MATEMATIKA-(HARBIY)-2018

1. 4 va 324 sonlari orasiga shunday 3 ta musbat son qo`yingki, natijada geometrik progressiya hosil bo`lsin.
A) 12, 36, 108 B)14,42,126
C) 10, 30, 90 D)11, 33,99

2. Hisoblang. $\frac{1}{2}+\frac{2}{3}+\frac{3}{2}+\frac{4}{3}+..+\frac{15}{2}+\frac{16}{3}$
A) 72 B) 65 C)24 D)56

3. k ning qanday qiymatlarida $\cos(\alpha+\pi k)=\cos\alpha$ tenglik bajariladi?
A) $2\pi n,\ n\in Z$ B) $n,\ n\in Z$
C) $2n+1,\ n\in Z$ D) $n+2,\ n\in Z$

4. Hisoblang. $\sin 1°+\sin 2°+\sin 3°+..+\sin 359°$
A) $\sin 179°$ B) -1 C) 1 D) 0

5. a,b musbat sonlar uchun
$\lg(a-b),\ \lg 2\sqrt{ab+b^2}$ va $\lg(a+b)$ sonlari ko`rsatilgan tartibda arifmetik progressiyaning ketma-ket hadlari bo`lsa, $\log_b a^2-\log_b 25$ ifodaning qiymatini toping
A)2 B)1 C)-2 D)-1

6. Hisoblang. $\left(1+\frac{2}{3}\right)\left(1+\frac{2}{4}\right)\left(1+\frac{2}{5}\right)....\left(1+\frac{2}{70}\right)$
A) 440 B) 426 C) 414 D)1

7. Agar $a<0, b<0, c>0$ bo`lsa, $\sqrt{b^2}+|b-c|-|c-a|+b$ soddalashtiring.

8. Agar $81^x=16$ bo`lsa, 9^x ni hisoblang.
A)4 B) $\frac{4}{3}$ C) ± 4 D) $\frac{4}{9}$

9. $\frac{2x-7}{x^2+2x-8}>1$ tengsizlikning barcha butun yechimlarining yig`indisini toping.
A) -2 B)-1 C)-5 D)-3

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

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

12. $y=(1+ctg^2x)\sin^2 x+\frac{2\sin 2x}{\cos x}$ funksiyaning qiymatlar sohasini toping.
A) $(-3;1)\cup(1;5)$ B) $[-3;5]$
C) $[-1;1)\cup(1;3]$ D) $[-1;3]$

13. $x=1,\ y=2^x$ va $y=2^{-x}$ funsiyalar bilan chegaralangan sohani yuzini toping.
A) $\log_4 e$ B) $\log_2 2e$
C) $\log_2 e$ D) $-\log_4 e$

14. M nuqta CD to`g`ri chiziqda C va D nuqtalar orasida yotibti. Agar $CM=2{,}5\ sm$ va $MD=3{,}5\ sm$ bo`lsa, CD kesmaning uzunligini toping.
A) 7 B) 5 C)8 D) 6

15. Uchburchakning 10 ga teng balandligi uning aasosini 10 va 4 ga teng kesmalarga ajratadi. Uchburchakning qolgan ikki tomonidan kichigiga o`tkazilgan mediana uzunligini toping.
A) 11 B) 13 C) 12 D) 14

16. $2016\cdot(2017\cdot 2018+1)$ ifoda quyidagilardan qaysi biriga teng.
A) 2017^2-1 B) 2017^3-1
C) 2017^3+1 D) $2017\cdot 2018$

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

18. 36 ga bo`linadigan $\overline{72x3y}$ ko`rinishidagi barcha 5 xonali sonlar orasidan x ning eng kata qiymatini toping.
A) 5 B) 7 C) 6 D) 8

19.Yengil avtomabil 64 km yo`lni40 minutda bosib o`tadi. Avtobus 40km yo`lni 28 minutda bosib o`tsa, avtobus tezligi yengil avtomobil tezligini qancha foiziga teng.
A) $85\frac{4}{9}$ B) $91\frac{3}{5}$ C) $89\frac{2}{7}$ D) $78\frac{1}{4}$

20. $n-$hadining formulasi $a_n=\frac{13-n}{6}$ bo`lgan arifmetik progreassiyaningayirmasini toping.
A) $\frac{1}{2}$ B) $\frac{1}{4}$ C) $-\frac{1}{6}$ D) $-\frac{1}{3}$

21.Agar $\sqrt[3]{a+\sqrt[3]{a+\sqrt[3]{a}+....}}=2$ bo`lsa, $\sqrt{a-\sqrt{a-\sqrt{a-.....}}}=?$
A) 3 B) 1 C) 4 D) 2

22. $\cos 10°-2\cos 50°-\cos 70°$ hisoblang.
A) $-\cos 50°$ B) $\sin 40°$
C) $\cos 50°$ D) $-\sin 50°$

23. Hisoblang $\arcsin\sin 3$

A) 3 B) $\frac{\pi}{2}-3$ C) $\pi-3$ D)Ø

24. a va b sonlar uchun $a^2+b^2=14ab$ tenglik o`rinli bo`lsa, $\frac{4\lg\frac{a+b}{4}}{\lg\frac{1}{a}+\lg\frac{1}{b}}$ ni qiymatini toping.

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

25. Ifodani soddalashtiring. $\frac{2a^2+ab-b^2}{a+b}-2a+1$

A) $1-b$ B) $b-a$ C) $-b$ D) $1+b$

26. Agar $a+b$ va $12a-b$ tub sonlar bo`lib, $\frac{a+b}{112a-b}=\frac{21}{57}$ tenglik bajarilsa, a ni toping.

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

27. a ning qanday qiymatida $\frac{9x^2-6x+1}{9}=(x+a)^2$ tenglik ayniyat bo`ladi.

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

28. Agar $x=\sqrt{42-\sqrt{42-.....}}$

$y=\sqrt{x+\sqrt{x+\sqrt{x+...}}}$; $z=\sqrt{y\cdot\sqrt{y\cdot\sqrt{y....}}}$ bo`lsa, $x+y+z$ ning qiymatini toping.

A) 10 B) 12 C) 11 D) 14

29. Agar $x\sqrt{x}-7\sqrt{x}=6$ bo`lsa, $x-\sqrt{x}$ ning qiymatini toping.

A) 3 B) 8 C) 7 D) 6

30. Tengsizlikni yeching. $7+3x\le 5(x-2)$

A) $x\ge 7$ B) $x\ge 8{,}5$ C) $x\ge 7{,}5$ D) $x\ge 8$

31. Agar $f(2x-3)=3x+5$ bo`lsa, $f(f(1))$ ni toping.

A) 26 B) 38 C) 16 D) 11

32. $y=x^2-|2x-4|$ funksiya grafigiga $x=3$ va $x=-3$ nuqtalarda o`tkazilgan urinmalar kesishish nuqtasi ordinatasini toping.

A) -9 B) -5 C) -12 D) -6

33. Muntazam ko`pburchakning tomoni unga tashqi chizilgan aylananing $36°$ yoyini tortib turadi. Muntazam ko`pburchakning tomonlari sonini aniqlang.

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

34 ABC uchburchakning BC tomonidan D nuqta olingan. Agar $BD=16$, $DC=4$ va $AB=AD=10$ bo`lsa, ABC uchburchakning yuzini toping.

A) 14 B) 12 C) 10 D) 16

35. $f(x)=\frac{x^2}{x^3+1}$ funksiyaning $\left(\sqrt[3]{e-1};2\right)$ nuqtalardan o`tuvchi boshlang`ich funksiyani ko`rsating.

A) $F(x)=\frac{1}{3}\ln\left(x^3+1\right)+2$

B) $F(x)=\frac{1}{3}\ln\left(x^3+1\right)-\frac{5}{3}$

C) $F(x)=\frac{1}{3}\ln\left(x^3+1\right)-2$

D) $F(x)=\frac{1}{3}\ln\left(x^3+1\right)+\frac{5}{3}$

36. Yon tomoni 7 ga teng bo`lgan teng yonli uchburchak asosidan olingan nuqta orqali, yon tomonlariga parallel to`g`ri chiziqlar o`tkazildi. Hosil bo`lgan parallelogram perimetrini toping.

A) 14 B) 28 C) 20 D) 21

37. Kesik piramidaning asoslari teng yonli uchburchaklardan iborat bo`lib, Ularning uchlaridagi burchaklari $120°$ ga teng. Katta asosining yon tomonlari $a$ ga, kichik asosining yon tomonlari $b$ ga, ularning o`tmas burchaklari uchlarini tutashtiruvchi qirra esa c ga teng bo`lib, u asoslar tekisligiga perpendikulyar. Kesik piramidaning yon sirti yuzini toping.

A) $(a+b)\left(c+\frac{\sqrt{3}}{4}\sqrt{4c^2+(a-b)^2}\right)$

B) $\frac{1}{4}(a+b)\left(\sqrt{12c^2+4(a-b)^2}\right)$

C) $(a+b)\left(c+\sqrt{4c^2+(a-b)^2}\right)$

D) $c+\frac{\sqrt{3}}{4}\sqrt{4c^2+(a-b)^2}$

38. $(x^2+x)+(x^2+2x)+....+(x^2+19x)=1425$ tenglikni qanoatlantiruvchi x qiymatini toping.

A) 8 B)10 C) 5 D) 6

39. Mobil telefon to`liq quvvatlantirilganda 4 soat suhbatlashish yoki 12 soat kutish holatiga yetadigan quvvat oladi. Yo`lovchi poezdga chiqishdan oldin mobil telefonni to`liq quvvatlantirib oldi va yo`lda yurgan vaqtning yarmida telefon orqali suhbatlashib ketdi.Agar Mobil telefondagi quvvat to`liq yo`lga yetgan va poezddan tushayotgan payt tugagan bo`lsa, yo`lovchi poezdda qancha vaqt yurgan.

A) 5 soat 30 minut B) 8 soat
C) 4 soat 30 minut D) 6 soat

40. $\vec{a}$ va $\vec{b}$ nolmas vektorlarning kolleniarlik alomati berilgan javob bu….

A) $\vec{a}\cdot\vec{b}=0$ C) $\vec{c}=x\vec{a}-y\vec{b}=0$

B) $\vec{c}=x\vec{a}+y\vec{b}=0$ D) $\vec{b}=k\vec{a},\quad k\neq 0$

41. Teng yonli trapetsiyaning o`rta chizig`I 29 (16 lik sanoq sistemasida), balandligi 21 (10 likda), kichik asosi 10101 (2 likda) ga teng trapetsiyaning perimetrini 8 lik sanoq sistemasida tasvirlang.
A) 212 B) 215 C) 230 D)214

42. MS Excel A1=9, A2=-9, B1=-14, B2= 4,
C1= Informatika, C2=Universitet,
$D1 = ABS(\$A1 + B1) + НАЙТИ("x";\$C1)$ berilgan.
Agarda D1 katakni D2 katakka nusxalansa, D1 va D2 kataklarda hosil bo`lgan sonlar yig`indisini toping.
A)26 B) 21 C) 18 D) -10

43. A= "HTML ….juftmas tegi matn davomini yangi satrdan aks ettirish uchun ishlatiladi".
B= " Ovoz plata- axborot saqlagichlarga yozilgan raqamli axborotni tovushlarga aylantrib beruvchi qurilma" va
C= "rost" bo`lsa, A mulohazadagi nuqtalar o`rniga qaysi javobdagi matn qo`yilganda $(B\ or\ C)\ and\ A$ mantiqiy ifoda $A$ mulohaza asosida yolg`on qiymat qabul qiladi?
A) <B> B)
C)<TABLE> D) <STRIKE>

44. Ekranning har bir pikseli 396 ta rang bilan kodlanadi. Ekran to`g` ri to`rtburchak shaklida bo`lib, uning eni 320 piksel v abo`yi 64 piksel tashkil etadi. U xotiradan necha kilobayt joy egallaydi.
A) 32,5 B) 17,5 C)25,5 D) 22,5

45. HTML kodining bir qismi berilgan bo`lib, tartiblanmagan ro`yxatda og`ma shrift bilan aks etuvchi rim sonlarining yig`indisini aniqlang.

LXXI
LXIV
<dl>
<cite>LXXIX</cite></dl><ul type=circle>
LXXIX
A)138 B) 150 C) 224 D) 145

46. Paskal. Agar a va b sonlari $2x(x-81)+3280=0$ tenglamaning ildizlari bo`lsa, u holda quyidagi dastur qismi asosida $S$ o`zgaruvchining qiymatini aniqlang.

$Y := Random(Random(2)) + \text{int}(a+b);$
$X := trunc(a*b + 40/81);$
$S := Round(Y + X + Random(1));$
$write\ln(S);$
A) 1721 B)3361 C)3362 D)1719

47. Quyidagi sanoq sistemalaridagi sonlarga tenglashtirilgan mulohazalar berilgan. Rost tasdiq;arning 2 lik sanoq sistemasidagiqiymatini hisoblang.
3C (16 lik)="Operatsion sistemaga Windows Commander dasturi misol bo`ladi"
12 (8lik)= "MS Word dasturida satr-bitta chizig`da yozilgan so`zlar, harflar yoki belgilar ketma-ketligidir'.
A) 0 B) 111100
C) 100 10 110 D) 1011010

48. A= "HTML ….juft tegi tag chiziqli shriftda yozish uchun ishlatiladi".
B= " Asosiy plata-yaxlit asosga yi`gilgan electron sxemalar bo`lib, unga ba`zi qurilmalar axborot almashish sistema magistrali-shinalar yordamida bog`lanadi" va
C= "rost" bo`lsa, A mulohazadagi nuqtalar o`rniga qaysi javobdagi matn qo`yilganda $A\ or\ not\ (B\ or\ C)$ mantiqiy ifoda A mulohaza asosida rost qiymat qabul qiladi?
A)
 B) <U>
C)<TABLE> D) <STRIKE>

49. MS Excel A1=9, A2=-9, B1=--18, B2= 7,
C1= Informatika, C2=Universitet,
$D1 = ABS(\$A1 + B1) + Длстр(C1)$ berilgan. Agarda D1 katakni D2 katakka nusxalansa, D1 va D2 kataklarda hosil bo`lgan sonlar yig`indisini toping.
A)33 B) -11 C) 30 D) 38

50. Ifodani soddalashtiring. $\cos^2\alpha + tg^2\alpha \cdot \cos^2\alpha$
A)0,7 B) 4 C) $\sin 179°$ D) 1

51. $\left\{\frac{\{\lg 200\}}{\{\lg 50\}}\right\} + \{\log_5 12{,}5\}$ ni hisoblang. Bunda $\{a\} - a$ soning kasr qismi.
A) $\frac{1}{2}$ B) $\log_5 2$ C)1 D) $\log_5 4$

52. Agar $\sqrt[n+1]{\sqrt[n-1]{81}} = \sqrt[4]{9}$ bo`lsa, n^2+1 ni hisoblang.
A) 26 B) 5 C) 17 D) 10

53. 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) 0,5 B) $b+c-a$
C) $b+c+a$ D) 1

54. $\frac{4}{x-1} - \frac{1}{2x-1} = \frac{x+3}{x-1}$ tenglama nechta ildizga ega.
A) cheksiz ko`p B) 2 ta C) 1 ta D) Ø

55. -1 dan kata a, b, c sonlari uchun $ab+a+b=11$, $bc+b+c=5$, $ca+c+a=1$ tengliklar o`rinli bo`lsa, $abc+ab+bc+ca+a+b+c$ qiymatini toping.
A) 12 B) 11 C) 9 C)18

56. O`n bir burchakli muntazam prizma nechta dioganal kesimga ega.
A) 66 B)22 C) 33 D) 44

57. Piramidaning tomonlari 5, 12, 13 ga teng bo`lgan uchburchakdan iborat. Piramidaning barcha ikki yoqli burchaklari $60°$ ga teng bo`lsa, uning hajmini toping.
A) $24\sqrt{3}$ B) $36\sqrt{3}$
C) $20\sqrt{3}$ D) $48\sqrt{3}$

58. (1;0) va (3;0) nuqtalar orasidagi masofani toping.
A) 2 B) 1,5 C) 3 D) 4

59. A(3;0) va B(-1;2) nuqtalardan o`tuvchi hamda markazi $y = x + 2$ to`g`ri chiziqda yotgan aylana markazi koordinatalarini toping.
A) (4;5) B) (5;3) C) (3;4) D)(3;5)

60. Madina olma, nok va mandarinni yemoqchi, ammo bu ishni qanday ketma-ketlikda amalga oshirish yuzasidan hech qanday qarorga kelmadi. Madina bunday ketma-ketlikni nechta usul bilan tanlash mumkin?
A) 9 B) 3 C) 1 D)6

61. Juft raqam bilan tugaydigan har qanday natural son qanday natural songa bo`linadi?
A) uch B) besh C) ikki D) to`rt

62. Agar $a > 0, b > 0, c < 0$ va $b^2 - 4ac > 0$ bo`lsa, $ax^4 + bx^2 + c = 0$ bikvadrat tenlama nechta haqiqiy ildizga ega bo`ladi?
A) 2 B) 4 C) 1 C)3

63. $a = 1 \cdot 2 + 2 \cdot 3 + 3 \cdot 4 + ... + 40 \cdot 41,$
$b = 5 \cdot 4 + 10 \cdot 6 + 15 \cdot 8 + ... + 200 \cdot 82,$ bo`lsa, $\frac{a}{b} = ?$
A) $\frac{1}{8}$ B) $\frac{1}{12}$ C) $\frac{1}{6}$ D) $\frac{1}{10}$

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

YOZMA ISH sifatida ishlaymiz!!!

1. $y = x^2$ funksiya grafigini o`ngga 2 birlik, yuqoriga 3 birlik ko`chirish natijasida hosil bo`lgan grafik tenglamasini tuzing.

2. $tg\alpha \cdot tg\beta + (tg\alpha + tg\beta) \cdot ctg(\alpha + \beta)$ soddalashtiring.

3. $x^2 - 5x + 2 = 0$ tenglama berilgan bo`lsa,
$x^2 + \frac{4}{x^2} = ?$

4. k ning qanday eng kichik qiymatida
$x^2 + (k+2)^2 x + 2k - 4 = 0$ tenglamaning ikkala ildizi ham 2 dan kichik bo`ladi?

5.