HARBIY 2018

1-variant.

1. $\{2-\sqrt{2}\}+\{2+\sqrt{2}\}+\{3-\sqrt{3}\}+\{3+\sqrt{3}\}+\ldots+\{2017-\sqrt{2017}\}+\{2$ hisoblang. Bunda $\{a\}-a$ sonning kasr qismi.
A) 1937 B) 2017 C) 2018 D) 1973

2. A(2;3) nuqtani koordinata boshiga nisbatan simmetrik bo`lgan nuqtasini toping?
A) (-2;3) B) (-2;-3) C) (2;-3) D) (2;3)

3. $1!+2!+3!+\ldots+2017!+2018!$ yig`indini 12 ga bo`lgandagi qoldiqni toping?
A) 9 B) 8 C) 7 D) 6

4. 4 va 324 sonlari orasidan shunday 3 ta sonni topingki ularning barchasi geometrik progressiyani tashkil qilsin.
A) $11;33;99$ B) $14;42;126$
C) $10;30;90$ D) $12;36;108$

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

6. a va b musbat sonlar uchun $lg(a-b)$, $lg2\sqrt{ab+b^2}$ va $lg(a+b)$ sonlari ko`rsatilgan tartibda arifmetik progressiyaning ketam-ket hadlari bo`lsa, $\log_b a^2-\log_b 25$ ifodaning qiymatini toping.
A) 2 B) 1 C) -2 D) 1

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

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

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

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

11. $\sin 1^0+\sin 2^0+\sin 3^0+\ldots+\sin 359^0$ hisoblang.
A) $\sin 179^0$ B) 0 C) -1 D) 1

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

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

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

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

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

17. $x=1$, $y=2^x$ *va* $y=2^{-x}$ funksiyalar bilan chegaralangan soha yuzini toping.
A) $\log_4 e$ B) $\log_2 2e$ C) $\log_2 e$ D) $-\log_4 e$

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

19. $\sqrt[n+1]{\sqrt[n-1]{81}}=\sqrt[4]{9}$ bo`lsa, n^2+1 ning qiymatini toping?
A) 5 B) 10 C) 17 D) 26

20. Soddalashtiring. $\frac{2a^2+ab-b^2}{a+b}-(2a-1)$
A) a-1 B) 1-b C) b-1 D)1-a

21. Ahmad bir kun, Alisher ikki kun ishlaganda 1 ishning $\frac{3}{8}$ qismini bajarishadi. Agar Ahmad uch kun, Arslon ikki kun ishlasa aynan o`sha ishning $\frac{5}{8}$ qismini bajarishadi. Ahmadning bir o`zi ushbu ishni necha kunda tamomlaydi?

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

22. $X\,734\,Y$ soni 55 ga qoldiqsiz bo`linsa, X ning barcha qiymatlari yig`indisini toping?
A) 11 B) 8 C) 7 D) 5

23. $a_n=\frac{13-n}{6}$ arifmetik progressiyaning umumiy hadi bo`lsa, $d=?$
A) $\frac{1}{6}$ B) $\frac{-1}{6}$ C) 6 D) -6

24. $\frac{2018}{1+\frac{2}{x-1}}$ ifoda ma`noga ega bo`lmaydigan x ning barcha qiymatlari yig`indisini toping?
A) 1 B) 0 C) -1 D) 31

25. $a^2+b^2=14ab$ bo`lsa, $\frac{4\,lg\frac{a+b}{4}}{lg\frac{1}{ab}}$ ni toping.
A) -4 B) -2 C) 4 D) 1

26. $x^2-5x+2=0$ tenglama berilgan bo`lsa, $x^2+\frac{4}{x^2}$ ning qiymatini toping?
A) 3 B) 21 C) 0 D) 12

27. $y=x^2$ funksiya grafigini o`ngga 2 birlik yuqoriga 3 birlik ko`chirish natijasida hosil bo`ladigan grafikning tenglamasini toping?
A) $y=(x-2)^2+3$ B) $y=(x+2)^2+3$
C) $y=(x-2)^2-3$ D) $y=(x+2)^2-3$

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

29. Kesik piramidaning asoslari teng yonli uchburchaklardan iborat bo`lib, ularning uchlaridagi burchaklari $120^0$ga teng. Katta asosining yon tomonlari *a* ga kichik asosining yon tommonlari *b* ga, ularning o`tmas burchaklari uchlarini tutashtiruvchi qirrasi esa *c* gat eng bo`lib, u asos tekistligiga perpendikulyar. Kesik piramida yon sirtining 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) $c+\frac{\sqrt{3}}{4}\sqrt{4c^2+(a-b)^2}$

30. Quyidagi javoblarning qaysi biri bo`sh to`plam?
A) $A=\{x:|x-12|<31, x\in R\}$
B) $A=\{x:x^2<22, x\in R\}$
C) $A=\{x:(x-12)^0\neq 1, x\in R\}$
D) $A=\{x:x^2<x, x\in R\}$

1dd 2bb 3aa 4dd 5dd 6aa 7dd 8aa 9bb 10d 11b 12aa 13bb 14dd 15cc 16cc 17aa 18aa 19bb 20bb 21dd 22aa 23bb 24bb 25bb 26bb 27aa 28dd 29aa 30cc