VARIANT №6

1. $(x^2+2x-1)^2+2x^2+3x=3$ tenglamaning haqiqiy ildizlari nechta?

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

2. $f(x)=x^5+x+5$ bo‘lsa, $\int_5^7 f^{-1}(x)dx$ integralni hisoblang. (Bu yerda $f^{-1}(x)$ funksiya $f(x)$ funksiyaga teskari funksiya)

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

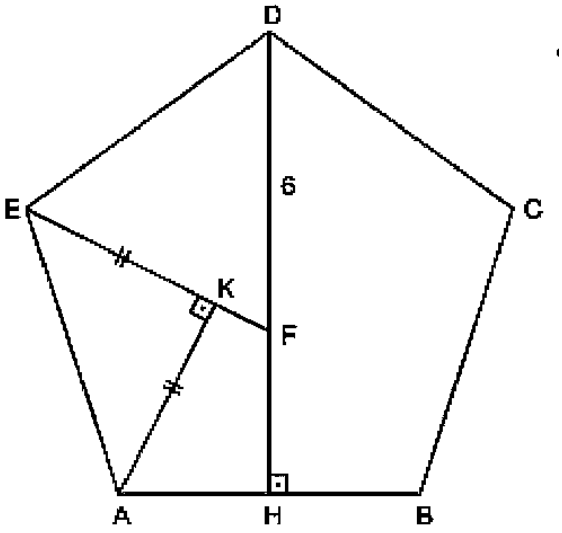
3. $\{0,\ 1,\ 2,\ 3,\ 4\}$ to‘plamning elementlaridan foydalanib, raqamlari farqli bo‘lgan barcha uch xonali sonlar yozildi. Yozilgan sonlar nechta?

A) 60 B) 48 C) 36 D) 32

4. $\sin\frac{\pi}{14}\cdot\sin\frac{3\pi}{14}\cdot\sin\frac{5\pi}{14}$ ni hisoblang.

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

5. Quyidagi rasmda $ABCDE$ muntazam beshburchak tasvirlangan:



Agar $DH\perp AB,\ EF\perp AK,\ EK=AK$ va $FD=6$ cm bo‘lsa, $ABCDE$ beshburchak perimetrini toping.

A) 20 B) $20\sqrt{2}$ C) 30 D) 40

6. $x^{\begin{vmatrix}1 & 2\\ 3 & 8\end{vmatrix}}-\left(\sqrt{x}\right)^{\ln e^2}-2\lim\limits_{x\to 0}\frac{\ln\left(\sin\frac{\pi}{2}+x\right)}{x}=0$ tenglamani yeching.

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

7. $\int_{2-\sqrt{2}}^{2+\sqrt{2}}\sqrt{4x-x^2-2}\,dx$ ni hisoblang.

A) $\pi+2$ B) $\pi+1$ C) π D) $\pi-1$

8. $\left[\frac{x}{11}\right]=\left[\frac{x}{10}\right]$ tenglama nechta natural ildizga ega?

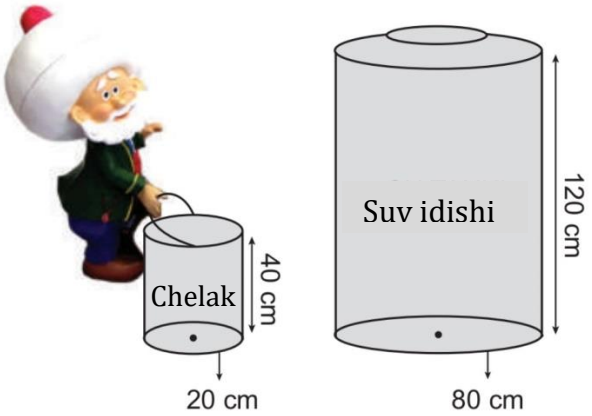
A) 44 B) 48 C) 54 D) 52

9. Agar x_1 va x_2 sonlari ushbu $x^2+x-3=0$ kvadrat tenglamaning ildizlari bo‘lsa, $x_1^3-4x_2^2+19$ ning qiymatini toping.

A) -4 B) 0

C) 4 D) aniqlab bo‘lmaydi

10. Quyidagi rasmda silindr shaklidagi chelak va suv idishi tasvirlangan:



Sardor Salohiddinov qo‘lidagi chelak bilan suv idishini to‘ldirmoqchi. Bunga ko‘ra, suv idishi to‘lishi uchun necha chelak suv kerak?

A) 144 B) 96 C) 72 D) 48

11. $f(x)=\frac{3x^2+9x+17}{3x^2+9x+7}$ funksiyaning eng katta qiymatini toping.

A) 41 B) 1 C) 40 D) 100

12. $f(x)=\begin{cases}\frac{x!}{\left(\frac{x}{2}\right)!}, & x-\text{juft son}\\ \frac{x!}{\left(\frac{x+1}{2}\right)!}, & x-\text{toq son}\end{cases}$ bo‘lsa, $f(4)+f(5)+f(6)+f(7)$ ning qiymatini toping.

A) 120 B) 210 C) 330 D) 362

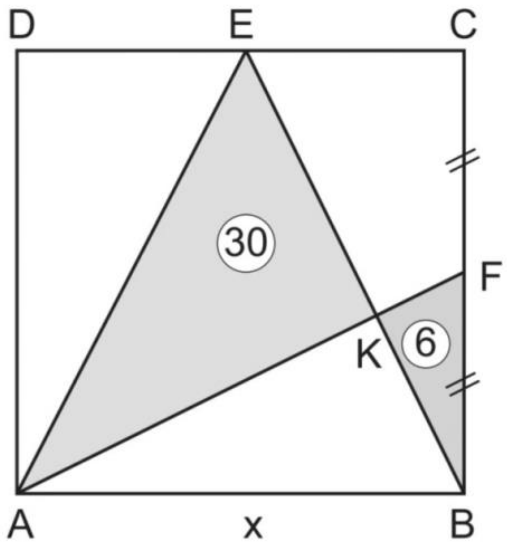
13. 353^{353} sonini 5 ga bo‘lgandagi qoldiqni toping.

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

14. a va b haqiqiy sonlar uchun ushbu $a*b=(a-b)^2$ tenglik o‘rinli bo‘lsa, $(x-y)^2*(y-x)^2$ ni soddalashtiring.

A) 0 B) x^2+y^2 C) $2x^2$ D) $2y^2$

15. Quyidagi rasmda $ABCD$ kvadrat tasvirlangan:



Agar $S_{AEK}=30$ cm^2 va $S_{KBF}=6$ cm^2 bo‘lsa, AB kesma uzunligini (cm) toping.

A) $4\sqrt{6}$ B) $6\sqrt{3}$ C) 11 D) 10

16. $4\cdot(a^2+b^2)+21b^2-20ab-36$ ni ko‘paytuvchilarga ajrating.

A) $(2a-5b-6)\cdot(2a-5b+6)$

B) $(5a-6)\cdot(5b+6)$

C) $(5a-2b-6)\cdot(5a-2b+6)$

D) $(2a-6)\cdot(2b+6)$

17. $\sqrt{1+2018^2+\frac{2018^2}{2019^2}}+\frac{2018}{2019}$ ni hisoblang.

A) 2018 B) 2019 C) 2020 D) 2017

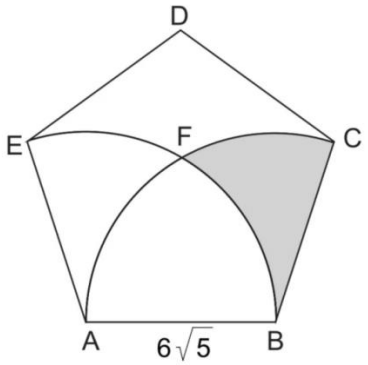
18. $\arcsin\frac{1}{3}+\arcsin\frac{1}{3\sqrt{11}}+\arcsin\frac{3}{\sqrt{11}}$ ni hisoblang.

A) $\frac{\pi}{3}$ B) $\frac{\pi}{4}$ C) $\frac{\pi}{2}$ D) $\frac{\pi}{8}$

19. $(x^7+x^4+1)^{10}=\cdots+p\cdot x^{18}+\cdots$ bo‘lsa, p ning qiymatini toping.

A) 300 B) 480 C) 360 D) 240

20. Quyidagi rasmda $ABCDE$ muntazam beshburchak tasvirlangan:



Markazlari A va B nuqtalarda bo‘lgan aylana yoylari F nuqtada kesishadi. Agar $AB=6\sqrt{5}$ cm bo‘lsa, bo‘yalgan soha yuzini (cm^2) toping.

A) $45\sqrt{3}-6\pi$ B) $45\sqrt{3}-8\pi$

C) $45\sqrt{3}-9\pi$ D) $45\sqrt{3}-10\pi$

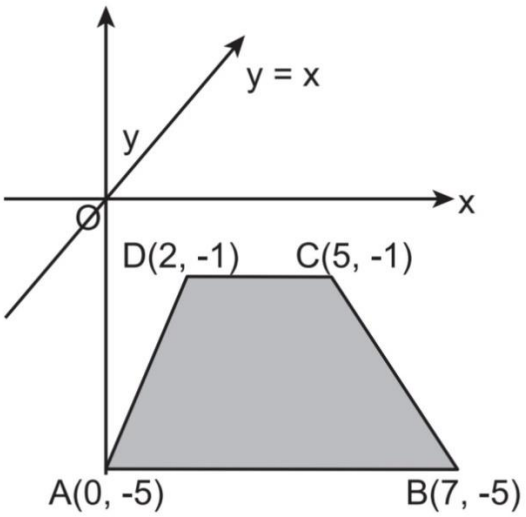
21. Agar ushbu $\frac{80!}{8^n}$ ifoda butun son bo‘lsa, n eng ko‘pi bilan necha bo‘ladi?

A) 26 B) 25 C) 20 D) 22

22. $\begin{cases} x+y+z=2 \\ x^2+y^2+z^2=10 \\ xyz=13 \end{cases}$ bo‘lsa, $\frac{1}{xy+z-1}+\frac{1}{yz+x-1}+\frac{1}{xz+y-1}$ ning qiymatini toping.

A) -1 B) 17 C) $-\frac{1}{17}$ D) $\frac{1}{17}$

23. Quyidagi rasmda $ABCD$ trapetsiya va $y=x$ to‘g‘ri chiziq tasvirlangan:



$ABCD$ trapetsiyani $y=x$ ga nisbattan simmetrik ko‘chirganda $A_1B_1C_1D_1$ trapetsiya hosil bo‘ldi. Bunga ko‘ra, $A_1B_1C_1D_1$ trapetsiyani o‘rta chizig‘ining o‘rta nuqtasidan x o‘qigacha bo‘lgan masofani toping.

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

24. Toza qo‘ziqorinning 90% i, quruq qo‘ziqorinning 12% i suvdan iborat bo‘lsa, 22 kg toza qo‘ziqorindan necha (kg) quruq qo‘ziqorin olish mumkin?

A) 6 B) 5 C) 4 D) 2,5

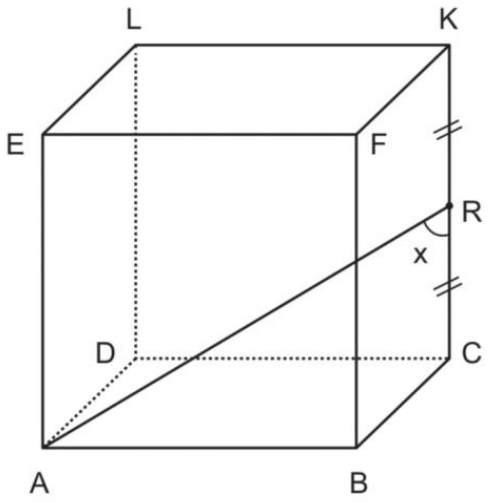
25. Tomoni a ga teng bo‘lgan kvadratga aylana ichki chizilgan. Tasodifiy ravishda kvadratning ichidan tashlangan nuqta aylana ichiga bo‘lish ehtimolini toping.

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

26. $y=-x+1$ va $y=x^2-5x+6$ funksiyalarning grafiklari orasidagi eng qisqa masofani toping.

A) $\frac{\sqrt{3}}{2}$ B) 0 C) $\frac{\sqrt{2}}{2}$ D) $\frac{1}{2}$

27. Quyidagi rasmda $ABCDEFKL$ kub tasvirlangan:



Agar $KR=RC$ va $\angle ARC=x$ bo‘lsa, $\cos x$ ning qiymatini toping.

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

28. $n=9^{753}$ bo‘lsa, $EKUB(n^2+2;\ n^3+1)$ ning qiymatini toping.

A) 9 B) 1 C) 3 D) 5

29. $x=\left(2020+\sqrt{2019}\right)^{\frac{1}{3}}$ va $y=\left(2017+\sqrt{2019}\right)^{\frac{1}{3}}$ bo‘lsa, $x^9-9x^3y^3-y^9$ ning qiymatini toping.

A) 3 B) 27 C) 24 D) 30

30. To‘g‘ri burchakli parallelepiped qo‘shni yoqlarining diagonallari asos tekisligi bilan mos ravishda α va β burchaklar tashkil qiladi. Ushbu diagonallar orasidagi burchakni toping.

A) $\arccos(\cos\alpha\cos\beta)$

B) $\arcsin(\sin\alpha\sin\beta)$

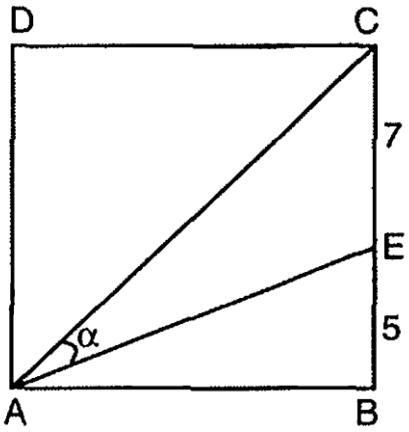
C) $\arccos(\sin\alpha\cos\beta)$

D) $\arccos(\sin\alpha\sin\beta)$

31. $\dfrac{\sqrt[4]{8\cdot\sqrt[4]{8\cdot\sqrt[4]{8\cdot\ldots}}}}{\sqrt{8:\sqrt{8:\sqrt{8:\ldots}}}}$ ni hisoblang.

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

32. Quyidagi rasmda $ABCD$ kvadrat tasvirlangan:



Rasmda berilgan ma’lumotlardan foydalanib, $\operatorname{tg}\alpha$ ning qiymatini toping.

A) $\frac{1}{17}$ B) $\frac{3}{17}$ C) $\frac{4}{17}$ D) $\frac{7}{17}$

33. Hisoblang: $\sqrt{2022\cdot\sqrt{2022\cdot\sqrt{2022\cdot\ldots}}}$

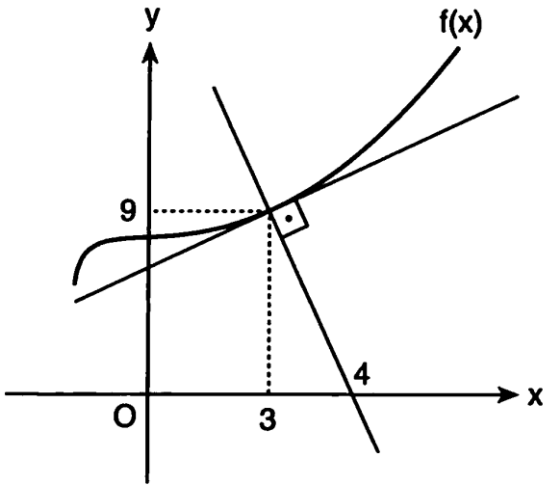
A) $\sqrt{2022}$ B) $2022^{\frac{1}{4}}$

C) 2022 D) 2022^2

34. Uchlari $A(1;2)$, $B(3;1)$ va $C(5;5)$ nuqtalarda bo‘lgan uchburchakning AB tomoni o‘rtasi hamda C uchidan o‘tuvchi to‘g‘ri chiziq tenglamasini tuzing.

A) $7x+6y+5=0$
B) $7x-6y-5=0$
C) $-7x-6y+5=0$
D) $-7x+6y-5=0$

35. Quyidagi rasmda $y=f(x)$ funksiya va uning $(3;\ 9)$ nuqtasiga o‘tkazilgan urinmasi va shu urinmaga perpendikulyar to‘g‘ri chiziq tasvirlangan:



Rasmda berilgan ma’lumotlardan foydalanib, $f'(3)$ ning qiymatini toping.

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