MATEMATIKA (INFORMATIKA BILAN)

1-variant

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

2. $4{,}8 = x + \frac{y}{5}$ tenglikda x va y sonlar 5 dan kichik natural sonlar bo'lsa, y ning qiymatini toping.
$A)1 \quad B)3 \quad C)4 \quad D)0$

3. $2 < a < 6$ va $2 < b < 10$ bo'lsa, a va b butun sonlar uchun $\frac{1+\frac{a}{b}}{1+\frac{b}{a}}$ kasrning eng katta qiymatini toping.
$A)\frac{7}{3} \quad B)\frac{5}{3} \quad C)7 \quad D)15$

4. Hisoblang: $\left(1\frac{1}{7}\right)\cdot\left(1\frac{1}{8}\right)\cdot\left(1\frac{1}{9}\right)\cdot\ldots\cdot\left(1\frac{1}{62}\right)$
$A)9 \quad B)\frac{11}{7} \quad C)7 \quad D)\frac{10}{7}$

5. Besh xonali $\overline{x734y}$ sonini 55 ga bo'lganda natural son hosil bo'ladi. x ning barcha qiymatlari yig'indisini toping.
$A)11 \quad B)9 \quad C)3 \quad D)14$

6. Hisoblang: $\frac{1}{2}+\frac{2}{3}+\frac{3}{2}+\cdots+\frac{15}{2}+\frac{16}{3}$
$A)72 \quad B)24 \quad C)65 \quad D)56$

7. $(x^2+x)+(x^2+2x)+\cdots+(x^2+19x)=1425$ tenglamani qanoatlantiruvchi x natural sonni toping.
$A)6 \quad B)10 \quad C)5 \quad D)8$

8. Soddalashtiring:
$tg\alpha\cdot tg\beta+(tg\alpha+tg\beta)\cdot ctg(\alpha+\beta)$
$A)-1 \quad B)1 \quad C)2 \quad D)0$

9. Hisoblang:
$sin1^\circ+sin2^\circ+sin3^\circ+\cdots+sin359^\circ$
$A)1 \quad B)-1 \quad C)sin179^\circ \quad D)0$

10. Agar $x<-2$ bo'lsa,
$\sqrt{x^2+6x+1+\sqrt{9-12x+4x^2}}$ ifodani soddalashtiring.
$A)2-x \quad B)x+2 \quad C)-x-2 \quad D)-2x$

11. Agar $2^a=81,\ 3^b=8$ bo'lsa, $a\cdot b$ ning qiymatini toping.
$A)14 \quad B)12 \quad C)11 \quad D)13$

12. Ifodani soddalashtiring: $\frac{a^4-10a^2+169}{a^2+6a+13}$
$A)a^2-5a+13 \quad B)a^2+13$
$C)a^2-6a+13 \quad D)a^2-3a+13$

13. a ning qanday qiymatida $\frac{9x^2-6x+1}{9}=(x+a)^2$ tenglik ayniyat bo'ladi?
$A)-\frac{1}{3} \quad B)-1 \quad C)-\frac{1}{4} \quad D)-\frac{1}{2}$

14. $(a^2-2a+1)x=a^2+2a-3$ tenglama a ning qanday qiymatida cheksiz ko'p yechimga ega?
$A)a=-3 \quad B)a=1, a=-3$
$C)a=1 \quad D)a\neq 1$

15. k ning qanday eng kichik natural qiymatida $x^2+(k+2)^2x+2k-4=0$ tenglamaning ildizlari 2 dan kichik bo'ladi?
$A)4 \quad B)3 \quad C)2 \quad D)1$

16. $(3-x)(x+2)>0$ tengsizlikning butun yechimlari yig'indisini toping.
$A)-3 \quad B)2 \quad C)0 \quad D)-5$

17. Agar $f(x)=\begin{cases}-x+2, x<2\\ \frac{x-1}{2}, x\geq 2\end{cases}$ bo'lsa, $f(f(-1))$ ni toping.
$A)-1 \quad B)3 \quad C)1 \quad D)-2$

18. Agar $f(x)=(a+b-4)\cdot x^3+2x^2+(b-1)\cdot x$ juft funksiya berilgan bo'lsa, $f(a)$ ning qiymatini toping.
$A)12 \quad B)14 \quad C)20 \quad D)18$

19. Hisoblang: $\int_1^2\left(e^x+\frac{1}{x}\right)dx.$
$A)e^2+e-ln2 \quad B)e^2-e+ln2$
$C)e^2+e+ln2 \quad D)e^2-e-ln2$

20. $\int\frac{3dx}{x\cdot ln2x}$ni hisoblang.
$A)3ln2x+C \quad B)6lnln2x+C$
$C)1{,}5lnln2x+C \quad D)3lnln2x+C$

21. ABC uchburchakning BC tomonida D nuqta olingan. Agar $BD=16, DC=4$ va $AB=AD=10$ bo'lsa, ADC uchburchak yuzini toping.
$A)12 \quad B)14 \quad C)10 \quad D)16$

22. To'g'ri burchakli $ABCD$ trapetsiyaning B va C burchaklari to'g'ri, $AB=8, BC=6$ va $DC=4$. Trapetsiyaning D uchidan AC diagonaligacha bo'lgan masofani toping.
$A)3{,}6 \quad B)3 \quad C)2{,}4 \quad D)2$

23. *ABCD* trapetsiyaning yuzi 48 ga teng, asoslari *DC=6, AB=2*. *BC* tomonidan *E* nuqta olingan bo'lib, *BE=2EC* bo'lsa, *ADE* uchburchak yuzini toping.
$A)32 \quad B)18 \quad C)24 \quad D)28$

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.
$A) x+2y+3=0 \quad B) x+y+6=0$
$C) x+y=6 \quad D) x-y-6=0$

25. $A=\{x: |x-2|<3, x \epsilon N\}$ to'plamning elementlari sonini toping.
$A)3 \quad B)4 \quad C)6 \quad D)5$

26.Quyida axborot hajmlariga tenglashtirilgan mulohazalar berilgan. Faqat rost mulohazalarning umumiy axborot hajmini toping. Agar topilgan axborot hajmi tarmoq orqali 320 sekundda uzatilgan bo'lsa, axborot uzatish tezligini megabit/sekundlarda aniqlang. "Rim sanoq sistemasidagi CXLVI son 10 lik sanoq sistemasida 146 soniga teng"=120 Mbayt; "Informatikada komyuter texnikasi quyidagi ikki qism birligi sifatida qaraladi: Hardware va Software"=360 Mbayt.
$A)3 \quad B)12 \quad C)9 \quad D)15$

27.Toirda 34 (8 lik sanoq sistema) dona va Zoirda bir necha dona 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 dona olma bo'lgan?
$A)E \quad B)13 \quad C)17 \quad D)10$

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).
$A)111010 \quad B)11100 \quad C)11000 \quad D)11110$

29.MS Excel. Berilgan: A1=1, 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 har biridan ikki marta uzun. Shulardan kelib chiqib, quyidagi formulaning natijasini aniqlang.=3*КОРЕНЬ(B1)*A1+6*C2.
$A)9 \quad B)6 \quad C)24 \quad D)54$

30.Quyida 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> <tr> </table>. Birlashgan kataklardagi sonlar yig'indisini kataklar soniga ko'paytmasini toping.
$A)918 \quad B)649 \quad C)936 \quad D)765$

2-variant

1.$a = 1\cdot 2 + 2\cdot 3 + 3\cdot 4 + \cdots + 40\cdot 41$,
$b = 5\cdot 4 + 10\cdot 6 + 15\cdot 8 + \cdots + 200\cdot 82$
bo'lsa, $\frac{a}{b}$ ning qiymatini toping.
$A)\frac{1}{12}\quad B)\frac{1}{6}\quad C)\frac{1}{10}\quad D)\frac{1}{8}$

2.$\frac{7}{1+\frac{2}{x-1}}$ kasr ma'noga ega bo'lmaydigan barcha x lar yig'indisini toping.
$A)0\quad B)-1\quad C)1\quad D)-2$

3.Agar $x<-1;\ y>1$ bo'lsa, quyidagi javoblardan qaysi biri har doim o'rinli?
$A)x^4>y\quad B)y^3>x^3\quad C)x^2<y^2\quad D)y^2>x^6$

4. Hisoblang: $\left(1\frac{1}{7}\right)\cdot\left(1\frac{1}{8}\right)\cdot\left(1\frac{1}{9}\right)\cdot\ldots\cdot\left(1\frac{1}{69}\right)$
$A)7\quad B)\frac{10}{7}\quad C)\frac{69}{7}\quad D)10$

5.180 gramm suvga 70 gramm tuz aralashtirildi. Hosil bo'lgan aralashmaning necha foizi tuzdan iborat bo'ladi?
$A)28\quad B)25\quad C)30\quad D)22$

6.Agar $\sqrt[3]{a+\sqrt[3]{a+\sqrt[3]{a+\cdots}}}=2$ bo'lsa, $\sqrt{a-\sqrt{a-\sqrt{a-\cdots}}}$ ning qiymatini toping.
$A)1\quad B)2\quad C)4\quad D)3$

7.Hisoblang: $1\cdot 4 + 2\cdot 7 + 3\cdot 10 + \cdots + 9\cdot 28$
$A)900\quad B)740\quad C)1210\quad D)960$

8.Agar $ctg\alpha = -\frac{1}{2}$ bo'lsa, $tg3\alpha$ning qiymatini toping.
$A)-\frac{1}{11}\quad B)5{,}5\quad C)-\frac{2}{11}\quad D)\frac{1}{6}$

9.Hisoblang:$sin2^\circ + sin3^\circ + sin4^\circ + \cdots + sin358^\circ$
$A)1\quad B)sin179^\circ\quad C)0\quad D)-1$

10.Agar $x<-2$ bo'lsa,
$\sqrt{x^2+5x+2+\sqrt{4-4x+x^2}}$ ifodani soddalashtiring.
$A)2+x\quad B)2-x\quad C)-2x\quad D)-x-2$

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.
$A)x<y<z\quad B)z<y<x$
$C)y<x<z\quad D)y<z<x$

12.Ifodani soddalashtiring:
$$\frac{\frac{1}{a}+\frac{1}{b+c}}{\frac{1}{a}-\frac{1}{b+c}}\cdot\left(1+\frac{b^2+c^2-a^2}{2bc}\right):\frac{(a+b+c)^2}{bc}$$
$A)1\quad B)0{,}5\quad C)b+c-a\quad D)a+b+c$

13.Agar $x\neq 0$ bo'lsa, $5+5^{2x+y}-5^{x+1}-5^{x+y}=0$ tenglamadagi x ni y orqali ifodalang.
$A)x=-1-y\quad B)x=1-y$
$C)x=y-1\quad D)x=y+1$

14.Agar $x\sqrt{x}-7\sqrt{x}=6$ bo'lsa, $x-\sqrt{x}$ ning qiymatini toping.
$A)7\quad B)6\quad C)8\quad D)3$

15.Agar $x^2+(k+2)^2\cdot x+2k-4=0$ tenglamaning ildizlari 2 dan kichik bo'lsa, k ning eng katta butun manfiy qiymatini toping.
$A)-2\quad B)-4\quad C)-1\quad D)-5$

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.
$A)11\quad B)38\quad C)26\quad D)16$

18.$y=cos^2\left(\frac{x}{3}-\frac{\pi}{4}\right)+2sinx$ funksiyaning eng kichik musbat davrini toping.
$A)2\pi\quad B)6\pi\quad C)3\pi\quad D)davriy\ emas$

19.$x=1, y=e^x$ va $y=e^{-x}$ funksiyalar bilan chegaralangan soha yuzini toping.
$A)\frac{(e-1)^2}{e}\quad B)e-1\quad C)\frac{e-1}{e}\quad D)\frac{(e-2)^2}{e}$

20.Muntazam ko'pburchak tomoni unga tashqi chizilgan aylananing 36° li yoyni tortib turadi. Muntazam ko'pburchakning tomonlari sonini toping.
$A)12\quad B)10\quad C)6\quad D)8$

21.*ABC* uchburchakda *D* va *E* nuqtalar *BC* tomonni 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 yuziga nisbatini toping.

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

22.*ABCDEF* muntazam oltiburchakda *AC*, *CE*, *BF*, *FD* diagonallar o'tkazilgan. *AC* va *BF* diagonallar *L* nuqtada, *CE* va *FD* diagonallar *K* nuqtada kesishadi. Agar oltiburchak tomoni $2\sqrt{3}$ ga teng bo'lsa, $LCKF$ to'rtburchak yuzini toping.
$A)5\sqrt{3}\quad B)8\sqrt{3}\quad C)9\sqrt{3}\quad D)6\sqrt{3}$

23.*ABCD* trapetsiyaning yuzi 24 ga teng, asoslari *DC=6, AB=2*. *BC* tomonidan *E* nuqta olingan bo'lib, *BE=2EC* bo'lsa, *ADE* uchburchak yuzini toping.
$A)12\quad B)21\quad C)14\quad D)16$

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.
$A)8\quad B)11\quad C)7\quad D)6$

26."ALGORITHM" so'zi harflarini kodlash uchun eng kam bit talab etiladigan ikkilikda tekis kodlash usulidan foydalanilgan. Shu bilan birga, ikkilikdagi kodlar o'sib borish tartibi ingliz alifbosi harflarining o'sish tartibiga moslashtirilgan. M harfi kodini toping.
$A)0101\quad B)0111\quad C)1000\quad D)0011$

27.Toirda 11011100 (2 lik sanoq sistema) dona va Zoirda bir necha 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 dona olma bo'lgan?
$A)156\quad B)160\quad C)167\quad D)163$

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).
$A)3DDA\quad B)3DDDA\quad C)3DDD\quad D)3DAA$

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 har biridan ikki marta uzun. Shulardan kelib chiqib, quyidagi formulaning natijasini aniqlang.`=3*КОРЕНЬ(B1)*A1+9*C2.`
$A)684\quad B)624\quad C)621\quad D)645$

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;
```
$A)11\quad B)9\quad C)15\quad D)13$

3-variant

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

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.
$A)52 \quad B)44 \quad C)42 \quad D)56$

3.$2016 \cdot (2017 \cdot 2018 + 1)$ ifoda quyidagilardan qaysi biriga teng?
$A)2017^3 + 1 \quad B)2017^2 - 1$
$C)2017 \cdot 2018 \quad D)2017^3 - 1$

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'indisini hisoblang.
$A)81 \quad B)63 \quad C)54 \quad D)72$

5.Birinchi quvurdan ikkinchi quvurga qaraganda ikki barobar ko'p suv oqadi. Ikkalasi birgalikda bo'sh hovuzni 12 soatda to'ldiradi. Birinchi quvur hovuzning uchdan bir qismini necha soatda to'ldiradi?
$A)12 \quad B)4 \quad C)6 \quad D)9$

6.1,8,27,64,125 ... ketma-ketlikning 10-hadini toping.
$A)1331 \quad B)512 \quad C)729 \quad D)1000$

7.Hisoblang: $1 \cdot 4 + 2 \cdot 7 + 3 \cdot 10 + \cdots + 10 \cdot 31$.
$A)1210 \quad B)1200 \quad C)1440 \quad D)900$

8.Hisoblang:$tg20^\circ + 4sin20^\circ$.
$A)\frac{\sqrt{3}}{3} \quad B)1 \quad C)\sqrt{3} \quad D)2$

9.Hisoblang:
$ctg15^\circ + ctg30^\circ + ctg45^\circ + \cdots + ctg165^\circ$
$A)0 \quad B)ctg89^\circ \quad C)-1 \quad D)1$

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

11.Agar $a < 0, b < 0, c > 0$ bo'lsa, $\sqrt{b^2} + |b - c| - |c - a| + b$ ifodani soddalashtiring.
$A)a - 2b \quad B)a - 2b + c \quad C)-a \quad D)a - b$

12.Agar $25^x = 12$ bo'lsa, 5^x ning qiymatini toping.
$A)2\sqrt{5} \quad B)2\sqrt{2} \quad C)3\sqrt{2} \quad D)2\sqrt{3}$

13.Agar $\sqrt{3x + 2y - 13} + \sqrt{4x - y - 10} = 0$ bo'lsa, x va y sonlarining ko'paytmasini toping.
$A)8 \quad B)-2 \quad C)-4 \quad D)6$

14.Agar $x\sqrt{x} - 8\sqrt{x} = 7$ bo'lsa, $x - \sqrt{x}$ ning qiymatini toping.
$A)3 \quad B)6 \quad C)7 \quad D)8$

15.Toq sonning o'zidan keyin keluvchi uchta toq son bilan yig'indisi 49 dan katta. Ushbu shartni qanoatlantiruvchi toq sonlardan eng kichigini toping.
$A)9 \quad B)15 \quad C)11 \quad D)13$

16.$x^7 \cdot |x^2 + 8x + 7| < 0$ tengsizlik $[-8; 1]$ kesmada nechta butun yechimga ega?
$A)6 \quad B)8 \quad C)5 \quad D)7$

17.$y = x^2$ parabola grafigini o'ngga ikki birlik, yuqoriga uch birlik siljitish (parallel ko'chirish) natijasida hosil bo'lgan parabola tenglamasini yozing.
$A)y = x^2 - 4x + 7 \quad B)y = x^2 - 4x + 3$
$C)y = x^2 + 4x + 7 \quad D)y = 2x^2 + 3$

18.$y = x^2 - |2x - 4|$ funksiya grafigiga $x = 3$ va $x = -3$ nuqtalarda o'tkazilgan urinmalarning kesishish nuqtasi ordinatasini toping.
$A)-6 \quad B)-5 \quad C)-12 \quad D)-9$

19. $\int \frac{dx}{x \cdot ln2x}$ni hisoblang.
$A)2lnln2x + C \quad B)lnln2x + C$
$C)0{,}5lnln2x + C \quad D)ln2x + C$

20.Markaziy burchagi 72° bo'lgan sektorning yuzi 15 ga teng. Sektor radiusini toping.
$A)\sqrt{\frac{75}{\pi}} \quad B)\sqrt{\frac{45}{\pi}} \quad C)\sqrt{\frac{15}{\pi}} \quad D)\sqrt{\frac{25}{\pi}}$

21.*ABC* to'g'ri burchakli uchburchakning katetlari $AB = 4, AC = 6$ va AN bissektrisa bo'lsa, *ABN* uchburchak yuzini toping.
$A)3 \quad B)4{,}8 \quad C)4 \quad D)4{,}2$

22.To'g'ri burchakli uchburchakka ichki va tashqi chizilgan aylanalar radiuslari uzunliklari yig'indisi 4 ga, gipotenuza esa 6 ga teng. Uchburchakning perimetrini toping.
$A)20 \quad B)12 \quad C)18 \quad D)14$

23. *ABCD* trapetsiyaning yuzi 36 ga teng, asoslari *DC=6, AB=2*. *BC* tomonidan *E* nuqta olingan bo'lib, *BE=2EC* bo'lsa, *ADE* uchburchak yuzini toping.
$A)28 \quad B)21 \quad C)18 \quad D)36$

24.*ABCD* parallelogrammning diagonallari *O* nuqtada kesishadi. $\overrightarrow{AC} = k\overrightarrow{AO}$ tenglik bajariladigan *k* sonining qiymatini toping.
$A)3 \quad B)1{,}5 \quad C)2 \quad D)2{,}5$

25.Agar $a - b = |x| + 3$ bo'lsa, a va b lar uchun to'g'ri munosabatni aniqlang.
$A)a > b \quad B)a = b + 1 \quad C)a \leq b \quad D)a < b$

26.To'g'ri to'rtburchakning bir tomoni 1101 (2 lik sanoq sistema), ikkinchi tomoni 22 (8 lik sanoq sistema) ga teng. To'g'ri to'rtburchakning yuzini 16 lik sanoq sistemasida toping.
$A)DF \quad B)DE \quad C)F7 \quad D)EA$

27.A nuqtaning koordinatalari (33;42) (8 lik sanoq sistema) va B nuqtaning koordinatalari (15; 1A) (16 lik sanoq sistema). A va B nuqtalar orasidagi eng qisqa masofani 2 lik sanoq sistemasida toping.
$A)10 \quad B)1010 \quad C)1011 \quad D)1001$

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 oynasidan ham og'ma, ham qalin shriftlarda aks etgan rim sonlarining yig'indisini hisoblang.

```
<strong><u>CXXIX</strong></u><cite><b>LIX</cite></b><em><u>CXIV</em></u><b><i>LXII</b></i><u><cite>XXIX</u></cite><b><u>XXXIV</b></u>.
```


$A)272 \quad B)163 \quad C)143 \quad D)121$

30.Paskal. Agar quyidagi dastur qismining bajarilishi natijasida S ning qiymati 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;
```

$A)161 \quad B)84 \quad C)163 \quad D)165$

4-variant

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

2.a, b, c musbat sonlar uchun
$x = 3a + 2 = 5b + 4 = 7c + 6$ tengliklar bajarilsa, x uch xonali sonning eng katta qiymatini toping.
$A)999 \quad B)944 \quad C)945 \quad D)976$

3.Hisoblang:
$\left(\frac{\sqrt{6}+\sqrt{5}}{\sqrt{2}+1} \cdot \frac{\sqrt{6}-\sqrt{5}}{\sqrt{2}-1}\right) : \left(\frac{1}{\sqrt{3}} - \frac{\sqrt{3}}{9} + \frac{1}{\sqrt{27}}\right)$.
$A)1 \quad B)3\sqrt{3} \quad C)\sqrt{3} \quad D)\frac{\sqrt{3}}{3}$

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

5.Ahmad bir kun, Arslon ikki kun ishlaganda bir ishning $\frac{3}{8}$ qismini bajarishadi. Agar Ahmad uch kun, Arslon ikki kun ishlasa, aynan o'sha ishning $\frac{5}{8}$ qismini bajarishadi. Ahmad bir o'zi ushbu ishni necha kunda tamomlaydi?
$A)4 \quad B)10 \quad C)8 \quad D)9$

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

7. Hisoblang: $1 \cdot 4 + 2 \cdot 7 + 3 \cdot 10 + \cdots + 8 \cdot 25$
$A)720 \quad B)640 \quad C)648 \quad D)900$

8.Hisoblang: $arcsin(sin3)$.
$A)\frac{\pi}{2} - 3 \quad B)\pi - 3 \quad C)3 \quad D)\emptyset$

9. Hisoblang:
$cos1^\circ + cos2^\circ + cos3^\circ + \cdots + cos179^\circ$
$A)1 \quad B)-1 \quad C)0 \quad D)cos89^\circ$

10.$a \cdot b \cdot c = 4$ 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.
$A)\frac{2}{3} \quad B)-\frac{3}{2} \quad C)1 \quad D)-\frac{5}{3}$

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.
$A)-2a \quad B)-2a-2c \quad C)0 \quad D)b-a$

12.Agar $x^2 - 5x + 2 = 0$ bo'lsa, $x^2 + \frac{4}{x^2}$ ning son qiymatini toping.
$A)15 \quad B)23 \quad C)21 \quad D)18$

13.Agar $x = \sqrt{42 - \sqrt{42 - \sqrt{42 - \cdots}}}$,
$y = \sqrt{x + \sqrt{x + \sqrt{x + \cdots}}}$,
$z = \sqrt{y \cdot \sqrt{y \cdot \sqrt{y \cdot \ldots}}}$ bo'lsa, $x + y + z$ ning qiymatini toping.
$A)11 \quad B)14 \quad C)10 \quad D)12$

14. Agar $x\sqrt{x} - 9\sqrt{x} = 8$ bo'lsa, $x - \sqrt{x}$ ning qiymatini toping.
$A)3 \quad B)7 \quad C)6 \quad D)8$

15.Juft sonning o'zidan keyin keluvchi juft sonning uchlangani bilan yig'indisi 70 dan kichik. Ushbu shartni qanoatlantiruvchi juft sonlardan eng kattasini toping.
$A)12 \quad B)16 \quad C)14 \quad D)8$

16.$f(x) = \begin{cases} 4x + 1, x < 0 \\ -x^3 + 5, x \geq 0 \end{cases}$ funksiya berilgan. $f(f(2))$ni toping.
$A)-13 \quad B)-7 \quad C)-11 \quad D)-3$

17.$y = x^4 - 4lnx$ funksiyaning minimum nuqtasini toping.
$A)x = 2 \quad B)x = 1 \quad C)mavjud\ emas \quad D)x = 0$

18.$y = x^2 - |2x - 4|$ funksiya grafigiga $x = 3$ va $x = -3$ nuqtalarda o'tkazilgan urinmalarning kesishish nuqtasi abssissasini toping.
$A)3 \quad B)1 \quad C)-2 \quad D)-1$

19. $\int \frac{2dx}{x \cdot ln2x}$ni hisoblang.
$A)4lnln2x + C \qquad B)2ln2x + C$
$C)1{,}5lnln2x + C \qquad D)2lnln2x + C$

20.$ABCD$ to'rtburchak aylanaga ichki chizilgan. Agar $\angle ABC = 105^\circ, \angle CAD = 35^\circ$ bo'lsa, $\angle ABD$ ni toping.
$A)75^\circ \quad B)60^\circ \quad C)70^\circ \quad D)80^\circ$

21.ABC to'g'ri burchakli uchburchakda E nuqta BC tomonni $BE:EC = 3:1$ 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.
$A)36 \quad B)48 \quad C)18\sqrt{3} \quad D)24\sqrt{3}$

22.Uchburchakning 10 ga teng balandligi uning asosini 10 va 4 ga teng kesmalarga ajratadi. Uchburchakning qolgan ikki tomonidan kichigiga o'tkazilgan mediana uzunligini toping.
$A)11 \quad B)14 \quad C)13 \quad D)12$

23.$A(0;1)$ va $B(5;-3)$ nuqtalar berilgan. Agar *B* nuqta *AC* kesmaning o'rtasi bo'lsa, *C* nuqta koordinatalari yig'indisini toping.
$A)2 \quad B)2{,}5 \quad C)3 \quad D)4$

24.Quyidagi javoblardan qaysi biri bo'sh to'plam?
$A) A = \{x: x^2 \le 0, x \in R\}$
$B) A = \{x: 3x + 5 = 0, x \in R\}$
$C) A = \{x: x^2 < x, x \in R\}$
$D) A = \{x: |2x - 3| = -4, x \in R\}$

25.Agar $a - b = |3x|^{-1}$ bo'lsa, *a* va *b* lar uchun to'g'ri munosabatni aniqlang.
$A) a < b \quad B) a \le b \quad C) a > b \quad D) a = b + 1$

26.Uchburchakning katetlaridan biri 1D (14 lik sanoq sistema), ikkinchisi 28 (14 lik sanoq sistema). Uchburchakning gipotenuzasini 14 lik sanoq sistemasida toping.
$A)32 \quad B)35 \quad C)36 \quad D)33$

27.A nuqtaning koordinatalari (46;44) (8 lik sanoq sistema) va B nuqtaning koordinatalari (26;31) (10 lik sanoq sistema). A va B nuqtalar orasidagi eng qisqa masofani 2 lik sanoq sistemasida toping.
$A)1100 \quad B)1110 \quad C)13 \quad D)1101$

28.Quyida keltirilgan 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".`
$A)0 \quad B)3 \quad C)2 \quad D)1$

29.Quyida 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.
$A)12 \quad B)36 \quad C)15 \quad D)18$

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.
```
$A)[-2004; -1908] \quad B)[-2024; -1898]$
$C)[-1914; -1703] \quad D)[-2014; -1892]$

JAVOBLAR

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