli uchburchak gipotenuzasiga tushirilgan balandligi 3 ga, to'g'ri burchak bissektrisasi 4 ga teng. Uchburchakning yuzini toping.
A) 36 B) 96 C) 64 D) 72

2. To'g'ri burchakli uchburchakning gipotenuzasi 25 ga, unga ichki chizilgan aylana radiusi 4 ga teng. Uchburchakning peremetrini toping.
A) 51 B) 48 C) 45 D) 58

3. To'g'ri burchakli uchburchakda gipotenuza va kichik ketetning yig'indisi 27 ga teng. Agar katta katetning uzunligi $9\sqrt{3}$ ga teng bo'lsa, unga tashqi chizilgan doira yuzini toping.
A) 81π B) 36π C) 18π D) 9π

4. To'g'ri burchakli ABC uchburchak CD balandlik bilan BCD va ACD uchburchaklarga bo'lingan. Shu uchburchaklar yarim perimetrlari mos ravishda 7 va 24 ga teng. ABC uchburchakning yarim perimetrini toping.
A) 21 B) $22\sqrt{2}$ C) 26 D) 25

5. To'g'ri burchakli uchburchakning kateti 30 ga teng, uning medianalari kesishish nuqtasidan ikkinchi katetigacha bo'lgan masofani toping.
A) 10 B) 15 C) 12 D) 5

6. To'g'ri burchakli uchburchakga ichki chizilgan aylana radiusi 5 ga, uning gipotenuzasiga tushirilgan balandligi ajratgan 2 ta uchburchakga ichki chizilgan aylanalar radiuslari mos ravishda 3 va 4 ga teng. Tushirilgan balandlikni toping?
A) 10 B) 12 C) 15 D) 8

7. Qanday uchburchakning balandliklari uning bir uchida kesishadi?
A) o'tkir burchakli B) o'tmas burchakli
C) to'g'ri burchakli D) teng yonli

8. ABC to'g'ri burchakli uchburchakning ($\angle C$ - to'g'ri burchak) $\angle B$ o'tkir burchagidan BD bissektrisa o'tkazilgan. Agar $\angle CAB=\alpha$, $\angle CDB=\beta$, $CD=1$, $AD=3$ bo'lsa, $tg(\alpha+\beta)$ ni toping.
A) $\frac{5\sqrt{2}}{2}$ B) $\frac{3\sqrt{2}}{2}$ C) 3 D) 7

9. ABC to'g'ri burchakli uchburchakning B to'g'ri burchagidan BD bissektrisa o'tkazilgan. Agar $\angle CAB=\alpha$, $\angle CDB=\beta$ va $CD=1$, $AD=3$ bo'lsa, $tg(\alpha+\beta)$ ni toping.
A) $\frac{5\sqrt{2}}{2}$ B) $\frac{3\sqrt{2}}{2}$ C) 3 D) 7

10. ABC to'g'ri burchakli uchburchakning AC katetini diametr qilib yarim aylana chizilgan. AB kateti 30 ga teng. Yarim aylananing gipotenuzani kesgan nuqtasi bilan A to'g'ri burchakni tutashtiruvchi kesma 24 ga teng. Yarim aylana uzunligini toping.
A) 20π B) 10π C) 15π D) 25π

11. ABC to'g'ri burchakli uchburchakning katta AC katetini diametr qilib yarim aylana chizilgan. AB kateti 6 ga teng. Yarim aylananing gipotenuzani kesgan nuqtasi bilan A to'g'ri burchakni tutashtiruvchi kesma 4,8 ga teng. Yarim aylana uzunligini toping.
A) 2π B) 4π C) 6π D) 8π

12. ABC to'g'ri burchakli uchburchakning B to'g'ri burchakgi uchidan BD balandlik tushirilgan. Hosil bo'lgan ABD uchburchakka radiusi 7 ga teng, BCD uchburchakka esa radiusi 24 ga teng bo'lgan aylanalar ichki chizilgan. BD balandlikni toping.
A) 54 B) 52 C) 56 D) 58

13. Perimetri 58 ga teng bo'lgan to'g'ri burchakli uchburchak radiusi 5 ga teng bo'lgan aylanaga tashqi chizilgan. Gipotenuza uzunligini toping.
A) 25 B) 24 C) 21 D) 13

14. Perimetri 60 ga teng bo'lgan to'g'ri burchakli uchburchakga ichki chizilgan aylana radiusi 4 ga teng. Gipotenuza uzunligini toping.
A) 25 B) 24 C) 26 D) 13

15. To'g'ri burchakli uchburchakning gipotenuzasiga tushirilgan balandlik uni 14,4 va 25,6 kesmalarga ajratadi. Shu uchburchak perimetrining unga ichki chizilgan aylana radiusiga nisbatini toping.
A) 8 B) 16 C) 12 D) 6

16. To'g'ri burchakli uchburchakning gipotenuzasiga tushirilgan balandlik uni 14,4 va 25,6 kesmalarga ajratadi. Shu uchburchakka ichki chizilgan doira radiusini toping.
A) 8 B) 6 C) 4 D) 10

17. To'g'ri burchakli uchburchakning gipotenuzasiga tushirilgan balandlik uni 14,4 va 25,6 kesmalarga ajratadi. Shu uchburchakka ichki chizilgan doira yuzini toping.
A) 64π B) 44π C) 32π D) 84π

18. To'g'ri burchakli uchburchakning gipotenuzasiga tushirilgan balandlik uni 14,4 va 25,6 kesmalarga ajratadi. Shu uchburchakka ichki chizilgan aylana uzunligini toping.
A) 16π B) 14π C) 24π D) 12π

19. To'g'ri burchakli uchburchakning gipotenuzasiga tushirilgan balandlik uni 14,4 va 25,6 kesmalarga ajratadi. Shu uchburchak yuzini uchburchakka ichki chizilgan doira yuziga nisbatini toping.

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

20. To'g'ri burchakli uchburchakda bir burchagi 60^0 ga teng. Kichik tomoni esa $3\sqrt{3}$ ga teng bo'lsa, uning perimetrini toping.

A) $7(\sqrt{3}+1)$ B) $9(\sqrt{3}+1)$
C) $8(\sqrt{3}+1)$ D) $6(\sqrt{3}+1)$

21. Teng yonli ABC uchburchakning AC asosida D nuqta shunday olinganki $AD=4, DC=6$ tengliklar bajarildi. ABD va DBC uchburchaklarga ichki chizilgan aylanalar BD to'g'ri chiziqqa mos ravishda M va N nuqtalarda urinadilar MN kesma uzunligini toping.

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

22. Teng yonli uchburchakning asosidagi burchak tangensi $\sqrt{3}$ ga teng. Uning yon tomoniga o'tkazilgan medianasi va asosi orasidagi burchakni toping.
A) 60^0 B) 30^0 C) 15^0 D) 45^0

23. ABC teng yonli $(AB=AC)$ uchburchakning BD bissektrisasi AC tomonini $AD=8, DC=4$ kesmalarga ajratadi. BD bissektrisa uzunligini toping.
A) $\sqrt{10}$ B) $2\sqrt{10}$ C) $2\sqrt{15}$ D) $3\sqrt{10}$

24. Teng yonli uchburchakda yon tomon 5 ga, asosidagi burchakning kosinusi 0,6 ga teng. Uchburchakga ichki chizilgan aylananing radiusini toping.
A) 2,5 B) 2 C) 1 D) 1,5

25. Teng yonli uchburchakning asosiga parallel o'rta chizig'i 7 ga perimetri esa 30 ga teng. Uning yon tomonining asosiga nisbatini toping.

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

26. Asosi a ga, yon tomoni b ga teng bo'lgan teng yonli uchburchakning yon tomoniga tushirilgan balandlik uzunligini toping.

A) $h_b=\frac{a}{2b}\sqrt{4b^2-a^2}$ B) $h_b=\frac{b}{2a}\sqrt{4b^2-a^2}$

C) $h_b=\frac{b}{a}\sqrt{4b^2-2a^2}$ D) $h_b=\frac{a}{b}\sqrt{4b^2-2a^2}$

27. Asosi a ga, yon tomoni b ga teng bo'lgan teng yonli uchburchakning yon tomoniga tushirilgan bissektrisa uzunligini toping.

A) $l_b=\frac{a}{a+b}\sqrt{ab+2b^2}$ B) $l_b=\frac{b}{a+b}\sqrt{2a^2+ab}$

C) $l_b=\frac{a}{a+b}\sqrt{ab+2a^2}$ D) $l_b=\frac{b}{a+b}\sqrt{ab+2b^2}$

28. Radiusi 3 ga teng bo'lgan aylanaga ichki chizilgan uchburchakning 45^0 li burchagi qarshisidagi tomon uzunligini toping.
A) $3\sqrt{2}$ B) 6 C) $6\sqrt{2}$ D) 4

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29. Radiusi 5 ga teng bo'lgan aylanaga ichki chizilgan uchburchakning 60^0 li burchagi qarshisidagi tomon uzunligini toping.
A) $5\sqrt{3}$ B) 6 C) $6\sqrt{2}$ D) 4

30. Radiusi 3 ga teng bo'lgan aylananing markazi bo'lgan O nuqta ABC to'g'ri burchakli uchburchakning AC gipotenuzasida yotadi. Agar OC kesmaning uzunligi 5 ga teng bo'lsa va aylana uchburchakning katetlariga urinsa, uchburchak yuzini toping.

A) $17\frac{3}{8}$ B) $17\frac{1}{8}$ C) $18\frac{3}{8}$ D) $18\frac{1}{8}$

31. Uchburchakning uchlari to'g'ri burchakli dekart koordinatalar sistemasida quyidagicha berilgan: $A(4;0), B(1;3), C(1;0)$. O'tkir burchaklar medianalari orasidagi o'tmas burchak kosinusini toping.

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

32. Uchburchakning uchlari to'g'ri burchakli dekart koordinatalar sistemasida quyidagicha berilgan: $A(0;0), B(-0,5;2), C(-1;0)$. Uchburchak yuzini toping.
A) 2 B) $\sqrt{2}$ C) 1 D) $\sqrt{3}$

33. $A(-3;-1)$, $B(-1;-8)$, $C(1;-1)$ nuqtalarni tutashtirishdan hosil bo'lgan uchburchak yuzini toping.
A) 12 B) 153 C) 17 D) 14

34. Uchlari $A(-4;0), B(5;3)$ va $C(0;-2)$ nuqtalarda bo'lgan ABC uchburchak BC tomonining Ox o'qi bilan keshishgan nuqtasining koordinatasini toping.
A) (3; 0) B) (2; 0) C) (1; 0) D) (-1; 0)

35. Uchlari $A(-4;0), B(5;3)$ va $C(0;-2)$ nuqtalarda bo'lgan ABC uchburchak AB tomonining Oy o'qi bilan keshishgan nuqtasining koordinatasini toping.
A) $\left(0;1\frac{2}{3}\right)$ B) $\left(0;1\frac{6}{7}\right)$ C) (0; 1,5) D) $\left(0;1\frac{1}{3}\right)$

36. Uchlari $A(1;2)$, $B(4;0)$, $C(6;3)$ nuqtalarda bo'lgan ABC uchburchakning C burchagi qiymatini toping.
A) 45^0 B) 30^0 C) 60^0 D) 25^0

37. $y=x$, $y=-x$ va $y=5$ to'g'ri chiziqlar hosil qilgan uchburchak yuzini toping.
A) 5 B) 25 C) 24 D) 3

38. $y=x$, $y=-x$ va $y=3$ to'g'ri chiziqlar hosil qilgan uchburchak yuzini toping.
A) 8 B) 3 C) 4 D) 9

39. $y=x$, $y=-x$ va $y=-6$ to'g'ri chiziqlar hosil qilgan uchburchak yuzini toping.
A) 25 B) 36 C) 14 D) 72

40. Asosi 18 sm va balandligi 6 sm bo'lgan uchburchakka to'g'ri burchakli teng yonli uchburchak shunday ichki chizilganki, uning gipotenuzasi uchburchak asosiga parallel va uchi uchburchak asosida yotadi. Ichki chizilgan uchburchak tomonlarini (sm) toping.
A) $3,6\sqrt{2}; 7,2; 3,6\sqrt{2}$; B) $3,2\sqrt{2}; 6,4; 3,2\sqrt{2}$;
C) $3,1\sqrt{2}; 6,2; 3,1\sqrt{2}$; D) $3,4\sqrt{2}; 6,8; 3,4\sqrt{2}$;

41. Berilgan ABC uchburchakda E nuqta- AC tomonning o'rtasi BC tomonda D nuqta shunday olinganki, 2BD=DC munosabat o'rinli. AD va BE to'g'ri chiziqlar F nuqtada kesishgan. Agar FDCE to'rtburchakning yuzasi 15 ga teng bo'lsa, BDF uchburchak yuzasini toping.
A) 3 B) 4,5 C) 4 D) 5

42. O'tkir burchakli ABC uchburchakda BH-balandlik AM-mediana $BC=14$, MCA burchak MAC burchakdan ikki marta katta bo'lsa, AH ni toping.
A) 6 B) 4 C) 7 D) 5

43. ABC uchburchakning AD medianasi AB va AC tomonlar bilan mos ravishda 60^0 va α burchaklarni tashkil qiladi. $AB=\sqrt{3}, AC=3$ bo'lsa, $\sin\alpha$ ning qiymatini toping.
A) $\frac{\sqrt{3}}{2}$ B) $\frac{1}{2}$ C) $\frac{1}{3}$ D) $\frac{2\sqrt{2}}{3}$

44. ABC uchburchakning BC tomoniga AB ga teng AD to'g'ri chiziq o'tkazilgan. Agar $AC=5$, $DC=1$, $BD=6$ bo'lsa, AD ning uzunligini toping?
A) $2\sqrt{3}$ B) $\sqrt{3}$ C) $3\sqrt{2}$ D) $\sqrt{2}$

45. ABC uchburchakning BC tomoniga AD kesma va D nuqtadan AB tomonga DE perpendikulyar o'tkazilgan. $AB=BC$, $AE=EB$, $AD=5$, $ED=3$ bo'lsa DC ni toping.
A) 8 B) 6 C) 7 D) 3

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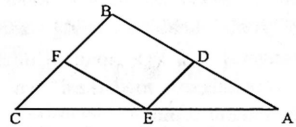
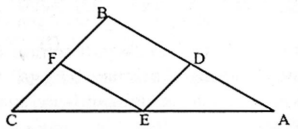
46. ABC uchburchakning BC tomoniga AD kesma o'tkazilgan. Agar $AD=AC$, $AB=BC$, $DC=6$, $BD=4$ bo'lsa, AC ni toping.
A) $2\sqrt{15}$ B) $2\sqrt{5}$ C) $\sqrt{15}$ D) $\sqrt{5}$

47. Rasmda ABC uchbuchak berilgan Agar $DE \| BC$ va $EF \| AB$ bo'lib, $S_{ADE}=25$, $S_{EFC}=20$ bo'lsa, $BDEF$ to'rtburchakning yuzini toping.



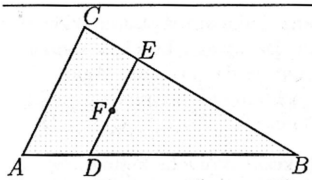
A) $15\sqrt{5}$ B) $25\sqrt{2}$ C) $20\sqrt{2}$ D) $20\sqrt{5}$

48. Rasmda ABC uchburchak berilgan Agar $DE \| BC$ va $EF \| AB$ bo'lib, $S_{ADE}=24$, $S_{EFC}=20$ bo'lsa, $BDEF$ to'rtburchakning yuzini toping.



A) $8\sqrt{30}$ B) $4\sqrt{30}$ C) $8\sqrt[3]{30}$ D) $4\sqrt[3]{30}$

49. Berilgan chizmada F og'irlik markazi, $AC \| DE$ va $ACED$, to'rtburchakning yuzi 25 sm^2 bo'lsa, DEB uchburchakning yuzini (sm^2) toping.



A) 30 B) 25 C) 35 D) 20

50. ABC uchburchakda AO mediana va BE bissektrisa o'tkazilgan. Agar BE bissektrisa AO medianani uchidan boshlab hisoblaganda 8:3 nisbatda bo'lsa, u holda bissektrisa AC tomonni qanday nisbatda bo'ladi.
A) 3:5 B) 4:3 C) 2:3 D) 4:7

51. O'tkir burchakli uchburchakning ikkita uchidan tushirilgan balandliklari kesishish nuqtasida uning uchidan boshlab hisoblaganda 3:1 va 2:3 nisbatda bo'linadi. Ushbu balandliklar orasidagi o'tmas burchakni toping
A) 120^0 B) 135^0 C) 150^0 D) 125^0

52. ABC uchburchakda BC tomoniga AB ga teng AD kesma o'tkazilgan. Agar $AC=5$, $DC=1$, $BD=6$ bo'lsa, AB ning uzunligini toping.
A) $2\sqrt{2}$ B) 4 C) 5 D) $3\sqrt{2}$

53. ABC uchburchakda BC tomoniga AB ga teng AD kesma o'tkazilgan. Agar $AC=5$, $DC=2$, $BD=4$ bo'lsa, AB ning uzunligini toping.
A) $\sqrt{3}$ B) $\sqrt{13}$ C) $3\sqrt{3}$ D) $\sqrt{2}$

54. ABC uchburchakda BC tomoniga AB ga teng AD kesma o'tkazilgan. Agar $AC=5$, $DC=1$, $BD=6$ bo'lsa, AD ning uzunligini toping.
A) B) C) D) $3\sqrt{2}$

55. ABC uchburchakda BC tomoniga AD kesma va D nuqtadan AB tomonga DE perpendikulyar o'tkazilgan. Agar $AB=BC$, $AE=EB$, $AD=5$ va $ED=3$ bo'lsa, DC ni toping.
A) 4 B) 5 C) 2 D) 3

56. ABC uchburchakda BC tomoniga AD kesma o'tkazilgan. Agar $AD=AC$, $AB=BC$, $DC=6$ va $BD=4$ bo'lsa, ABC uchburchakning perimetrini toping.
A) $3(10+\sqrt{15})$ B) $2(10+\sqrt{15})$
C) $\sqrt{15}$ D) $\dfrac{10+\sqrt{15}}{2}$

57. ABC uchburchakda BC tomoniga AD kesma o'tkazilgan. Agar $AD=AC$, $AB=BC$, $DC=6$ va $BD=4$ bo'lsa, AC tomon uzunligini toping.
A) $\sqrt{15}$ B) $2\sqrt{15}$ C) $\dfrac{\sqrt{15}}{2}$ D) $3\sqrt{15}$

58. Uchburchakning balandligi $\sqrt{6}$ ga teng va u asosini 2 : 6 nisbatda bo'ladi. Balandlikka parallel bo'lib, uchburchakni tengdosh bo'laklarga bo'luvchi kesma uzunligini toping.
A) 1 B) 1,8 C) 2,2 D) 2

59. Uchburchakning balandligi $\sqrt{7}$ ga teng va u asosini 1 : 7 nisbatda bo'ladi. Balandlikka parallel bo'lib, uchburchakni tengdosh bo'laklarga bo'luvchi kesma uzunligini toping.
A) 1 B) 1,5 C) 1,6 D) 2

60. Uchburchakning balandligi 4 ga teng va u asosini 1 : 8 nisbatda bo'ladi. Balandlikka parallel bo'lib, uchburchakni tengdosh bo'laklarga bo'luvchi kesma uzunligini toping.
A) 3. B) 3,8 C) 2,2 D) 2

61. Agar uchburchakning bir burchagidan o'tkazilgan bissektrisa uning yuzini $\sqrt{21}:7$ nisbatda bo'lsa, berilgan burchakni o'z ichiga olgan mos tomonlar nisbatini toping.
A) 3 : 7 B) $\sqrt{3}:\sqrt{11}$ C) 3 : 11 D) $\sqrt{3}:\sqrt{7}$

62. Uchburchakning ichki burchaklari o'suvchi arifmetik progressiyaning ketma – ket hadlarini tashkil etadi. Shu uchburchakning eng katta va eng kichik burchaklarining yig'indisini toping.
A) 120^0 B) 135^0 C) 140^0 D) 150^0

63. Uchburchakning ikkita tomoni mos ravishda 1 va $\sqrt{11}$, uchinchi tomonining medianasi 2 ga teng. Uchburchakning yuzini toping.
A) $\sqrt{7}$ B) $\dfrac{\sqrt{7}}{2}$ C) 2,4 D) 2,5

64. Uchburchakning ikkita tomoni mos ravishda 1 va $\sqrt{15}$ ga teng. Uchinchi tomonga tushirilgan mediana uzunligi 2 ga teng. Uchburchakning yuzini toping.
A) $\dfrac{\sqrt{15}}{3}$ B) $\dfrac{\sqrt{15}}{4}$ C) $\dfrac{\sqrt{15}}{2}$ D) $\dfrac{\sqrt{15}}{5}$

65. Uchburchakning ikkita tomoni 5 va 6 ga, ular orasidagi burchak kosinusi esa $\frac{5}{6}$ ga teng. Uchburchakning uchinchi tomoniga tushirilgan balandligini toping.
A) 4 B) 5 C) 6 D) 7

66. Uchburchakning ikkita tomoni 10 va 16 ga, ular orasidagi burchak 60^0 ga teng. Shu uchburchakka ichki chizilgan aylana radiusini toping.
A) $\sqrt{3}$ B) $2\sqrt{3}$ C) $4\sqrt{3}$ D) $3\sqrt{3}$

67. Uchburchakning asosi 20 ga, yon tomonlariga tushirilgan medianalar esa 18 va 24 ga teng. Uchburchakning yuzini toping.
A) 256 B) 144 C) 288 D) 252

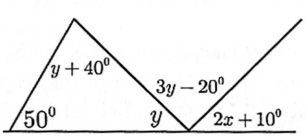
68. Uchburchakning asosi 20% ga, ortirilib, unga tushirilgan balandligi 20% ga kamaytirilsa, uning yuzi qanday o'zgaradi?
A) o'zgarmaydi B) 2% ga kamayadi
C) 4% ga kamayadi D) 4% ga ortadi

69. ABC uchburchakda BD va CE medianalar o'zaro perpendikulyar. Agar $BD=1{,}5$ va $CE=2$ bo'lsa, ABC uchburchak yuzini toping.
A) 1 B) 2 C) 3 D) 4

70. ABC uchburchakning BC va AC tomonlarida mos ravishda D va E nuqtalar shunday olindiki, bunda $\angle BAD=50^0, \angle ABE=30^0$. Agar burchak $\angle ABC=\angle ACB=50^0$ bo'lsa, $\angle BED$ ni toping.
A) 40^0 B) 50^0 C) 70^0 D) 80^0

71. ABC uchburchakning balandliklari unga tashqi chizilgan aylanani mos ravishda M,N,P nuqtalarda kesib o'tadi. Agar $\angle BAC=60^0$ ga $\angle ABC=45^0$ va BC tomonning uzunligi 12 ga teng bo'lsa, MNP uchburchakning yuzini toping.
A) $12\sqrt{3}$ B) $24\sqrt{3}$ C) 12 D) 24

72.



bo'lsa $x+y=?$
A) 65 B) 45 C) 50 D) 70

73. 60^0 ga teng bo'lgan, A burchakka aylana ichki chizilgan. Bu aylana burchak tomonlariga B va C nuqtalarda urinadi. Agar $BC=2$ bo'lsa, ABC uchburchak perimetrini toping.
A) aniqlab bo'lmaydi B) 7 C) 6 D) 5

74. Tekislikni kesib o'tuvchi kesmaning uchlari tekislikdan 4 va 10 masofa tursa, berilgan kesma o'rtasidan tekislikkacha bo'lgan masofani toping.
A) 4 B) 3 C) 2 D) 1

75. AB kesmaning bir tomonida $AA_1=5$ va $BB_1=3$ perpendikulyarlar o'tkazilgan. A_1B va AB_1 to'g'ri chiziqlarning kesishish nuqtasidan AB kesmagacha bo'lgan masofani toping.
A) $\frac{15}{8}$ B) $\frac{7}{5}$ C) $\frac{13}{8}$ D) $\frac{9}{8}$

76. ABC uchburchakning AB, BC, CA tomonlarida mos ravishda shunday M,N,P nuqtalar olinganki, $AM:AB=BN:BC=CP:CA=1:3$ munosabat o'rinli. MNP uchburchak yuzasi 5 ga teng bo'lsa, ABC uchburchak yuzasini toping.
A) 25 B) 20 C) 15 D) 10

77. Uchburchakning medianalari m_1, m_2 va m_3 ga teng bo'lsa, uning tomonlari qanday aniqlanadi.
A) $2m_1, 2m_2, 2m_3$
B) $\frac{2}{3}\sqrt{2m_1^2+2m_2^2-m_3^2}$; $\frac{2}{3}\sqrt{2m_1^2+2m_3^2-m_2^2}$; $\frac{2}{3}\sqrt{2m_2^2+2m_3^2-m_1^2}$;
C) $\frac{\sqrt{3}}{2}m_1, \frac{\sqrt{3}}{2}m_2, \frac{\sqrt{3}}{2}m_3$
D) $\frac{1}{2}\sqrt{2m_1^2+2m_2^2-m_3^2}$; $\frac{1}{2}\sqrt{2m_1^2+2m_3^2-m_2^2}$; $\frac{1}{2}\sqrt{2m_2^2+2m_3^2-m_1^2}$;

KVADRAT VA TO'G'RI TO'RTBURCHAK

1. Kvadratning tomonlari koordinata o'qlariga parallel va 6 ga teng. Uning markazi $(2;1)$ nuqtada joylashgan. Kvadrat tomonlarining absissa o'qlari bilan kesishish nuqtalari koordinatalarini toping
A) $(1;0)$, $(5;0)$ B) $(0;0)$, $(6;0)$
C) $(-1;0)$, $(5;0)$ D) $(-1;0)$, $(0;5)$

2. Kvadratning tomonlari koordinata o'qlariga parallel va 4 ga teng. Uning markazi $(2;1)$ nuqtada joylashgan. Kvadrat tomonlarining ordinata o'qi bilan kesishish nuqtalari koordinatalarini toping.
A) (0; -3), (0; 1) B) (0; -2), (0; 2)
C) (0; 1), (0; 3) D) (0; -1), (0; 3)

3. Kvadratning tomonlari koordinata o'qlariga parallel va 6 ga teng. Uning markazi $(2;1)$ nuqtada joylashgan. Kvadrat tomonlarining ordinata o'qi bilan kesishish nuqtalari koordinatalarini toping.
A) (0; -3), (0; 1) B) (0; -2), (0; 2)
C) (0; 4), (0; -2) D) (0; -1), (0; 3)

4. $y>0$ bo'lsin. To'rtburchakning uchlari to'g'ri burchakli dekart koordinatalar sistemasida quyidagicha berilgan $A(1;0)$, $B(1;y)$, $C(10;y)$, $D(12;0)$. To'rtburchak dioganallarining o'rtalari orasidagi masofani toping.
A) 1 B) 2 C) y ga bog'liq D) $\sqrt{2}$

5. $y>0$ bo'lsin. To'rtburchakning uchlari to'g'ri burchakli dekart kordinatalar sistemasida quyidagicha berilgan: $A(1;0)$, $B(1;y)$, $C(-6;y)$, $D(-8;0)$. To'rtburchak dioganallarning o'rtalari orasidagi masofani toping.
A) $\sqrt{2}$ B) 2 C) y ga bog'liq D) 1

6. $y>0$ bo'lsin. To'rtburchakning uchlari to'g'ri burchakli dekart koordinatalar sistemasida quyidagicha berilgan: $A(0;0)$, $B(0;y)$, $C(-5;y)$ va $D(-7;0)$. To'rtburchak dioganallarining o'rtalari orasidagi masofani toping.
A) y ga bog'liq B) $\sqrt{2}$ C) 1 D) 2

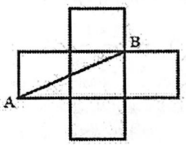
7. Tomonlari 6 va 9 ga teng bo'lgan to'g'ri to'rtburchak birlik kvadratchalarga bo'lingan. Uning dioganali birlik kvadratchalarning uchlari bo'lmish nuqtalarning nechtasidan o'tadi?
A) 4 B) 3 C) 1 D) 0

8. Tomonlari 55 va 60 ga teng bo'lgan to'g'ri to'rtburchak birlik kvadratchalarga bo'lingan. Uning dioganali birlik kvadratchalarning uchlari bo'lmish nuqtalarning nechtasidan o'tadi?
A) 2 B) 1 C) 5 D) 6

9. Tomonlari 60 va 65 ga teng bo'lgan to'g'ri to'rtburchak birlik kvadratchalarga bo'lingan. Uning diagonali birlik kvadratchalarning uchlari bo'lmish nuqtalarning nechtasidan o'tadi?
A) 6 B) 1 C) 5 D) 2

10. Tomonlari 12 va 9 ga teng bo'lgan to'g'ri to'rtburchak birlik kvadratchalarga bo'lingan. Uning diagonali birlik kvadratchalarning uchlari bo'lmish nuqtalarning nechtasidan o'tadi?
A) 4 B) 1 C) 0 D) 3

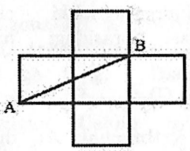
11. Beshta bir xil kvadratdan rasmdagidek shakl hosil qilingan. Agar $AB=3\sqrt{2}$ bo'lsa, shaklning yuzini toping.



A) 18 B) 24
C) 6 D) 9

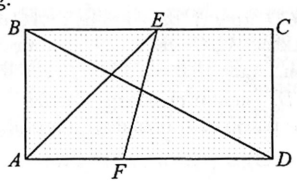
★ XORAZM ILM ZIYO ★

12. Beshta bir xil kvadratdan rasimdagidek shakl hosil bo'lgan. Agar berilgan shaklning yuzi 196 ga teng bo'lsa, AB ni uzunligini toping.



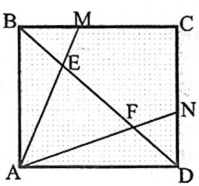
A) 14 B) 15 C) 28 D) 7

13. Rasmda $ABCD$ to'g'ri to'rtburchak. Agar BD diagonal 13 sm, $AF=5$ sm $FD=7$ sm ga teng bo'lsa, AEF uchburchakning yuzini (sm^2) toping.



A) 12,5 B) 15 C) 13,5 D) 10

14. Rasmda kvadrat berilgan. Bu yerda $MC=CN$. Agar $BE=3$ va $EF=4$ bo'lsa, BD dioganal uzunligini toping.



A) 7 B) 10 C) 13 D) 11

15. Kvadratga ikkita aylana ichki chizilgan. Radiusi 1 ga teng bo'lgan birinchi aylana kvadratning ikkita qo'shni tomonlariga urinadi, radiusi 3 ga teng bo'lgan ikkinchi aylana kvadratning qolgan ikkita tomoni va birinchi aylanaga urinadi. Kvadratning dioganalini toping.

A) $2(2-\sqrt{2})$ B) $3(\sqrt{2}+1)$
C) $1{,}5(\sqrt{2}+1)$ D) $2(2\sqrt{2}+2)$

16. P nuqta $ABCD$ kvadratning ichida joylashgan. $AP:BP:CP=1:2:3$ munosabat o'rinli bo'lsa, $\sin(\angle CBP)$ ni toping.

A) $\frac{\sqrt{2}+1}{\sqrt{5+2\sqrt{2}}}$ B) $\frac{2\sqrt{2}+1}{\sqrt{10+4\sqrt{2}}}$
C) $\frac{1}{\sqrt{10+4\sqrt{2}}}$ D) $\frac{\sqrt{2}}{\sqrt{5+2\sqrt{2}}}$

17. $ABCD$ to'g'ri to'rtburchak AC dioganali orqali ikkita ABC va ACD uchburchaklarga ajralgan Agar $AB=6$, $AD=8$ bo'lsa, ABC va ACD uchburchaklarga ichki chizilgan aylanalar markazlari orasidagi masofani toping?

A) $\sqrt{5}$ B) $2\sqrt{5}$ C) 4 D) 5

18. $ABCD$ to'g'ri to'rtburchak AC diagonali orqali ikkita ABC va ACD uchburchaklarga ajratilgan. Agar $AB=9$, $AD=12$ bo'lsa, ABC va ACD uchburchaklarga ichki chizilgan aylanalar markazlari orasidagi masofani toping.

A) 4 B) 6 C) $3\sqrt{5}$ D) $2\sqrt{5}$

19. $ABCD$ to'g'ri to'rtburchak AC diagonali orqali ikkita ABC va ACD uchburchaklarga ajratilgan. Agar $AB=5, AD=12$ bo'lsa ABC va ACD uchburchaklarga ichki chizilgan aylanalar markazlari orasidagi masofani toping.

A) $\sqrt{65}$ B) 8 C) 6 D) $\sqrt{13}$

20. Tekislikdagi kvadratning tashqarisida O nuqta olingan. Agar $OA=OB=5$, $DO=\sqrt{13}$ bo'lsa, kvadratning yuzini toping.

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

21. $ABCD$ kvadratning AB tomonini gipotenuza qilib kvadrat tashqarisida teng yonli to'g'ri burchakli AEB uchburchak chizilgan. $ABCD$ kvadratning AD tomonini teng ikkiga bo'luvchi F nuqta belgilangan. Agar $BD=10\,sm$ bo'lsa, EF kesmaning uzunligini (sm) toping.

A) $5\sqrt{6}$ B) $6\sqrt{2}$ C) $5\sqrt{2{,}5}$ D) $4\sqrt{3}$

PARALLELOGRAM

1. $ABCD$ parallelogramda M nuqta BD dioganalda yotadi. Bunda $MD:BM=1:2$. Agar $ADCM$ to'rtburchak yuzi 5 ga teng bo'lsa, $ABCD$ parallelogram yuzini toping.

A) 14 B) 20 C) 10 D) 15

2. $ABCD$ parallelogramm berilgan. M nuqta BD diagonalda yotadi, bunda $MD:BM=2:1$. Agar $ADCM$ to'rtburchak yuzi 32 ga teng bo'lsa, $ABCD$ parallelogrammning yuzini toping.

A) 48 B) 36 C) 60 D) 52

3. $ABCD$ parallelogramm berilgan. M nuqta BD diagonalda yotadi, bunda $MD:BM=2:1$. Agar $ADCM$ to'rtburchak yuzi 12 ga teng bo'lsa, $ABCD$ parallelogrammning yuzini toping.

A) 18 B) 13 C) 36 D) 34

4. $ABCD$ parallelogramm berilgan. M nuqta BD diagonalda yotadi, bunda $MD:BM=2:1$. Agar $ADCM$ to'rtburchak yuzi 6 ga teng bo'lsa, $ABCD$ parallelogrammning yuzini toping.

A) 9 B) 6 C) 25 D) 12

5. $ABCD$ parallelogrammning AD tomoniga tushirilgan BP kesma AC dioganalni O nuqtada kesib o'tadi $AP:AD=1:5$ kabi bo'lsa, $AC:AO$ ni toping.

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

6. $ABCD$ parallelogrammda E nuqta AD tomoning o'rtasi, F nuqta CE to'g'ri chiziqqa B nuqtadan tushirilgan perpendikulyarning asosi. Agar $AB=2\sqrt{3}$ va $\angle BAF=62^0$ bo'lsa, ABF uchburchakning yuzini toping.

A) $6\sin 62^0$ B) $6\sin 124^0$
C) $5\sin 62^0$ D) $5\sin 124^0$

7. $ABCD$ parallelogramm uchta uchining kordinatalari ma'lum: $A(0;1); B(1;3), C(13;3)$. D uchining absissasi ordinatasining yig'indisini toping.

A) 0 B) 5 C) 13 D) 14

8. $ABCD$ parallelogramm uchta uchining koordinatalari ma'lum: $A(0;1)$, $B(1;3)$, $C(11;3)$ $ABCD$ parallelogrammning yuzini toping.

A) 24 B) 30 C) 25 D) 20

9. $ABCD$ parallelogramm uchta uchining koordinatalari ma'lum: $A(0;1)$, $B(1;2)$, $C(10;2)$ $ABCD$ parallelogrammning yuzini toping.

A) 12 B) 8 C) 9 D) 18

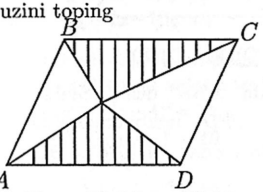
10. $ABCD$ parallelogramm uchta uchining koordinatalari ma'lum: $A(0;1)$, $B(1;2)$, $C(11;2)$. $ABCD$ parallelogrammning yuzini toping.
A) 6 B) 10 C) 5 D) 12

11. $ABCD$ parallelogramm uchta uchining koordinatalari ma'lum: $A(0;1)$, $B(1;2)$, $C(6;2)$. $ABCD$ parallelogrammning yuzini toping.
A) 3 B) 7 C) 5 D) 4

12. $ABCD$ parallelogramm uchta uchining koordinatalari ma'lum: $A(0;1)$, $B(1;3)$, $C(6;3)$. D uchining absitsasini toping.
A) 6 B) 4 C) 5 D) 0

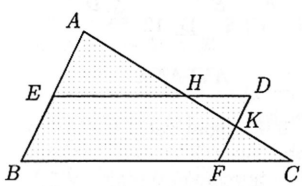
13. $ABCD$ parallelogramm uchta uchining koordinatalari ma'lum: $A(0;1)$, $B(1;3)$, $C(14;3)$. D uchining absitsasi va ordinatasining yig'indisini toping.
A) 0 B) 14 C) 5 D) 15

14. Agar rasmda shtrixlangan sohaning yuzi 12 ga teng bo'lsa, $ABCD$ paralelogrammning yuzini toping



A) 18 B) 24 C) 26 D) 30

15. $BEDF$ parallelogram $|BE|=2|AE|$, $|BC|=9sm$, $|HD|=2sm$ bo'lsa, AEH uchburchakning yuzasi KFC uchburchak



yuzasidan necha marta kichik.
A) 1 B) 9/4 C) 16/9 D) 9/16

16. Parallelogramning ikita balandligi mos ravishda 6 va 9 ga teng Perimetri 60 ga teng. Parallelogramning o'tkir burchagini toping.
A) 60^0 B) 45^0 C) 15^0 D) 30^0

17. Parallelogrammning ikkita balandligi mos ravishda 2 va 3 ga teng. Perimetri esa 20 ga teng. Parallelogrammning o'tkir burchagini toping.
A) 15^0 B) 30^0 C) 45^0 D) 60^0

18. Parallelogrammning ikkita balandligi mos ravishda 4 va 6 ga teng. Perimetri esa 40 ga teng. Parallelogrammning o'tkir burchagini toping.
A) 15^0 B) 30^0 C) 45^0 D) 60^0

TRAPETSIYA

1. Teng yonli trapetsiyaning dioganali uning o'tkir burchagi bissektrisasidir. Trapetsiyaning asoslari uzunliklari 2:3 kabi nisbatda, perimetri esa 12 ga teng. Trapetsiyaning o'rta chizig'ini toping.

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

2. AD va BC asosli to'g'ri burchakli $ABCD$ trapetsiyaga aylana ichki chizilgan. Agar aylana markazi trapetsiyaning C va D uchlaridan mos ravishda 2 va 6 ga teng masofada bo'lsa, trapetsiya yuzini toping.
A) 19,2 B) 18 C) 20,5 D) 32,6

3. Diagonallari 90^0 burchak ostida kesishuvchi $ABCD$ trapetsiyaning asoslari mos ravishda 6 va 2 ga teng. Diagonallarining kesishish nuqtasidan asoslariga parallel to'g'ri chiziq o'tkazilgan Ushbu to'g'ri chiziqning yon tomonlari bilan chegaralangan kesmasi uzunligini toping.

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

4. Diagonallari 90^0 burchak ostida kesishuvchi $ABCD$ trapetsiyaning asoslari mos ravishda 7 va 3 ga teng. Diagonallarining kesishish nuqtasidan asoslariga parallel to'g'ri chiziq o'tkazilgan. Ushbu to'g'ri chiziqning yon tomonlari bilan chegaralangan kesmasi uzunligini toping.
A) 4,5 B) 3,8 C) 2,1 D) 4,2

5. Asoslari 5 va 3 ga teng bo'lgan trapetsiyaning yon tomoni kesishishguncha davom ettirildi va kesishish nuqtasidan asoslariga parallel to'g'ri chiziq o'tkazildi. Ushbu chiziq bilan trapetsiyaning diagonallari davom ettirilishidan hosil bo'lgan kesma uzunligini toping.
A) 20 B) 19 C) 14 D) 15

6. $ABCD$ trapetsiyaning diagonallari kesishish nuqtasidan BC tomonga $AB=18$ va $CD=9$ bo'lgan asoslariga parallel qilib o'tkazilgan kesma uzunligini toping.
A) 5 B) 4 C) 8 D) 6

7. $ABCD$ trapetsiyaning diagonallari kesishish nuqtasidan BC tomonga $AB=12$ va $CD=6$ bo'lgan asoslariga parallel qilib o'tkazilgan kesma uzunligini toping.
A) 5 B) 4 C) 8 D) 6

8. $ABCD$ teng yonli trapetsiyaning AC diagonali 6 ga teng va u AD katta asos bilan 30^0 li burchak tashkil etadi. Trapetsiya yuzini toping.
A) 9 B) 3 C) $3\sqrt{3}$ D) $9\sqrt{3}$

9. $ABCD$ trapetsiyada CF balandlik o'tkazilgan. Uning kichik asosi $BC=4$, $AB=CD=AF=10$. Trapetsiyaning yuzini toping.
A) 60 B) 80 C) 70 D) 90

10. O'tkir burchagi 45^0 ga, balandligi va katta asosining yig'indisi a ga teng bo'lgan teng yonli trapetsiyalar ichida eng katta yuzaga ega bo'lganining kichik asosini toping.
A) $\frac{7}{4}a$ B) $\frac{1}{4}a$ C) $\frac{3}{4}a$ D) $\frac{5}{4}a$

11. O'tkir burchagi 45^0 ga, balandligi va katta asosining yig'indisi 4 ga teng bo'lgan teng yonli trapetsiyalar ichida eng katta yuzaga ega bo'lganining yuzini toping.
A) 2 B) 4 C) 6 D) 8

12. To'g'ri burchakli trapetsiya o'tkir burchagining kosinusi $\frac{2}{3}$ bo'lsa, katta burchagining tangenisini toping.
A) $-\frac{13}{12}$ B) $\pm\frac{\sqrt{5}}{2}$ C) $\frac{3}{2}$ D) $-\frac{\sqrt{5}}{2}$

13. Teng yonli $ABCD$ trapetsiyada AC dioganal CD tomonga perpendikulyar. Agar $AD=4$, $|AB|^2+|BC|^2=11$ bo'lsa, $|AB|$ ni toping.
A) 3 B) $\sqrt{2}$ C) 2 D) 1,5

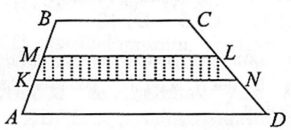
14. $ABCD$ trapetsiyaning AD va BC asoslari mos ravishda 8 va 4 ga teng. Agar ACD uchburchakning yuzi 12 ga teng bo'lsa, berilgan trapetsiya yuzini toping.
A) 9 B) 18 C) 12 D) 24

15. $ABCD$ teng yonli trapetsiyaning AC dioganali 8 ga teng, u AD katta asos bilan 15^0 li burchak tashkil etadi. Trapetsiyaning yuzini toping.
A) 16 B) 18 C) 20 D) 8

16. $ABCD$ teng yonli trapetsiyaning AD katta asosi 15 ga teng. Uning AC dioganali orqali ACD uchburchak hosil qilingan va unga aylana ichki chizilgan. Agar aylana CD yon tomoni D uchidan boshlab hisoblanganda 6 va 4 ga teng kesmalarga ajratgan holda urinsa, BD dioganal uzunligini toping.
A) 13 . B) 14 C) 12 D) 10

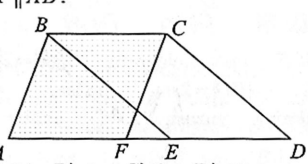
17. $ABCD(AD \parallel BC)$ trapetsiyada $AD=10$, $BC=6$. Trapetsiyaning balandligi 6 ga teng. AD asosi, diagonallar va o'rta chiziq bilan chegaralangan to'rtburchakning yuzini toping.
A) 12 B) 20 C) 16 D) 18

18. $ABCD$ trapetsiya berilgan bo'lib, $(AD \parallel BC)$. Agar $AK=KM=MB$, $DN=NL=LC$ va $S_{ABCD}=30sm^2$ bo'lsa, u holda S_{KMLN} ni (sm^2) toping.



A) 7,5 B) 15 C) 10 D) 20

19. Agar rasmda ABE uchburchakning yuzi $12sm^2$ bo'lsa, CFD uchburchakning yuzini (sm^2) toping. Bu yerda $AD \parallel BC$, $BE \parallel CD$ va $CF \parallel AB$.



A) 24 B) 4 C) 8 D) 12

AYLANA

1. Aylanaga o'tkazilgan vatar uni 5:7 nisbatda bo'ladi. Ushbu vatarga tiralgan, aylanaga ichki chizilgan katta burchakni toping.
A) 105^0 B) 135^0 C) 120^0 D) 150^0

2. Aylanaga o'tkazilgan vatar uni 5:7 nisbatda bo'ladi. Ushbu vatarga tortilgan kichik burchakni toping.
A) 65^0 B) 75^0 C) 55^0 D) 45^0

3. $y=\sqrt{4-(x-3)^2}$ funksiya grafigi bo'lgan egri chiziq uzunligini toping.
A) 2π B) 3π C) 4π D) 6π

4. Markazi $(3;4)$ nuqtada bo'lib koordinatalar boshidan o'tuvchi aylana tenglamsini toping.

A) $(x-3)^2-(y-4)^2=2$
B) $(x-3)^2+(y-4)^2=25$
C) $(x+3)^2+(y-4)^2=2$
D) $(x-3)^2+(y+4)^2=2$

5. Markazi $(3;5)$ nuqtada bo'lib koordinatalar boshidan o'tuvchi aylana tenglamsini toping.

A) $(x-5)^2-(y-3)^2=34$
B) $(x+3)^2+(y+5)^2=34$
C) $(x-3)^2+(y-5)^2=34$
D) $(x-3)^2+(y+4)^2=34$

6. Markazi $M(2;5)$ nuqtada bo'lib koordinata boshidan o'tuvchi aylana tenglamasini toping.

A) $x^2+y^2-4x+10y=0$
B) $x^2+y^2-4x-10y=25$
C) $x^2+y^2-4x-10y=29$
D) $x^2+y^2-4x-10y=0$

7. Markazi (3; 4) nuqtada bo'lib koordinata boshidan o'tuvchi aylana tenglamasini toping.

A) $(x-3)^2+(y-4)^2=25$
B) $(x+3)^2+(y+4)^2=49$
C) $x^2+y^2=25$
D) $(x-3)^2+(y+4)^2=25$

8. Markazi (2; 5) nuqtada bo'lib koordinata boshidan o'tuvchi aylana tenglamasini toping.

A) $(x-2)^2+(y-5)^2=29$
B) $(x-3)^2+(y-4)^2=25$
C) $x^2+y^2=29$
D) $(x-2)^2+(y-5)^2=39$

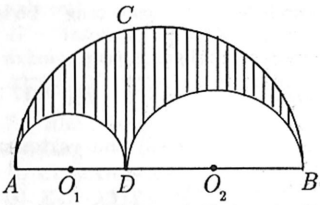
9. Markazi (4; -5) nuqtada bo'lib koordinata boshidan o'tuvchi aylana tenglamasini toping.

A) $(x-4)^2+(y+5)^2=41$
B) $(x-4)^2+(y+5)^2=25$
C) $(x-4)^2+(y+5)^2=49$
D) $(x-4)^2+(y+5)^2=16$

10. Markazi O nuqtada bo'lgan aylanadan tashqaridagi P nuqtadan aylanani A va B nuqtalarda kesuvchi to'g'ri chiziq o'tkazilgan. Agar $PA=3, AB=4$ va $PO=\sqrt{46}$ bo'lsa, aylananing radiusini toping.

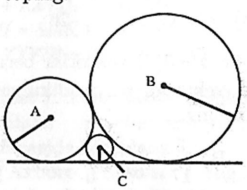
A) 3,5 B) 4 C) 2,5 D) 5

11. "Arximed pichog'i" deb ataluvchi shaklda (shtrixlangan soha) ning yuzini toping? Bu yerda $CD \perp AB, CD=2$ ga teng O_1, O_2 aylanalar markazlari



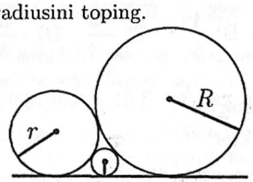
A) 3π B) π C) 2π D) $0{,}5\pi$

12. Umumiy urinmaga ega bo'lgan A, B, C markazli aylanalar o'zaro tashqi urinadilar. Ularning radiuslari mos ravishda r_1, r_2 va r_3 bo'lsin Agar $r_2=12$ va $r_3=3$ bo'lsa, r_1 ning uzunligini toping.



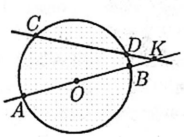
A) 36 B) 12 C) 9 D) 8

13. $R=9$ va $r=1$ radiusli ikkita aylana bir-biriga va to'g'ri chiziqqa urinadi. Shu to'g'ri chiziqqa va aylanalarga urinadigan kichik aylana radiusini toping.



A) $\frac{16}{9}$ B) $\frac{36}{25}$ C) $\frac{4}{9}$ D) $\frac{9}{16}$

14. Chizmaga qarab noto'g'ri tasdiqni aniqlang.



A) AD kesma uzunligi AB kesma uzunligidan katta
B) AB - aylana diametri
C) AB va CD to'g'ri chiziqlar kesishish nuqtasi, markazi O nuqtada bo'lgan doira tashqarisida joylashgan.
D) AB kesma uzunligi CD kesma uzunligidan katta

VEKTORLAR

1. $|\vec{a}|=3$ va $|\vec{b}|=4$ hamda a va b vektorlar orasidagi burchak 60^0 ga teng bo'lsa, $\vec{c}=3\vec{a}+2\vec{b}$ vektor uzunligini toping
A) $\sqrt{215}$ B) $\sqrt{214}$ C) $\sqrt{216}$ D) $\sqrt{217}$

2. $\overline{CA}=(-5;-1)$, $\overline{CB}=(-2;-3)$ shu vektorlarni orasidagi burchakni toping.
A) 60^0 B) 30^0 C) 45^0 D) 90^0

3. $\vec{a},\vec{b}$ va $\vec{c}$ vektorlar $\vec{a}+\vec{b}+\vec{c}=0$ shartni qanoatlantiradi. Agar $|\vec{a}|=1,|\vec{b}|=3,|\vec{c}|=4$ bo'lsa, $\vec{a}\cdot\vec{b}+\vec{b}\cdot\vec{c}+\vec{c}\cdot\vec{a}$ ni hisoblang.
A) 13 B) -13 C) 26 D) -26

4. $\vec{a}(1;4)$ va $\vec{b}(-3;2)$ vektorlar berilgan. $\vec{a}+\lambda\vec{b}$ vektori $\vec{a}$ vektorga perpendikulyar bo'ladigan λ sonini toping.
A) $-\frac{5}{17}$ B) $\frac{5}{17}$ C) $\frac{17}{5}$ D) $-\frac{17}{5}$

5. $\overline{a}(-2;3)$ va $\overline{b}(2;n)$ vektorlar berilgan. n ning qanday qiymatida bu vektorlar o'zaro perpendikulyar bo'ladi.
A) $\frac{3}{4}$ + B) $\frac{4}{3}$ C) $-\frac{3}{4}$ D) $-\frac{3}{4}$

6. $\overline{a}(1;4)$ va $\overline{b}(-3;2)$ vektorlar berilgan. $\overline{a}+\gamma\overline{b}$ vektori $\overline{b}$ vektoriga perpendikulyar bo'ladigan γ sonni toping.
A) $-\frac{5}{13}$ + B) $\frac{5}{13}$ C) $\sqrt{\frac{5}{13}}$ D) $-\sqrt{\frac{5}{13}}$

7. Agar $\vec{a}(4;-3;5)$ va $\vec{b}\left(\frac{1}{2};\frac{1}{3};-\frac{1}{5}\right)$ bo'lsa, $\vec{a}$ va $\vec{b}$ vektorlar orasidagi burchak kosinusini toping.
A) $\frac{\sqrt{2}}{2}$ B) $\frac{\sqrt{3}}{2}$ C) 0 D) 1

8. Agar $\vec{a}(-1;3;5)$ va $\vec{b}(2;-3;1)$ bo'lib, $\vec{c}=3\vec{a}-2\vec{b}$ bo'lsa, $\vec{a}$ va $\vec{c}$ vektorlarning skalyar ko'paytmasini toping.
A) 109 B) -117 C) 117 D) -109

9. Agar $\vec{a}(6;2;1)$ va $\vec{b}(0;-1;2)$ bo'lsa, $\vec{c}=2\vec{a}-\vec{b}$ vektorning uzunligini toping.
A) 16 B) 13 C) 15 D) 14

10. Agar $\vec{a}(3;-2;4)$ va $\vec{b}(-1;5;-2)$ bo'lib, $\vec{c}=2\vec{a}-\vec{b}$ bo'lsa, $\vec{b}$ va $\vec{c}$ vektorlarning skalyar ko'paytmasini toping.
A) -73 B) -72 C) 73 D) 72

11. $\overline{a}(2;3;4)$ va $\overline{b}(1;3;4)$ vektorlar berilgan. $\overline{c}=2\overline{a}+\overline{b}$ vektorning uzunligini toping.
A) $\sqrt{250}$ B) $\sqrt{280}$ C) $\sqrt{220}$ D) $\sqrt{310}$

★ XORAZM ILM ZIYO ★

ARALASH BO'LIM

1. Tomoni $8\sqrt{3}$ ga teng $ABCDEF$ muntazam oltiburchakning FD dioganali EA va EC dioganallarini mos ravishda P va K nuqtalarda kesib o'tadi. PK kesma uzunligini toping.
A) 8 B) 16 C) 9 D) 12

2. Qavariq $ABCDEF$ oltiburchakda ichki burchaklar o'zaro teng. Agar $AB=5, BC=4, CD=3, EF=1$ bo'lsa, DE tomon uzunligini toping.
A) 6 B) 7 C) 8
D) bir qiymatli aniqlab bo'lmaydi.

3. Qavariq ko'pburchakning x ga teng bo'lgan bitta burchagidan tashqari qolgan barcha burchaklari yig'indisi 2192^0 ga teng x burchakning gradus o'lchovini toping.
A) 154^0 B) 148^0 C) aniqlab bo'lmaydi D) 150^0

4. $ABCD$ to'rtburchak aylanaga ichki chizilgan ABC burchak 114^0 ga, CAD burchak 54^0 ga teng bo'lsa, ABD burchakning gradus o'lchovini toping.
A) 56^0 B) 60^0 C) 72^0 D) 50^0

INFORMATIKA

1. Faqat rost mulohazalarni aniqlang va ularga tenglashtirilgan mulohazlar yig'indisini rim sanoq sistemasida hisoblang.
XCIX – "Informatikani odatda, *Hardware* va *Software* kabi ikki qismning birligi sifatida qaraladi".
XIX – "*XX* asrning 50-yillarida informatika faniga asos solingan".
IV – "Informatika, odatda, *Hardware* sifatida qaraladi".
A) *CXVIII* B) *CXVII* C) *CXIX* D) *XXIII*

2. Rost mulohazalarni mos sonlar yig'indisini rim sanoq sistemasida hisoblang.
CXLIX – "Axborot jarayonlari axborot ustida bajariladigan amallar bilan bog'liq"
XCVII – "Insonga uzluksiz ta'sir etib turuvchi axborotlar *analog* axborotlar deb ataladi"
XLIX – "Axborotni uzlukli turi *analog* axborot deb ataladi. "
A) *CXLVV* B) *CCXLVI*
C) *CVXXLI* D) *CCCXXVI*

3. Rost mulohazalarni mos sonlar yig'indisini rim sanoq sistemasida hisoblang.
CCXLVIII – "Ob havo holati uzluksiz axborotga misol bo'ladi"
XCVII – "Insonga uzluksiz ta'sir etib turuvchi axborotlar *analog* axborotlar deb ataladi"
XLIX – "Axborot xususiyatlariga quyidagilar kiradi: hid, tovush, mimika. "
A) *CVLI* B) *CCCXCIV*
C) *CCVCII* D) *CCCVL*

4. Rost mulohazalarni mos sonlar yig'indisini rim sanoq sistemasida hisoblang.
CXXIX – "Vaqt uzluksiz axborotdir"
XCVII – "Insonga uzluksiz ta'sir etib turuvchi axborotlar *diskret* axborotlar deb ataladi"
XLIX – "Axborot xususiyatlariga quyidagilar kiradi: qimmatlik, ishonchlilik, to'liqlik"
A) *CCXXVI* B) *CXLVI*
C) *CLXXVIII* D) *CCLXXV*

5. Rost mulohazalarni mos sonlar yig'indisini rim sanoq sistemasida hisoblang.
CIX – "Soat millarining harakati uzluksiz axborotga misol bo'la oladi. "
XCVII – "Insonga uzluksiz ta'sir etib turuvchi axborotlar *diskret* axborotlar deb ataladi"
XLIX – "Axborot xususiyatlariga quyidagilar kiradi: qimmatlik, ishonchlilik, to'liqlik"
A) *CLVIII* B) *CXLVI* C) *CLVI* D) *CCVL*

6. Rost mulohazalarni mos sonlar yig'indisini rim sanoq sistemasida hisoblang.
CXLV – "Axborot ikki turga bo'linadi"
XCVII – "Insonga uzluksiz ta'sir etib turuvchi axborotlar *analog* axborotlar deb ataladi"
IV – "Insonga uzluksiz ta'sir etib turuvchi axborotlar *raqamli* axborotlar deb ataladi"
A) *CXLIX* B) *CI* C) *CCXLII* D) *CCXLVI*

7. Rim sanoq sitemasida to'g'ri tenglikni aniqlang.
A) *CLXXXIII + XXIX = CCXIII*
B) *XXX · XXIX = DCCCLXVIII*
C) *CCIII : XXIX = VII*
D) *CCLXXVII – LXXXVIII = CXC*

8. Rim sanoq sitemasida to'g'ri tenglikni aniqlang.
A) *CCCXVII – VLI = CCLXX*
B) *CVLII + XXVIII = CLXXIV*
C) *IL · VLII = MMCCCIII*
D) *CXII : XXVIII = V*

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9. Faqat rost mulohazalarni aniqlang va ularga tenglashtirilgan mulohazlar yig'indisini rim sanoq sistemasida hisoblang.
CVCIV – "Axborot so'zi ingliz tilidagi "information" so'zidan kelib chiqqan".
IV – "*XX* asrning 40-yillarida informatika faniga asos solingan".
XIX – "Informatika uchun o'rganish obyekti-bu axborot".
A) *CCXVIII* B) *CCXVIII* C) *XIX* D) *CCXIX*

10. Ali sakkizlik sanoq sistemasida $(54;67)$ oraliqdagi barcha butun sonlarni yozib chiqdi. Vali esa shu sonlardan 6 raqami qatnashgan barcha sonlarni o'chirib tashladi. Qolgan sonlar yig'indisini sakkizlik sanoq sistemasida aniqlang va ikkilik sanoq sistemasiga o'tkazing.
A) 1011100 B) 11101 C) 11101 D) 100111

11. Boburxon sakkizlik sanoq sistemasida $(64;101)$ oraliqdagi barcha butun sonlarni yozib chiqdi. Sobirxon esa shu sonlardan 1 raqami qatnashgan barcha sonlarni o'chirib tashladi. Qolgan sonlar yig'indisini sakkizlik sanoq sistemasida aniqlang.
A) 1105_8 B) 1276_8 C) 3425_8 D) 6666_8

12. Ma'murxon sakkizlik sanoq sistemasida $(55;100)$ oraliqdagi barcha butun sonlarni yozib chiqdi. Ma'rufxon esa shu sonlardan avval 5 raqami, so'ng 6 raqami qatnashgan barcha sonlarni o'chirib tashladi. Qolgan sonlar yig'indisini sakkizlik sanoq sistemasida aniqlang.
A) 353 B) 423 C) 541 D) 644

13. Alisher sakkizlik sanoq sistemasida $(177;217)$ oraliqdagi barcha butun sonlarni yozib chiqdi. G'anisher esa shu sonlardan 1 raqami qatnashgan barcha sonlarni o'chirib tashladi. Qolgan sonlar yig'indisini sakkizlik sanoq sistemasida aniqlang.
A) 1633 B) 723 C) 1132 D) 2157

14. Qobil sakkizlik sanoq sistemasida $(73;100)$ oraliqdagi barcha butun sonlarni yozib chiqdi. Qodir esa shu sonlardan 6 raqami qatnashgan barcha sonlarni o'chirib tashladi. Qolgan sonlar yig'indisini sakkizlik sanoq sistemasida aniqlang va beshlik sanoq sistemasiga o'tkazing.
A) 4301 B) 2341 C) 3431 D) 1214

15. Nurxon sakkizlik sanoq sistemasida $(43;67)$ oraliqdagi barcha butun sonlarni yozib chiqdi. Burxon esa shu sonlardan 5 raqami qatnashgan barcha sonlarni o'chirib tashladi. Qolgan sonlar yig'indisini sakkizlik sanoq sistemasida aniqlang va oltilik sanoq sistemasiga o'tkazing.
A) 214 B) 1245 C) 1533 D) 6203

16. Laylo sakkizlik sanoq sistemasida $(55;100)$ oraliqdagi barcha butun sonlarni yozib chiqdi. Shahlo esa shu sonlardan avval 5 raqami, so'ng 6 raqami, keyin 7 raqami qatnashgan barcha sonlarni o'chirib tashladi. Qolgan sonlar yig'indisini sakkizlik sanoq sistemasida aniqlang.
A) 141 B) 15 C) 0 D) 74

17. Olim sakkizlik sanoq sistemasida $(66;77)$ oraliqdagi barcha butun sonlarni yozib chiqdi. Odil esa shu sonlardan 6 raqami qatnashgan barcha sonlarni o'chirib tashladi. Qolgan sonlar yig'indisini sakkizlik sanoq sistemasida aniqlang .
A) 214 B) 537 C) 424 D) 203

18. Bir nechta bola 36 dona olmani yeyishmoqchi edi. Ali "Men olmalarni shunday taqsimlay olamanki, har birimizda 5 tadan ko'p olma bo'lmaydi" dedi. Vali esa "Men olmalarni shunday taqsimlay olamanki, xech birimiz olmasiz qolmaymiz va barchamizda olmalar soni turlicha bo'ladi". Bolalar sonini aniqlang.
A) 10 ta B) 11 ta C) 8 ta D) 9 ta

19. $A1=-9, B1=9, B2=3$ bo'lsin. Quyidagi formula natijasi 85 ga teng bo'lishi uchun $A2$ katakka kiritilishi kerak bo'lgan qiymatni aniqlang.
$=$ЕСЛИ(И$(A1+B2<A2*B1; A1*A2<>0); A1*B2-$
$-B1-A2; A1*B1-B2+A2)$
A) -3 B) -1 C) 1 D) -4

20. $A1=-7, B1=8, B2=4$ bo'lsin. Quyidagi formula natijasi -23 ga teng bo'lishi uchun $A2$ katakka kiritilishi kerak bo'lgan qiymatni aniqlang.
$=$ЕСЛИ(ИЛИ$(A1+B2<=A2*B1; A1*B1>0);$
$A1*B2+B1-A2; A1*B1+B2+A2)$
A) 3 B) 1 C) 0 D) 5

21. $A1=-6, A2=1, B1=7, B2=2$ bo'lsin. Natijani 3 ga teng bo'ladigan formulani aniqlang.
A) $=$СЧЕТСЛИ$(A1:B2;"<7")$
B) $=$СТЕПЕНЬ$(B2;A1+1)$
C) $=$МИН$(-A1-B1; A2-B1)$
D) $=$МАКС$(ABS(A1)+B2; A2+B1)$

22. $A1=14, A2=16, B1=19, B2=20$ bo'lsin. Natijani 35 ga teng bo'ladigan formulani aniqlang.
A) $=$СЧЕТСЛИ$(A1:B2;"<7")$
B) $=$СТЕПЕНЬ$(B2;A1+1)$
C) $=$МИН$(-A1-B1; A2-B1)$
D) $=$МАКС$(ABS(A1)+B2; A2+B1)$

23. $A1=5, A2=10, B1=7, B2=-8$ bo'lsin. Natijani 17 ga teng bo'ladigan formulani aniqlang.
A) $=$СЧЕТСЛИ$(A1:B2;"<7")$
B) $=$СТЕПЕНЬ$(B2;A1+1)$
C) $=$МИН$(-A1-B1; A2-B1)$
D) $=$МАКС$(ABS(A1)+B2; A2+B1)$

24. *Microsoft Excel* 2003 dasturida
$A1=6$, $A2=A1\cdot(-1)$, $A3=A2\cdot$СТЕПЕНЬ$(A1;2)$,
$A4=$СЧЁТЕСЛИ$(A1:A3;">0")$
bo'lsa, $A4$ katakchadagi formula natijasini toping.
A) 36 B) 1 C) 6 D) 0

25. *Microsoft Excel* 2003 dasturida
$A1=14, A2=6; A3=4; A4=$СТЕПЕНЬ
(Срзнач$(A1:A3)$;СЧЁТЕСЛИ$(A2;A3;">2")$)
bo'lsa, $A4$ katakchadagi formula natijasini toping.
A) 36 B) 64 C) 24 D) 0

26. *Microsoft Excel* 2003 dasturida
$A1=13, A2=16; A3=4; A4=$ЕСЛИ(КОРЕНЬ$(A3)>$
$>A2-A1;$Срзнач$(A1:A2);$Срзнач$(A1:A3))$
bo'lsa, $A4$ katakchadagi formula natijasini toping. A) 10 B) 12 C) 9 D) 11

27. *MS Excel*.

★ XORAZM IIM ZIYO ★

=ОСТАТ(−30;10)−ЗНАЧЕН(ЗАМЕНИТЬ
(СЦЕПИТЬ(−23;6);4;4;6))

buyrug'i berilganda qanday natija hosil bo'ladi.
A) 222 B) 236 C) 622 D) 212

28. *MS Excel.* $A1=3$, $B1=4$ bo'lsa,
=?(A1;B1)+Значен(??(B1;A1)) formulaning natijasi 71 bo'lishi uchun ? va ?? belgilarning o'rniga qo'yish mumkin bo'lgan funksiyalar to'g'ri berilgan javobni aniqlang.
A) Степень, Сцепить B) Степень, Степень
C) Макс, Степень D) Сумм, Стспень

29. *MS Excel.*
=ОСТАТ(−30;10)−ЗНАЧЕН(ЗАМЕНИТЬ
(СЦЕПИТЬ(−23;6);3;3;10))
buyrug'i berilganda qanday natija hosil bo'ladi.
A) 220 B) 364 C) 210 D) 226

30. *MS Excel.*
=?(−23;6)−Значен(ЗАМЕНИТЬ(??(−23;6);2;2;6))
formulaning natijasi 67 bo'lishi uchun ? va ?? belgilarning o'rniga qo'yish mumkin bo'lgan funksiyalar to'g'ri berilgan javobni aniqlang.
A) Остат, Заменить B) Остат, Сцепить
C) Мин, Мин D) Мин, Макс

31. *MS Excel.*
=ОСТАТ(14;6)−ЗНАЧЕН(ЗАМЕНИТЬ
(СЦЕПИТЬ(2;4);2;3;1))

buyrug'i berilganda qanday natija hosil bo'ladi.
A) -23 B) -19 C) -29 D) -21

32. *MS Excel.*
=ОСТАТ(−16;4)−ЗНАЧЕН(ЗАМЕНИТЬ
(СЦЕПИТЬ(2;4);2;2;1))

buyrug'i berilganda qanday natija hosil bo'ladi.
A) -23 B) 19 C) -30 D) -21

33. *MS Excel.*
=ОСТАТ(−12;10)−ЗНАЧЕН
(ЗАМЕНИТЬ(СЦЕПИТЬ(3;4);2;2;1))

buyrug'i berilganda qanday natija hosil bo'ladi.
A) -23 B) 9 C) 10 D) -10

34. *MS Excel.*
=ОСТАТ(−20;12)−ЗНАЧЕН
(ЗАМЕНИТЬ(СЦЕПИТЬ(3;2);2;3;2))

buyrug'i berilganda qanday natija hosil bo'ladi.
A) 23 B) -28 C) -20 D) -26

35. *MS Excel.*
=ОСТАТ(220;136)−ЗНАЧЕН
(ЗАМЕНИТЬ(СЦЕПИТЬ(2;2);2;3;2))

buyrug'i berilganda qanday natija hosil bo'ladi.
A) 66 B) 82 C) 62 D) 80

36. *MS Excel.*
=ОСТАТ(−40;16)−ЗНАЧЕН
(ЗАМЕНИТЬ(СЦЕПИТЬ(1;2);1;2;2))

buyrug'i berilganda qanday natija hosil bo'ladi.
A) 6 B) 2 C) 1 D) 8

37. *MS Excel.*
$A1=-3$, $A2=11$, $B1=-17$, $B2=30$ bo'lsa,
=МАКС(ABS(A1)+B2;A2+B1) komandasi kiritilsa natija nimaga teng bo'ladi?
A) 36 B) 40 C) 33 D) 24

38. *MS Excel.*
=ОСТАТ(−40;32)−ЗНАЧЕН
(ЗАМЕНИТЬ(СЦЕПИТЬ(1;2);1;1;1))

buyrug'i berilganda qanday natija hosil bo'ladi.
A) 26 B) 12 C) -12 D)-26

39. *MS Excel.*
$A1=10$, $B1=14$, $B2=6$ bo'lsa,
=СУММ(A1−B2;A2−B1) funksiyaning javobi 5 ga teng bo'lishi uchun $A2$ katakda qanday son bo'lishi kerak?
A) 16 B) 15 C) 17 D) 14

40. *MS Excel.*
$A1=30$, $B1=26$, $A2=25$ bo'lsa,
=СУММ(A1−B2;A2−B1) funksiyaning javobi 54 ga teng bo'lishi uchun $B2$ katakda qanday son bo'lishi kerak?
A) 80 B) 23 C) 10 D) -25

41. *MS Excel.*
=ОСТАТ(2;5)−ЗНАЧЕН
(ЗАМЕНИТЬ(СЦЕПИТЬ(−23;6);1;1;3))

buyrug'i berilganda qanday natija hosil bo'ladi.
A) -3234 B) -3634 C) -3632 D) -3226

42. MS Excel 2003 dasturida yozilgan quyidagi funksiyaning qiymatini toping.
=СРЗНАЧ(31;10;12;7)
A) 16 B) 15 C) 12 D) 14

43. *MS Excel.*
=ОСТАТ(−10;8)−ЗНАЧЕН
(ЗАМЕНИТЬ(СЦЕПИТЬ(−23;6);2;2;6))
buyrug'i berilganda qanday natija hosil bo'ladi.

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A) 88 B) 72 C) 102 D) 68

44. *MS Excel.*
$A1=100$, $B1=120$, $A2=146$ bo'lsa,
$=СУММ(A1-B2;A2-B1)$ funksiyaning javobi 46 ga teng bo'lishi uchun $B2$ katakda qanday son bo'lishi kerak?
A) 80 B) 90 C) 110 D) 40

45. HTML-hujjat matnni qalin shrift ko'rinishida yozish uchun uni qaysi HTML teglar orasiga olish zarur?
A) <Em>...</Em>
B) <u>...</u>
C) ...
D) ...

46. *MS Excel.*
=ОСТАТ(100;40)−ЗНАЧЕН
(ЗАМЕНИТЬ(СЦЕПИТЬ(−23;6);3;3;10))
buyrug'i berilganda qanday natija hosil bo'ladi.
A) 230 B) 364 C) 210 D) 226

47. Quyidagi *html*−hujjat kodi yozilishi bo'yicha kataklar ketma-ket sanalganda nechanchi katakda og'ma shiriftli marketlangan ro'yxat qo'llanilgan?
<table><tr><td colspan=2>
test</td>
<td rowspan=2>
test</td><td></td>
<cite>
test</cite>
</td></tr></table>
A) Birinchi katakda B) Ikkinchi katakda
C) Uchinchi katakda D) To'rtinchi katakda

48.Quyidagi *html*−hujjat kodi yozilishi bo'yicha kataklar ketma-ket sanalganda nechanchi katakda og'ma shiriftli marketlangan ro'yxat qo'llanilgan?
<table><tr><td colspan=2><a href>
<test>test</td><td rowspan=2>
<sup>
test<sup></td><td></tr><tr>
<td><img src=test jpg>test</td></td>
</dl><sub><dt>test<sub></dl></td></tr>
</table>
A) Birinchi katakda B) Ikkinchi katakda
C) Uchinchi katakda D) To'rtinchi katakda

49. Quyidagi *html*−hujjat kodi yozilishi bo'yicha kataklar ketma-ket sanalganda nechanchi katakda og'ma shiriftli marketlangan ro'yxat qo'llanilgan?
<table><tr><td colspan=2><u>
test
</u></td><td rowspan=2>test</td><td></tr><tr>
<td></dt><dd>test</dt><mb></td></tr>
</table>
A) Birinchi katakda B) Ikkinchi katakda
C) Uchinchi katakda D) To'rtinchi katakda

50. Quyidagi *html*−hujjat kodi yozilishi bo'yicha kataklar ketma-ket sanalganda nechanchi katakda og'ma shiriftli marketlangan ro'yxat qo'llanilgan?
<table><tr><td colspan=2>
test</td><td rowspan=2><sup>
test<sup></td><td></tr><tr>
<td><img src=test jpg>test</td></td>
</dl><sub><dt>test<sub></dl></td></tr>
</table>
A) Birinchi katakda B) Ikkinchi katakda
C) Uchinchi katakda D) To'rtinchi katakda

51.Quyidagi *html*−hujjat kodi yozilishi bo'yicha kataklar ketma-ket sanalganda birinchi katakda qanday shiriftdagi ro'yxat qo'llanilgan?
<table><tr><td><cite>
<u>
test</u>
</cite></td><td colspan=3>
test</td></tr><tr>
<td colspan=2>
test</td><td rowspan=2><u>
test</storong></td><td></tr><tr>
<td><il>test</storong></td></tr>
</table>
A) Tag chiziqli va og'ma shiriftli tartiblangan ro'yxat
B) Qalin va og'ma shiriftli tartiblangan ro'yxat
C) Og'ma shiriftli marketlangan ro'yxat
D) Tag chiziqli shiriftli marketlangan ro'yxat.

52. Quyidagi *html*−hujjat kodi yozilishi bo'yicha kataklar ketma-ket sanalganda birinchi katakda qanday shiriftdagi ro'yxat qo'llanilgan?
<table><tr><td>test
</td><td colspan=3>
test</td></tr><tr>
<td colspan=2>
test</td><td rowspan=2><storong>
test</storong></td><td></tr><tr>
<td><il>test</storong></td></tr>
</table>
A) Og'ma shriftli tartiblangan ro'yxat
B) Oddiy shiriftli tartiblangan ro'yxat

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C) Og'ma shiriftli marketlangan ro'yxat
D) Qalin shiriftli marketlangan ro'yxat.

53.Qanday teng yordamida HTML hujjatlarida hujjatning biror joydan boshqa joyiga o'tish yoki boshqa hujjatga o'tish mumkin?
A) <*B*> B) <*A*> C) <*U*> D) <*I*>

54. Web brauzerda matnning ko'rinishi quyidagicha bo'lishi uchun uning HTML kodi qanday bo'lishi kerak?
6.Chala kvadrat tenglama $ax^4C=0$ ko'rinishida bo'lmaydi.
A) <*ul type* ="*circle*" >< *li* >< *b* > Chala kvadrat tenglama < *s* >< *i* > ax < sup > 4 < / sup > $+c=0$ < / *i* >< / *s* > ko'rinishida bo'lmaydi. < / *b* >< / *ul* > .
B) < *ol start* = "6" >< *li* >< *b* > Chala kvadrat tenglama < *i* > ax < sup > 4 < / sup > $+c=0$ < / *i* >< / *s* > ko'rinishida bo'lmaydi. < / *b* >< / *ol* > .
C) < *ol start* = "6" >< *em* >< *b* > Chala kvadrat tenglama < *s* >< *strong* > ax < sup > 4 < / sup > $+c=0$ < / *strong* >< / *s* > ko'rinishida bo'lmaydi. < / *em* > < / *ol* > .
D) < *ul* >< *s* >< *site* > Chala kvadrat tenglama < *strong* > ax < sup > 2 < / sup > $+c=0$ < / *strong* > ko'rinishida bo'lmaydi.<site> < / *s* >< / *ul* > .

55. *A* = " *BIOS* – dasturi kompyuterning doimiy xotirasida joylashgan".
B = " *Software* – sinovdan o'tkazish muddatiga ega bo'lgan dasturlardir".
C = " *Windows* yo'lboshlovchisining ishlashiga *Explorer exe* dasturi javob beradi".
Yuqoridagi mulohazalar asosida quyidagi mantiqiy ifodaning natijasini toping.
$\neg A \vee (-C \wedge B)$
A) Rost B) Yolg'on
C) Ifodada xatolik bor
D) Ba'zi mulohazalarning qiymatini aniqlab bo'lmaydi

56. *A* = ""Mening kopyuterim" maxsus qobiq dasturidir".
B = "Fayl nomida *,\,/ belgilarni ishlatish mumkin emas".
C = "Kompyuter ishiga zarar yetkazuvchi dasturlardan himoyalovchi dasturlar *antivirus* dasturlar deyiladi".
Yuqoridagi mulohazalar asosida quyidagi mantiqiy ifodaning natijasini toping.
$(not\ A\ or\ B)\ and\ (C\ or\ not\ B)\ or\ not\ C$
A) Rost B) Yolg'on
C) Ifodada xatolik bor
D) Ba'zi mulohazalarning qiymatini aniqlab bo'lmaydi

57. *A* = "kompyuter qurilmalarini boshqaruvchi dasturlar *drayverlar* deb ataladi".
B = "Fayl nomida <,>,? belgilarni ishlatish mumkin".
C = "Total Commander qobiq dasturdir".
Yuqoridagi mulohazalar asosida quyidagi mantiqiy ifodaning natijasini toping.
$A \wedge \neg(C \vee \neg B)$
A) Rost
B) Yolg'on
C) Ifodada xatolik bor
D) Ba'zi mulohazalarning qiymatini aniqlab bo'lmaydi

58. *A* = "Command.com-buyruq protsessoridir".
B = "To'liq nomi C:\Test\DTM\test dtm.doc bo'lgan faylning joriy katalogidir".
C = "Doppix dasturi bilan ma'lumotlar omborini boshqarish sistemasidir".
Yuqoridagi mulohazalar asosida quyidagi mantiqiy ifodaning natijasini toping.
$A \wedge (B \vee C) \wedge (A \vee B)$
A) Rost
B) Yolg'on
C) Ifodada xatolik bor
D) Ba'zi mulohazalarning qiymatini aniqlab bo'lmaydi

59. *A* = "IO SYS-ma'lumotlarni kiritish chiqarish sistemalarini kengaytirish moduli".
B = "Free and Open Source Software-mutlaqo bepul, birlamchi kodi ochiq dasturiy ta'minot".
C = "Fox Pro operatsion sistemadir".
Yuqoridagi mulohazalar asosida quyidagi mantiqiy ifodaning natijasini toping.
$(A\ or\ B)\ and\ (not\ (B\ or\ C))$
A) Rost
B) Yolg'on
C) Ifodada xatolik bor
D) Ba'zi mulohazalarning qiymatini aniqlab bo'lmaydi

60. *A* = "Boot Record operatsion dasturini faollashtiruvchi dasturdir."
B = "Freeware-mutlaqo bepul, birlamchi kodi ochiq dasturiy ta'minotdir."
C = "Paradox operatsion sistemasidir."
Shu mulohazalar asosida quyidagi mantiqiy ifodaning qiymatini toping.
$C\ or\ not\ (B\ or\ not\ A)$
A) Ifodada xatolik bor
B) Ba'zi mulohazlarning qiymatlarini aniqlab bo'lmaydi.
C) Rost
D) Yolg'on

61. *Paskal.* Dastur natijasini aniqlang.

Var a,k : byte; S, N :string; A : array[1..11] of byte;
Begin Randomize; S := 'INFORMATIKA'
A[1] := Random(1)+1; A[2] := true (random)+1;
N :=; For k := 3 To 6 Do A[k] := A[k+1]+A[k+2];
For k := 1 To 6 Do N+copy a, A[k],1;
Write(N) : readln : End.

A) IFMTK B) natijani aniqlab bo'lmaydi
C) INIFOAA D) IINFRT

62. Quyidagi dastur bajarilishi natijasida C va D o'zgaruvchilar qanday qiymat qabul qiladi?

Program vvv1;
Var A, B, C, D: integer;
Begin
A:=6;
B:=2*A+8;
If B>A Then C:=B-A Else D:=A-B;
Writeln ('C=', C); Writeln ('D=', D);
End.

A) C=14, D=0 B) C=38, D=14
C) C=14, D=-14 D) C=0, D=-12

63. Quyidagi dastur bajarilishi natijasida C va D o'zgaruvchilar qanday qiymat qabul qiladi?

Program vvv2;
Var A, B, C, D: integer;
Begin
A:=7;
B:=2*A-3;
If B>A Then C:=B-A Else D:=A-B;
Writeln ('C=', C); Writeln ('D=', D);
End.

A) C=14, D=0 B) C=18, D=4
C) C=4, D=0 D) C=0, D=4

64. Dastur natijisasini toping:

Var
S,x:integer;
begin
S:=-5;x:=0;repeat s:=s*(x+2);x:=x+1; until x<2;write(s);
end.

A) -10.0 B) -30.0 C) 0.0 D) -120.0

65.Paskal tilida quyidagi dastur natijasini aniqlang.

Var a,k :integer;
Begin a := -2; For k := -5 to1 do a := (-2) a;*
write(a);
end;

A) 256 B) -2 C) 512 D) -512

66. Paskal tilida quyidagi dastur natijasini aniqlang.

Var a,b,c :integer;
*Begin a := 30; b := 6; a := a / *b;*
*if a > b then c := a+4*b else c := a-4*b;*
write(c;1);
end.

A) 114 B) 6 C) 66 D) Xatolik chiqaradi.

67. *Paskal.* Quyidagi dastur natijasini aniqlang.

Var X,Y,A : Integer;
Begin X := 25; Y := 15; IF X < Y THEN
*Begin A := X; X := (X+Y)/2; Y := A*Y; end ELSE*
*begin A := Y; Y := (X+Y)/2; X := A*X; end;*
Write('X =', X, 'Y =', Y); END.

A) X=0, Y=0 B) X=375, Y=20
D) X=20, Y=375 D) Xatolik chiqaradi.

68. *Paskal.* Quyidagi dastur natijasini aniqlang.

Var X,Y : Integer;
Begin X := 20; Y := 40; IF X < Y THEN
*Begin X := (X+Y) div 2; Y := X*Y; end ELSE*
*begin Y := (X+Y) div 2; X := Y*X; end;*
Write('X =', X, 'Y =', Y); END.

A) X=30, Y=1200 B) X=800, Y=80
C) X=20, Y=40 D) Xatolik chiqaradi.

69. Dastur natijasini toping:

a:=7;
b:=8;
k:=5+a;
if a>b then k:=k*3
else k:=k-3;
writeln (k);

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

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70. Quyidagi operatorlardan qaysi biri noto'g'ri yozilgan:

A) If a>b then max := a else max:=b;

B) If B=0 then writeln (`Деление на нуль невозможно`);

C) If (a>b) and (b>0) then c:=a+b;

D) If a < b then min:=a; else min:=b;

71. Paskal dasturlash tilida berilgan ushbu ifodaning qiymatini toping.

$trunc\left(sqrt\left(abs\left(trunc(5.5)+sqrt(100)*round(1.5)\right)\right)\right)$

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

72.Paskal tilida qaysi javobda A[k]=k formula orqali aniqlangan N ta elementli massivning elementlari qiymatini kamayish tartibida ekranga chiqaruvchi dastur lavhasi yozilgan?

A) For k:=1 downto N do writeln(A[k]);
B) For x:=N downto 1 do writeln(A[x]);
C) For m:=1 to N do writeln(A[m]);
D) For j:=S to 1 do writeln(A[N-j+1]);

73.Paskal tilida qiyidagi dastur qismining bajarilishi natijasida ekranga chiqariladigan axborotni aniqlang:

a:='Uzbekistan'; k:=Length(a); write(k;a);

A) 10Uzbekistan B) k=10 C) Uzbekistan10 D) 10 Uzbekistan

74.Paskal tilining quyidagi takrorlash operatorlaridagi takrorlanishlar sonini toping.

I:=2014; While i<=1997 do i:=i-1

A) 18 B) 0 C) 1 D) 17

75.Paskal tilida quyidagi dastur lavhasi bajarilgach b o'zgaruvchining qiymatini aniqlang:

$x := -1;\ y := -1;\ a := 0{,}1;\ IF\left(x*x+y>0\right)$

$AND\left(a=1/10\right)THEN\ b := true\ else\ b := false;$

A) 1 B) false C) -1 D) true

76.Ketma-ketlikdagi qonuniyatini aniqlab nuqtalar o'rniga mos keladigan sonni qo'ying.

3,7,15,31,...

A) 45 B) 63 C) 54 D) 42

77. 5074, 7672 butun sonlarni barchasini yozish mumkin eng kichik asosli sanoq sistemasida shu sonlar yig'indisini hisoblang va natijani o'nlik sanoq sistemasida tavsiflang.

A) 4684 B) 6646 C) 8266 D) 2446

78.102; 350; 162; 22 butun sonlarni barchasini yozish mumkin bo'lgan eng kichik asosli sanoq sistemasida shu sonlar yig'indisini aniqlang.

A) 2210 B) 1406 C) 1024 D) 666

79. 240; 301; 220; 332 butun sonlarni barchasini yozish mumkin bo'lgan eng kichik asosli sanoq sistemasida shu sonlar yig'indisini aniqlang.

A) 2143 B) 1535 C) 3013 D) 1423

80. 111; 213; 22; 333 butun sonlarni barchasini yozish mumkin bo'lgan eng kichik asosli sanoq sistemasida shu sonlar yig'indisini aniqlang.

A) 2011 B) 1123 C) 10010 D) 1234

81.To'g'ri tenglikni ko'rsating:

A) $1Kbit = 1024\,bayt$ B) $1Kbit = 1000\,bit$
C) $1Kbit = 1024\,bit$ D) $1Kbit = 1\,bayt$

82. Bir terabayt necha gigabaytga teng?

A) 2^{25} *gigabayt* B) 2^{10} *gigabayt*
C) 2^{30} *gigabayt* D) 2^{20} *gigabayt*

83. 16 bayt necha bitga teng?

A) 164 B) 132 C) 160 D) 128

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84. Qaysi javobda faqat qobiq dasturlar keltirilgan?

A) Norton Commander, MS DOS, Volkov Commander
B) Vista, DOS3.3, Total Commander
C) Linux, Norton Commander
D)Total Commander, Norton Commander

85. Nashiryot tizim(Sistema)larida qaysi dasturlar ishlatiladi?

A) Adobe Page Maker, MS Acces, MathCAD
B) Adobe Page Maker, Latex,Tex, Quark Xpress.
C) Adobe Page Maker, Latex, MS Word, MS Excel.
D) Adobe Page Maker, Quark Xpress, MS Excel.

86. Operatsion sistema(tizim)ni faollashtiruvchi dastur-...

A) BIOS B) Total Commander
C) Command.com D) Boot Record

87.Informatika o'rganadigan asosiy ashyoni aniqlang.

A) Algoratim B) Dastur
C) Kompyuter D) Axborot

88.Internet qanday tarmoq turiga mansub?

A) mintaqaviy B) korporativ
C) global D) lokal

89. Raqamli signalni analogli signalga va aksinchaga aylantirib beruvchi qurilma nomini toping.
A) deshifrator B) telefaks
C) modem D) shifrator

90.Aniq bir predmet sohasi bo'yicha masalalar yechishga mo'ljallangan dasturlar majmuasi bu-...
A) dasturlar yaratish vositalari
B) yordamchi dasturiy ta'minot
C) tizim(sistema)li dasturiy ta'minot
D) amaliy daturiy ta'minot

91.Axborotni uzatish o'lchov birligi sifatida... qabul qilingan.
A) 1 megabit B) 1 bit
C) 1 bod D) 1 bayt

92.Ikkilik sanoq sistemasida amallarni bajaring:
$11100\cdot\left(1\cdot2^5+1\cdot2^4+1\cdot2^2+1\cdot2^1\right)$
A) 1111101000 B) 10111101000
C) 10110101100 D) 10100101000

93. Faylga yo'l berilgan:
C:\My pictures\klass\picture.bmp
Bosh katalogni ko'rsating.
A) *My pictures* B) *picture*
C) *C:* D) *klass*

94.Faqat arxivlangan fayllar kengaytmasi berilgan javobni ko'rsating.
A).zip, .rar, .arj B) .htm, .arj, .txt
C) .zip, .jpg, .rar D) .avi, .com, .bac

95. Microsoft Word dasturining fayl kengaytmasi qaysi javobda to'g'ri keltirilgan.
A) doc B) xls C) rar D) img

96. Sinovdan o'tkazish muddatiga ega bo'lgan dasturlar-bu...
A) Freeware B) Shareware
C) Hardware D) Software

97. Qaysi atamalar axborotning xususiyatlari hisoblanadi ?
A) analog, diskret B) diskret, qimmatli
C) qisqa, foydali D) ishonchli, analog

98. Qaysi atamalar axborotning turlari hisoblanadi ?
A) analog, diskret B) diskret, qimmatli
C) qisqa, foydali D) ishonchli, analog

99.Windows operatsion tizim(Sistema)ida fayl nomi noto'g'ri berilgan javobni toping.
A) (Informatika).doc B)[Informatika].doc
C) Informatika.doc D) <Informatika>.doc

100. Quyidagi mulohazalardan rost qiymatga ega ekanligini aniqlang:
1) Axborot ikki turga bo'linadi
2) Web-sahifalarni hosil qilish vositasi – brauzerlar
3) Plotter-chizmalarni qog'ozga chiqaruvchi qurilma
4) www.uz –milliy qidiruv tizimi emas.
A) 1, 3 B) 4, 2 C) 1, 4 D) 2, 3

AXBOROTNOMA-2018

VARIANT - 1

1. Agar $\overline{abc}, \overline{bca}, \overline{cab}$ uch xonali natural sonlarning yig'indisi 777 ga teng bo'lsa, $a+b+c$ ni toping.

A) 7 B) 6 C) 8 D) 2

2. $4{,}8 = x + \frac{y}{5}$ tenglikda x va y sonlar 5 dan kichik natural sonlar bo'lsa, y ning qiymatini toping.

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

3. $2 < a < 6$ va $2 < b < 10$ bo'lsa, a va b butun sonlar uchun $\dfrac{1+\frac{a}{b}}{1+\frac{b}{a}}$ kasrning eng katta qiymatini toping.

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

4. Hisoblang $\left(1\frac{1}{7}\right)\cdot\left(1\frac{1}{8}\right)\cdot\left(1\frac{1}{9}\right)\cdot\ldots\cdot\left(1\frac{1}{62}\right)$

A) 9 B) $\frac{11}{7}$ C) 7 D) $\frac{10}{7}$

5. Besh xonali son $\overline{x734y}$ sonini 55 ga bo'lganda natural son hosil bo'ladi. x ning barcha qiymatlari yigindisini toping.

A) 11 B) 9 C) 3 D) 14

6. 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

7. $\left(x^2+x\right)+\left(x^2+2x\right)+\ldots+\left(x^2+19x\right)=1425$ tenglamani qanoatlantiruvchi x natural soni toping.

A) 6 B) 10 C) 5 D) 8

8. Soddalashtiring.

$tg\alpha\cdot tg\beta+\left(tg\alpha+tg\beta\right)\cdot ctg\left(\alpha+\beta\right)$.

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

9. Hisoblang. $\sin 1^\circ+\sin 2^\circ+\sin 3^\circ+\ldots+\sin 359^\circ$

A) 1 B) -1 C) $\sin 179^\circ$ D) 0

10. 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) $-2x$

11. Agar $2^a=81$, $3^b=8$ bo'lsa, $a\cdot b$ qiymatini toping.

A) 14 B) 12 C) 15 D) 18

12. Ifodani soddalashtiring. $\dfrac{a^4-10a^2+169}{a^2+6a+13}$

A) $a^2-5a+13$ B) a^2+13

C) $a^2-6a+13$ D) $a^2-3a+13$

13. a ning qanday qiymatlarida $\dfrac{9x^2-6x+1}{9}=\left(x+a\right)^2$ tenglik ayniyat bo'ladi.

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

14. $\left(a^2-2a+1\right)\cdot x=\left(a^2+2a-3\right)$ tenglama a ning qanday qiymatlarida cheksiz ko'p yechimga ega.

A) $a=-3$ B) $a=1$, $a=-3$ C) $a=1$ D) $a\neq 1$

15. k ning kanday eng kichik natural qiymatida $x^2+\left(k+2\right)^2\cdot x+2k-4=0$ tenglamaning ildizlari 2 dan kichik bo'ladi.

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

16. $(3-x)\cdot(x+2)>0$ tengsizlikning butun yechimlari yig'indisini toping.

A) -3 B) 2 C) 0 D) 5

17. Agar $f(x)=\begin{cases}-x+2; x<2\\ \dfrac{x-1}{2}; x\geq 2\end{cases}$ bo'lsa, $f\left(f(-1)\right)$ ni toping.

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

18. Agar $f(x)=(a+b-4)\cdot x^3+2x^2+(b-1)\cdot x$ juft funktsiya berilgan bo'lsa, $f(a)$ ning qiymatini toping.

A) 12 B) 14 C) 20 D) 18

19. Hisoblang. $\int_1^2\left(e^x+\frac{1}{x}\right)dx$.

A) $e^2+e-\ln 2$ B) $e^2-e+\ln 2$

C) $e^2+e+\ln 2$ D) $e^2-e-\ln 2$

20. $\int\frac{3dx}{x\cdot\ln 2x}$ ni hisoblang

A) $3\ln 2x+c$ B) $6\ln(\ln 2x)+c$

C) $1{,}5\ln(\ln 2x)+c$ D) $3\ln(\ln 2x)+c$

21. ABC uchburchakning BC tamonida D nuqta olingan. Agar $BD=16$, $DC=4$ va $AB=AD=10$ bo'lsa, S_{ADC} ni toping.

A) 12 B) 14 C) 10 D) 16

22. To'gri burchakli $ABCD$ trapetsiyaning B va C burchaklari to'gri, $AB=8$, $BC=6$ va $DC=4$. Trapetsiyaning D uchidan AC diagonaligacha bo'lgan masofani toping.

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

23. $ABCD$ trapetsiyaning yuzi 48 ga teng, asoslari $DC=6$, $AB=2$. BC tamondan E nuqta olingan bo'lib, $BE=2EC$ bo'lsa, ADE uchburchakning yuzini toping.

A) 32 B) 18 C) 24 D) 28

24. ABC uchburchak uchlarining koordinatalari berilgan. $A(8;12)$, $B(-8;0)$ va $C(-2;8)$. Uchburchakning CM medianasi yotgan to'g'ri chiziq tenglamasini tuzing.

A) $x+2y+3=0$ B) $x+y+6=0$

C) $x+y=6$ D) $x-y-6=0$

25. $A=\{x:|x-2|<3, x\in N\}$ to'plamning elementlar sonini toping.

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

26. Quyidagi axborot xajmlariga tenglashtirilgan muloxazalar berilgan. Faqat rost muloxazalarning umumiy axborot xajmini toping. Agar topilgan axborot xajmi tarmoq orqali 320 sekundda uzatilgan bo`lsa, axborot uzatish tezligi megabit/sekundlarda aniqlang. «Rim sanoq sistemasidagi *CXLVI* son 10 lik sanoq sistemasida 146 soniga teng» = 120 *Mbayt*; «Informatikada kompyuter texnikasi quyidagi ikki qism birligi sifatida qaraladi: Hardware va Software» =360 Mbayt.

A) 3 B) 12 C) 9 D) 15

27. Toirda 34 (8 lik sanoq sistema) dona va Zoirda bir necha dono olma bor edi. Zoir Toirdan 110 (2 lik sanoq sistema) dona olma oldi. Natijada ularda olmalar soni tenglashdi. Zoirda boshida 16 lik sanoq sistemasida necha dono olma bo`lgan.

A) E B) 13 C) 17 D) 10

28. 10 lik sanoq sistemasidagi juft sonlar barcha sanoq sistemalarida juftligini e'tiborga olib, $[11;1010]$ oraliqdagi barcha juft sonlar yig`indisini toping. (Barcha sonlar 2 lik sanoq sistemasida qaraladi).

A) 111010 B) 11100 C) 11000 D) 11110

29. MS Excel. Berilgan: $A1=1$, $C1=A1+5$, $A2=A1+B2$, $B2=MИН(A1;C1)$, $C2=B2*B1$. $A2:C2$ blok asosida gistogramma tuzilgan. $A2$ katakka mos gistogramma qismi $B2$ va $C2$ kataklarga mos gistogramma qismlarining xar biridan ikki marta uzun. Shulardan kelib chiqib, quyidagi formulaning natijasini aniqlang. $=3*КОРЕНЬ(B1)*A1+6*C2$

A) 9 B) 6 C) 24 D) 54

30. Quyidagi *HTML* kodining bir qismi berilgan:

<table> <tr> <td> 102 </td> <td> 51 </td> <td> −102 </td><td rowspan=2> 102 </td> </tr> <tr> <td colspan=2> 51 </td> <td> 56 </td> </tr> </table>.

Birlashgan kataklardagi sonlar yig`indisini kataklar soniga ko`paytmasini toping.

A) 918 B) 649 C) 936 D) 765

VARIANT - 2

1. $a=1\cdot2+2\cdot3+3\cdot4+...+40\cdot41$,

$b=5\cdot4+10\cdot6+15\cdot8+...+200\cdot82$

bo'lsa, $\frac{a}{b}$ ning qiymatini toping.

A) $\frac{1}{12}$ B) $\frac{1}{6}$ C) $\frac{1}{10}$ D) $\frac{1}{8}$

2. $\frac{7}{1+\frac{2}{x-1}}$ kasr ma'noga ega bo'lmaydigan barcha x lar yig'indisini toping.

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

3. Agar $x<-1$, $y>1$ bo'lsa, quyidagi javoblardan qaysi biri har doim o'rinli.

A) $x^4>y$ B) $y^3>x^3$ C) $x^2<y^2$ D) $y^2>x^6$

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

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

5. 180 gramm suvga 70 gramm tuz aralashtirildi. Hosil bo'lgan aralashmaning necha foizi tuzdan iborat bo'ladi.

A) 28 B) 25 C) 30 D) 22

6. Agar $\sqrt[3]{a+\sqrt[3]{a+\sqrt[3]{a+...}}}=2$ bo'lsa, $\sqrt{a-\sqrt{a-\sqrt{a-...}}}$ ning qiymatini toping.

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

7. Hisoblang. $1\cdot4+2\cdot7+3\cdot10+...+9\cdot28$

A) 900 B) 740 C) 1210 D) 960

8. Agar $ctg\alpha=-\frac{1}{2}$ bo'lsa, $tg3\alpha$ ning qiymatini toping.

A) $-\frac{1}{11}$ B) 5,5 C) $-\frac{2}{11}$ D) $\frac{1}{6}$

9. Hisoblang. $\sin2^\circ+\sin3^\circ+\sin4^\circ+...+\sin358^\circ$

A) 1 B) $\sin179^\circ$ C) 0 D) -1

10. 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) $-2-x$

11. $x;y;z$ 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) $y<z<x$

12. Ifodani soddalashtring.

A) 1 B) 0,5 C) $b+c-a$ D) $a+b+c$

13. Agar $x\neq0$ bo'lsa, $5+5^{2x+y}-5^{x+1}-5^{x+y}=0$ tenglamadagi x ni y orqali ifodalang.

A) $x=-1-y$ B) $x=1-y$

C) $x=y-1$ D) $x=y+1$

14. Agar $x\sqrt{x}-7\sqrt{x}=6$ bo'lsa, $x-\sqrt{x}$ ning qiymatini toping.

A) 7 B) 6 C) 8 D) 3

15. k ning kanday eng katta butun manfiy qiymatida $x^2+(k+2)^2\cdot x+2k-4=0$ tenglamaning ildizlari 2 dan kichik bo'ladi.

A) -2 B) -4 C) -1 D) -5

16. $\left|\frac{4-2x}{1+3x}\right|>0$ tengsizlikni yeching.

A) $\left(-\infty;-\frac{1}{3}\right)\cup(2;\infty)$ B) $\left(-\infty;-\frac{1}{3}\right)\cup\left(-\frac{1}{3};\infty\right)$

C) $\left(-\infty;-\frac{1}{3}\right)\cup\left(-\frac{1}{3};2\right)\cup(2;\infty)$ D) $(-\infty;\infty)$

17. Agar $f(2x-3)=3x+5$ bo'lsa, $f(f(1))$ ni toping.

A) 11 B) 38 C) 26 D) 16

18. $y=\cos^2\left(\frac{x}{3}-\frac{\pi}{4}\right)+2\sin x$ funktsiyaning eng kichik musbat davrini toping.

A) 2π B) 6π C) 3π D) Davriy emas

19. $x=1$, $y=e^x$ va $y=e^{-x}$ funktsiyalar bilan chegaralangan soxa yuzini toping.

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

20. Muntazam ko'pburchakning tamoni unga tashqi chizilgan aylananing 36°li yoyini tortib turadi. Muntazam ko'pburchakning tamonlari sonini toping.

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

21. ABC uchburchakda D va E nuqtalar BC tamonni uchta teng qismlarga bo'ladi $(BD=DE=EC)$, F va G nuqtalar esa AD kesmani uchta teng qismlarga bo'ladi $(AF=FG=GD)$. AFE uchburchak yuzining ABC uchburchak uchburchak yuziga nisbatini toping.

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

22. $ABCDEF$ muntazam oltiburchakda AC,CE,BF,FD diagonallar o'tkazilgan. AC va BF dioganallar L nuqtada, CE va FD diagonallar K nuqtada kesishadi. Agar

oltiburchakning tamoni $2\sqrt{3}$ ga teng bo'lsa, $LCKF$ to'rtburchak yuzini toping.

A) $5\sqrt{3}$ B) $8\sqrt{3}$ C) $9\sqrt{3}$ D) $6\sqrt{3}$

23. $ABCD$ trapetsiyaning yuzi 24 ga teng, asoslari $DC=6$, $AB=2$. BC tamondan E nuqta olingan bo'lib, $BE=2EC$ bo'lsa, ADE uchburchakning yuzini toping.

A) 12 B) 21 C) 14 D)16

24. $A(3;0)$ va $B(-1;2)$ nuqtalardan o'tuvchi hamda markazi $y=x+2$ to'g'ri chiziqda yotgan aylana tenglamasini toping.

A) $(x-3)^2+(y-5)^2=25$
B) $(x-4)^2+(y-5)^2=25$
C) $(x-3)^2+(y-4)^2=25$
D) $(x-5)^2+(y-3)^2=25$

25. $A=\{1;3;5;6;8;10\}$ va $B=\{5;6;7;8;10\}$ to'plamlar berilgan . $A\cup B$ to'plam elementlari sonini toping.

A) 8 B) 11 C) 7 D) 6

26."ALGORITHM" so`zi xarflarini qodlash uchun eng kam bit talab etiladigan ikkilikda tekis qodlash usulidan foydalanilgan. Shu bilan birga, ikkilikdagi qodlar o`sib borish tartibi ingliz alifbosi xarflarining o`sish tartibiga moslashtirilgan. M harfini qodini toping.

A) 0101 B) 0111 C) 1000 D) 0011

27. Toirda 11011100 (2 lik sanoq sistema) dona va Zoirda bir necha dono olma bor edi. Zoir Toirdan 36 (16 lik sanoq sistema) dona olma oldi. Natijada ularda olmalar soni tenglashdi. Zoirda boshida 8 lik sanoq sistemasida necha dono olma bo`lgan.

A) 156 B) 160 C) 167 D) 163

28. 10 lik sanoq sistemasidagi juft sonlar barcha sanoq sistemalarida juftligini e'tiborga olib, $[DDA;1003]$ oraliqdagi barcha juft sonlar yig`indisini toping. (Barcha sonlar 14 lik sanoq sistemasida qaraladi).

A) $3DDA$ B) $3DDDA$ C) $3DDD$ D) $3DAA$

29. MS Excel. Berilgan: $A1=52$, $C1=A1+5$, $A2=A1+B2$, $B2=МИН(A1;C1)$, $C2=B2*B1$. $A2:C2$ blok asosida gistogramma tuzilgan. $A2$ katakka mos gistogramma qismi $B2$ va $C2$ kataklarga mos gistogramma qismlarining xar biridan ikki marta uzun. Shulardan kelib chiqib, quyidagi formulaning natijasini aniqlang. $=3*KOPEHЬ(B1)*A1+9*C2$

A) 684 B) 624 C) 621 D) 645

30. Paskal. Agar quyidagi dastur qismining bajarilishi natijasida S ning qiymati 78 ga teng bo`lsa, takrorlanishlar sonini aniqlang:
$S:=random(random(2))$; *For* $i:=-3+random(1)$ *to* X *do* $S:=S+2*i$;

A) 11 B) 9 C) 15 D) 13

VARIANT - 3

1. Ketma-ket kelgan ikkita musbat juft sonlar kvadratlarining ayirmasi 116 ga teng. Ushbu sonlardan kichigini toping.

A) 26 B) 30 C) 28 D) 32

2. 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

3. $2016\cdot(2017\cdot2018+1)$ ifoda quyidagilardan qaysi biriga teng.

A) 2017^3+1 B) 2017^2-1
C) $2017\cdot2018$ D) 2017^3-1

4. 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

5. Birinchi quvurdan ikkinchi quvurga qaraganda ikki barobar ko'p suv oqadi. Ikkalasi birgalikda bo'sh xovuzni 12 soatda to'ldiradi birinchi quvur xovuzning uchdan bir qismini necha soatda to'ldiradi.

A) 12 B) 4 C) 6 D) 9

6. 1;8;27;64;125;....ketma-ketlikning 10-hadini toping.

A) 1331 B) 512 C) 729 D) 1000

7. Hisoblang. $1\cdot4+2\cdot7+3\cdot10+...+10\cdot31$

A) 1210 B) 1200 C) 1440 D) 900

8. Hisoblang. $tg20^\circ + 4\sin 20^\circ$

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

9. Hisoblang. $ctg15^\circ + ctg30^\circ + ctg45^\circ + ... + ctg165^\circ$

A) 0 B) $ctg89^\circ$ C) -1 D) 1

10. Agar $a+b$ va $12a-b$ tub sonlar bo'lib, $\frac{a+b}{12a-b} = \frac{21}{57}$ tenglik bajarilsa, a soni toping.

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

11. Agar $a<0$, $b<0$, $c>0$ bo'lsa, $\sqrt{b^2} + |b-c| - |c-a| + b$ ifodani soddalashtiring.

A) $a-2b$ B) $a-2b+c$ C) $-a$ D) $a-b$

12. Agar $25^x = 12$ bo'lsa, 5^x ning qiymatini toping.

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

13. Agar $\sqrt{3x+2y-13} + \sqrt{4x-y-10} = 0$ bo'lsa, x va y sonlarining ko'paytmasini toping.

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

14. Agar $x\sqrt{x} - 8\sqrt{x} = 7$ bo'lsa, $x - \sqrt{x}$ ning qiymatini toping.

A) 3 B) 6 C) 7 D) 8

15. Toq sonning o'zidan keyin keluvchi uchta toq son bilan yig'indisi 49 dan katta. Ushbu shartni qanoatlantiruvi toq sonlardan eng kichigini toping.

A) 9 B) 15 C) 11 D) 13

16. $x^7|x^2+8x+7| < 0$ tengsizlik $[-8;1]$ kesmada nechta butun yechimga ega.

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

17. $y = x^2$ parabola grafigini o'ngga ikki birlik, yuqoriga uch birlik siljitish (parallel ko'chirish) natijasida hosil bo'lgan parabola tenglamasini toping.

A) $y = x^2 - 4x + 7$ B) $y = x^2 - 4x + 3$
C) $y = x^2 + 4x + 7$ D) $y = 2x^2 + 3$

18. $y = x^2 - |2x-4|$ funktsiya grafigiga $x=3$ va $x=-3$ nuqtalarda o'tkazilgan urinmalarning kesishish nuqtasining ordinatasini toping.

A) -6 B) -5 C) -12 D) -9

19. $\int \frac{dx}{x \cdot \ln 2x}$ ni hisoblang.

A) $2\ln(\ln 2x) + c$ B) $\ln(\ln 2x) + c$
C) $\frac{1}{2}\ln(\ln 2x) + c$ D) $\ln 2x + c$

20. Markaziy burchagi 72° bo'lgan sektorning yuzi 15 ga teng. Sektor radiusini toping.

A) $\sqrt{\frac{75}{\pi}}$ B) $\sqrt{\frac{45}{\pi}}$ C) $\sqrt{\frac{15}{\pi}}$ D) $\sqrt{\frac{25}{\pi}}$

21. ABC to'g'ri burchakli uchburchakning katetlari $AB=4$, $AC=6$ va AN bissektrisa bo'lsa, ABN uchburchak yuzini toping.

A) 3 B) 4,8 C) 4 D) 4,2

22. To'g'ri burchakli uchburchakka ichki va tashki chizilgan aylanalar radiuslari uzunliklari yig'indisi 4 ga, gipotenuza esa 6 ga teng. Uchburchakning perimetrini toping.

A) 20 B) 12 C) 18 D) 14

23. $ABCD$ trapetsiyaning yuzi 36 ga teng, asoslari $DC=6$, $AB=2$. BC tamondan E nuqta olingan bo'lib, $BE=2EC$ bo'lsa, ADE uchburchakning yuzini toping.

A) 28 B) 21 C) 18 D) 36

24. $ABCD$ parallelogrammning diagogallari O nuqtada kesishadi. $\overline{AC} = k \cdot \overline{AO}$ tenglik bajariladigan k sonning qiymatini toping.

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

25. Agar $a-b = |x|+3$ bo'lsa, a va b lar uchun to'g'ri munosabatni aniqlang.

A) $a>b$ B) $a=b+1$ C) $a \le b$ D) $a<b$

26. To`g`ri to`rtburchakning bir tomoni 1101 (2 lik sanoq sistemasi), ikkinchi tomoni 22 (8 lik sanoq sistemasi) ga teng. To`g`ri to`rtburchakning yuzini 16 lik sanoq sistemasida toping.

A) DF B) DE C) $F7$ D) EA

27. A nuqtaning koordinatalari (33; 42) (8 lik sanoq sistema) va B nuqtaning koordinatalari (15; 1A) (16 sanoq sistemasi). A va B nuqtalar orasidagi eng qisqa masofani 2 lik sanoq sistemasida toping.

A) 10 B) 1010 C) 1011 D) 1001

28. Quyida berilgan mulohazalar asosida mantiqiy ifodaning qiymatini ko'rsating:

(A and Not B) or (B and C).

A="MS Word dasturida so'z belgilar ketma-ketligi bo'lib, ular bir-biridan probel, nuqta, vergul, nuqtali vergul , ikki nuqta, qavs, tire, uzun tire yoki qo'shtirnoq belgisi bilan ajralib turadi".

B="Plotter-chizmalarni qog'ozga chiqarish uchun xizmat qiluvchi qurilma".

C="HTML tili 6 ta pog'ona sarlavha qo'yish imkonini beradi".

A) Ifodada xatolik mavjud B) Yolg'on

C) Rost D) Ayrim mulohazalarning qiymatini aniqlab bo'lmaydi

29. Quyida HTML kodining bir qismi berilgan. Veb-brauzer oynasida ham og'ma, ham qalin shriftlarda aks etgan rim sonlarining yig'indisini hisoblang.

<u> CXXIX </u><cite> LIX </cite><u> CXIV </u> LXII <u> <cite> XXIX </u></cite> <u> XXXIV </u>.

A) 272 B) 163 C) 143 D) 121

30. *Paskal.* Agar quyidagi dastur qismining bajarilishi natijasida S ning qiymatini 978 ga teng bo'lsa, takrorlanishlar sonini aniqlang:

$S := random(random(1)+1);\ For\ i := -78$

$+random(1)+random(1)\ to\ X\ do\ S := S+2*i$

A) 161 B) 84 C) 163 D) 165

VARIANT - 4

1. Agar a natural sonni 36 ga bo'lganda bo'linma n, qoldiq n^2 ga teng bo'lsa, a sonning eng katta qiymatini toping.

A) 160 B) 432 C) 205 D) 117

2. 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

3. Hisoblang

$$\left(\frac{\sqrt{6}+\sqrt{5}}{\sqrt{2}+1}\cdot\frac{\sqrt{6}-\sqrt{5}}{\sqrt{2}-1}\right):\left(\frac{1}{\sqrt{3}}-\frac{\sqrt{3}}{9}+\frac{1}{\sqrt{27}}\right)$$

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

4. Agar $27{,}3\cdot 10^{n}=0{,}0000273$ bo'lsa, n ni toping.

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

5. Axmad bir kun, Arslon ikki kun ishlaganda bir ishning $\frac{3}{8}$ qismini bajarishadi. Agar Axmad uch kun, Arslon ikki kun ishlasa, aynan shu ishning $\frac{5}{8}$ qismini bajarishadi. Axmad bir o'zi ushbu ishni necha kunda tamomlaydi?

A) 4 B) 10 C) 8 D) 9

6. 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

7. Hisoblang. $1\cdot 4+2\cdot 7+3\cdot 10+\ldots+8\cdot 25$ A) 720 B) 640 C) 648 D) 900

8. Hisoblang. $\arcsin(\sin 3)$

A) $\frac{\pi}{2}-3$ B) $\pi-3$ C) 3 D) $\varnothing$

9. Hisoblang. $\cos 1^\circ+\cos 2^\circ+\cos 3^\circ+\ldots+\cos 179^\circ$

A) 1 B) -1 C) 0 D) $\cos 89^\circ$

10. Agar $a\cdot b\cdot c=4$ 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) $-\frac{5}{3}$

11. Agar a,b,c manfiy butun sonlar bo'lib, $\frac{1}{a}>\frac{1}{b}>\frac{1}{c}$ tengsizliklar bajarilsa, $|a+b|-|b-c|+|a-c|$ ifodani soddalashtiring.

A) $-2a$ B) $-2a-2c$ C) 0 D) $b-a$

12. 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

13. 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

14. Agar $x\sqrt{x}-9\sqrt{x}=8$ bo'lsa, $x-\sqrt{x}$ ning qiymatini toping.

A) 3 B) 7 C) 6 D) 8

15. Juft sonning o'zidan keyin keluvchi juft sonning uchlangani bilan yig'indisi 70 dan kichik. Ushbu shartni qanoatlantiruvi juft sonlardan eng kattasini toping.

A) 12 B) 16 C) 14 D) 8

16. $f(x)=\begin{cases}4x+1, & x<0\\ -x^3+5, & x\geq 0\end{cases}$ funktsiya berilgan. $f(f(2))$ ni toping.

A) −13 B) −7 C) −11 D) −3

17. $y=x^4-4\ln x$ funktsiyaning minimum nuqtasini toping.

A) $x=2$ B) $x=1$ C) $\varnothing$ D) $x=0$

18. $y=x^2-|2x-4|$ funktsiya grafigiga $x=3$ va $x=-3$ nuqtalarda o'tkazilgan urinmalarning kesishish nuqtasining abtsissasini toping.

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

19. $\int\frac{2dx}{x\cdot\ln 2x}$ ni hisoblang.

A) $4\ln(\ln 2x)+c$ B) $2\ln 2x+c$

C) $1{,}5\ln(\ln 2x)+c$ D) $2\ln(\ln 2x)+c$

20. $ABCD$ to'rtburchak aylanaga ichki chizilgan. Agar $\angle ABC=105^\circ$, $\angle CAD=35^\circ$ bo'lsa, $\angle ABD$ ni toping.

A) 75° B) 60° C) 70° D) 80°

21. ABC to'g'ri burchakli uchburchakda E nuqta BC tamonni $BE:EC=3:1$ kabi nisbatda bo'ladi, D nuqta esa AB gipotenuzada yotadi.Agar $BD=8, AC=12$ va $\angle BAC=60^\circ$ bo'lsa, BDE uchburchak yuzini toping.

A) 36 B) 48 C) $18\sqrt{3}$ D) $24\sqrt{3}$

22. Uchburchakning 10 ga teng bo'lgan balandligi uning asosini 10 va 4 ga teng kesmalarga ajratadi. Uchburchakning qolgan ikki tamonidan kichigiga o'tkazilgan mediana uzunligini toping.

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

23. $A(0;1)$ va $B(5;-3)$ nuqtalar berilgan. Agar B nuqta AC kesmaning o'rtasi bo'lsa, C nuqta koordinatalarini yig'nndisini toping.

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

24. Quyidagi javoblardan qaysi biri bo'sh to'plam?

A) $A=\{x:x^2\leq 0, x\in R\}$

B) $A=\{x:3x+5=0, x\in R\}$

C) $A=\{x:x^2\leq x, x\in R\}$

D) $A=\{x:|2x-3|=-4, x\in R\}$

25. Agar $a-b=|3x|^{-1}$ bo'lsa, a va b lar uchun to'g'ri munosabatni aniqlang.

A) $a<b$ B) $a\leq b$ C) $a>b$ D) $a=b+1$

26. Uchburchakning katetlaridan biri 1D(14 lik sanoq sistema), ikkinchisi 28 (14 lik sanoq sistema). Uchburchakning gipotenuzasini 14 lik sistemasida toping.

A) 32 B) 35 C) 36 D) 33

27. A nuqtaning koordinatalari (46;44) (8 lik sanoq sistemasi) va B nuqtaning koordinatalari (26;31) (10 lik sanoq sistema). A va B nuqtalar orasidagi eng qisqa masofani 2 lik sanoq sistemasida toping.

A) 1100 B) 1110 C) 13 D) 1101

28. Quyidagi keltirligan mulohazani inobatga olib, mantiqiy tenglamaning yechimlar sonini aniqlang. (X and Y) OR NOT(X or A)=Rost

A="Word, Excel, Access, MS DOS dasturlarining barchasi amaliy dasturlarga kiradi".

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

29. Quyidagi HTML kodining bir qismi berilgan:

<table><tr><td> 2 </td><td> 1 </td> <td> -2</td> <td rowspan=2> 2 </td>

</tr><tr><td colspan=2> 1 </td><td> 6 </td></tr></table>. Birlashgan kataklardagi sonlar yig'indisini kataklar soniga ko'paytmasini toping.

A) 12 B) 36 C) 15 D) 18

30. *Paskal.* Quyidagi dastur bajarilishi natijasida S o'zgaruvchining maksimal qiymati qaysi eng qisqa oraliqqa tegishli ekanligini ko'rsating.

```
Var S, k : longint;
Begin S := random(random(2)) - 1952;
      for k := 1 + random(1) to 7 do
      S := S + random(2 * k);
Write(S); End.
```

A) [-2004;-1908] B) [-2024;-1898]

C) [-1914;-1703] D) [-2014;-1892]

DAVLAT TEST MARKAZI TAMONIDAN BERILGAN NAMUNAVIY TESTLAR

1. Hisoblang.

$$\frac{1\cdot2\cdot3+3\cdot6\cdot9+5\cdot10\cdot15+7\cdot14\cdot21}{2\cdot4\cdot6+6\cdot12\cdot18+10\cdot20\cdot30+14\cdot28\cdot42}$$

A) $\frac{1}{2}$ B) $\frac{1}{16}$ C) $\frac{1}{4}$ D) $\frac{1}{8}$

2. Oybek ikkita masalani 36 minutda yechadi. U birinchi masalani yechishga ikkinchisini yechishga qaraganda 6 minut ko'p vaqt sarfladi. Oybek ikkinchi masalani necha minutda yechgan.

A) 21 B) 15 C) 18 D) 20

3. 110 soni 10,14,18,... arifmetik progressiyaning nechanchi hadi.

A) 26 B) 25 C) 24 D) 27

4. Hisoblang. $tg\left(arctg2-arctg\frac{1}{2}\right)$

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

5. Hisoblang. $\arcsin(\sin 3)$

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

6. Agar $\log_{27} a=b$ bo'lsa, $\log_{\sqrt[6]{a}}\sqrt{3}$ ni toping.

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

7. $\frac{2^{3n-4}\cdot2^{5+6n}}{2^{1+3n}}$ ni soddalashtiring.

A) 2^{6n+1} B) 4^{3n} C) 4^{3n-1} D) 2^{3n}

8. Agar $2^x=152$ bo'lsa, $|x-8|+|x-6|$ ifodani soddalashtiring.

A) 2 B) $14-2x$ C) $2x-14$ D) -2

9. x ning qanday qiymatida $3(2-x)-8=10$ tenglik o'rinli bo'ladi.

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

10. $x^2-4|x|-a+3=0$ tenglamaning $a\geq3$ bo'lgandagi ildizlari yig'indisini toping.

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

11. $(x^2+14x+14)(x^2+x+14)=14x^2$ tenglamaning haqiqiy ildizlari yig'indisini toping.

A) -14 B) -15 C) -13 D) -16

12. $x^2+5x+3\leq0$ tengsizlikning barcha butun yechimlari yig'indisini toping.

A) -10 B) -14 C) -13 D) -15

13. Tengsizlikni yeching.

$$\frac{\arccos\left(-\frac{3}{\pi}\right)\cdot\log_{\frac{3}{\pi}}\frac{\pi}{4}}{1-2\log_{\log_2 x}2}\geq0$$

A) $x\in(2;3)\cup(16;\infty)$ B) $x\in(1;2)\cup(18;\infty)$

C) $x\in(1;2)\cup(16;\infty)$ D) $x\in(1;2)\cup(15;\infty)$

14. $y=\frac{1}{2}\sin\frac{x}{2}\cos\frac{x}{2}$ funksiyaning asosiy davrini toping.

A) 2π B) π C) 4π D) $\frac{\pi}{2}$

15. $y=5\sin9x+3\sin15x$ funksiyaning hosilasini toping.

A) $90\cos3x\cos12x$ B) $-90\cos3x\cos12x$

C) $90\sin3x\sin12x$ D) $-90\sin3x\sin12x$

16. $y=\cos 3x\cos 12x$ funktsiyaning boshlang'ich funktsiyasini toping.

A) $\frac{1}{18}\cos 9x-\frac{1}{30}\cos 15x$ B) $\frac{1}{18}\sin 9x-\frac{1}{30}\sin 15x$

C) $\frac{1}{18}\cos 9x+\frac{1}{30}\cos 15x$ D) $\frac{1}{18}\sin 9x+\frac{1}{30}\sin 15x$

17. Teng yonli uchburchakning uchidagi burchagi 16° ga teng. Yon tamoni bilan asosidagi burchak bissektrissasi tashkil qilgan o'tmas burchakni toping.

A) 139° B) 141° C) 131° D) 123°

18. $ABCD$ parallelogrammda $BD=6\sqrt{2}$, $\angle ADB=60°$, $\angle CDB=75°$ bo'lsa, AB ni toping.

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

19. Aylanaga ichki chizilgan trapetsiya diagonali yon tamoniga perpendiqulyar hamda asosi bilan 30°li burchak tashkil etadi. Shu trapetsiya perimetrining aylana uzunligiga nisbatini toping.

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

20. Asoslarining radiuslari $2\sqrt{2}$ va $11\sqrt{2}$ ga teng bo'lgan kesik konus va unga tengdosh silindrning balandliklari o'zaro teng bo'lsa, silindr asosining radiusini toping.

A) $7\sqrt{2}$ B) $5\sqrt{2}$ C) $8\sqrt{2}$ D) $6\sqrt{2}$

21. $ABCDA_1B_1C_1D_1$ to'g'ri burchakli parallelepiped $\overline{AA_1}=\vec{a}$, $\overline{AB}=\vec{b}$ va $\overline{AD}=\vec{c}$ uchun $\overline{AC_1}$ ni $\vec{a},\vec{b}$ va $\vec{c}$ vektorlar orqali ifodalang.

A) $\vec{a}+\vec{b}+\vec{c}$ B) $\vec{a}+\vec{b}-\vec{c}$

C) $\vec{a}-\vec{b}+\vec{c}$ D) $\vec{b}+\vec{c}-\vec{a}$

22. $A=\{1;3;5;6;8;10\}$ va $B=\{5;6;7;8;10\}$ to'plamlar berilgan . $A\cup B$ to'plam elementlari sonini toping.

A) 8 B) 7 C) 11 D) 6

23. Noto'g'ri tenglikni ko'rsating.

1) $\log_a b\cdot\log_a c=\log_a(b+c)$,

2) $\log_a b+\log_a c=\log_a(b\cdot c)$

3) $\log_a b-\log_a c=\log_a(b:c)$,

4) $\log_a b:\log_a c=\log_a(b-c)$,

5) $\log_a b:\log_a c=\log_a(b:c)$

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

24. To'g'ri qoidalarni toping.

1) $\int\frac{dx}{\sqrt{a^2-x^2}}=\arccos\frac{x}{a}+C$

2) $\int\frac{dx}{\sqrt{a^2-x^2}}=\arcsin\frac{x}{a}+C$

3). $\int\frac{dx}{a^2+x^2}=\frac{1}{a}arctg\frac{x}{a}+C$

4). $\int\frac{dx}{a^2+x^2}=-arcctg\frac{x}{a}+C$

5) $\int\frac{dx}{a^2+x^2}=-\frac{1}{a}arcctg\frac{x}{a}+C$

6). $\int\frac{dx}{\sqrt{a^2-x^2}}=-\frac{1}{a}\arccos\frac{x}{a}+C$

A) 1;3;6 B) 1;2;4 C) 2;3;4 D) 2;3;5

25. Quyidagi tasdiqlardan qaysi biri to'g'ri:

1) uchburchakka tashqi chiziglan aylananign radiusi $R=\frac{abc}{2S}$ (a,b,c-uchburchakning tomonlari, S-uchburchakning yuzi) formula bilan hisoblanadi.

2) radiusi R ga, markaziy burchagi α ga teng doiraviy sektorning yuzi $S=\frac{\pi R^2}{360°}\cdot\alpha$ formula bilan hisoblanadi.

3). Tamoni a ga teng burchagi α ga teng bo'lgan rombning yuzi $S=a^2\sin\alpha$ formula bilan hisoblanadi.

4) diagonallari d_1 va d_2 ga, ular orasidagi burchagi α ga teng ixtiyoriy qavariq to'rtburchakning yuzi $S=d_1\cdot d_2\cdot\sin\alpha$ formula bilan hisoblanadi.

5) o'xshash figuralar yuzlarining nisbati ularning mos chiziqli o'lchovlari kvadratlarining nisbatiga teng.

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

26. Quyidagi turli sanoq sistemalaridagi sonlar mos qo'yilgan A, B, C va D mulohazalar berilgan (qavs ichida sanoq sistemasi asosi berilgan). Rost mulohazalarga mos sonlarni

ikkilik sanoq sistemsida tasvirlang. Yolg'on mulohazalarni qiymatini aynan 0 ga teng deb oling. Ikkilik sanoq sitemasidagi 0 ni Yolg'on, 1 ni Rost sifatida qarab Not(A and B or C) or D ifodaga mos mantiqiy sxema natijasini aniqlang.

A="Chop etish qurilmasi tarkibiga printer va plotterning ikkalasi kiradi"=10011(2)

B="ENIAC birinchi elektron hisoblash mashinasi hisoblanadi "=21(10)

C="Axborot nazaryasida bir nechta axborot asosida yangi axborot hosil qilish axborotni qayta ishlash deb ham hisoblanadi"=24(8)

D="Kompyuterning barcha turdagi xotirasini foydalanuvchi formatlashi mumkin" =231(4)

A) 10011 B) 01010 C) 10101 D) 00010

27. Quyidagi berilgan mulohazalarning qiymatlari asosida EMAS((A YOKI B) VA EMAS C) mantiqiy ifodani qiymatini hisoblang.

A="FAT32, NTFS, LINUX dasturlarining barchasi fayl sistemasi hisoblanadi"

B="O'zbekistonda ishlab chiqarilgan Freeware turidagi dasturlardan biri DOPPIX"

C="Ba'zi dasturlar installyatsiya qilinmaydi"

A) ROST

B) Mantiqiy ifoda xato yozilgan

C) YOLG'ON

D) Ba'zi mulohazalar qiymatini aniqlab bo'lmaydi.

28. MS Excel. Agar *A1=ДЛСТР("MS Word"), A2=19, B2=3*B1 va =ЕСЛИ(ИЛИ(A2*B1-B2>512; B1*A1-A2>64); B1^2-A1; B2^2-A1)* formula natijasi 434 bo'lsa, B1 katakka yozish mumkin bo'lgan sonlar yig'indisini aniqlang.

A) -7 B) 7 C) -21 D) 21

29. Quyidagi ko'rinishdagi web-hujjat berilgan. Web-hujjatdagi no'malum X va Y teglari berilgan javobni shunday tanlangki, faqat ikkita, ya'ni tag chiziqli va qalin shrift xususiyatga ega bo'lgan sonlar yig'indisi 11 ga teng bo'lsin.

< html >
< strong >< X > 1 < Y > 2 < /Y > 3
< Y > 4 < /X > 5 < /strong >
< X > 6 < /Y >< /X >
< /html >

A) X=u, Y=b B) X=u, Y=p

C) X=u, Y=I D) X=br, Y=u

30. Quyidagi A va B natural sonlarning eng katta umumiy bo'luvchisini hisoblash dasturi berilgan. Dastur faqat to'g'ri natijalar berishi va xotiradan kam joy egallashi uchun qaysi javobda keltirilgan o'zgaruvchilar tavsifi kerak?

```
Begin randomize;
a:=random(255)+1; b:=random(255)+1;
n:=a; m:=b;
while(a<>b) do
        if(a>b) then a:=a-b else b:=b-a;
n:=n*m; m:=n div a;
writeln(m);
End.
```

A) a:Word; b:Word; n:=LongInt; m:=LongInt;

B) a:Byte; b:Byte; n:=Integer; m:=Integer;

C) a:Byte; b:Byte; n:=Word; m:=Word;

D) a:Word; b:Word; n:=Integer; m:=Word;