1-qism: Har bir topshiriq 0,9 balldan baholanadi

1. Ifodani soddalashtiring: $2\sqrt{1{,}125} - 5\sqrt{1{,}62} + 3\sqrt{4{,}5}$

   A) $0{,}75\sqrt{2}$ B) $1{,}5\sqrt{2}$ C) $0{,}5\sqrt{2}$ D) $3\sqrt{2}$

2. p va $p^4 + 3 -$ sonlari tub sonlar bo‘lsa, $p^3 + 3$ ni toping.
   A) 35 B) 128 C) 30 D) 11

3. $3x - 1 < \frac{2024}{3x+1}$ tengsizlikni qanoatlantiradigan eng katta x butun sonni toping.
   A) 15 B) 14 C) -16 D) -15

4. ABC uchburchakning BK bissektrisasi o’tkazilgan va $\angle AKB = 2\angle BKC$. ABC uchburchakning C va A burchaklari ayirmasini toping.
   A) 30° B) 40° C) 60° D) 80°

5. Ifodani soddalashtiring: $2sin40^\circ + 2cos130^\circ + sin160^\circ - \cos(-110^\circ)$
   A) 0 B) $2sin70^\circ$ C) $2sin40^\circ$ D) $2sin20^\circ$

6. $log_x \frac{19}{8} < log_x \frac{11}{5}$ tengsizlikni yeching.
   A) $(0;1]$ B) $(0;1)$ C) $(1;+\infty)$ D) $(0{,}5;1)$

7. $f(x) = 2x^4 + (a-11)x^3 + 1$ funksiya juft funksiya bo’lsa, $f(1)$ ning qiymatini toping. A) 11 B) -8 C) 2 D) 3

8. ABC uchburchakda: $2\sqrt{3}\cos A = 2cosB = \sqrt{3}$ tenglik o‘rinli bo‘lsa, ∠ACB ni toping.
   A) 30° B) 60° C) 120° D) 90°

9. 9 raqami bilan tugaydigan 9 ga karrali nechta uch xonali son mavjud?
   A) 10 B) 9 C) 8 D) 7

10. Ifodani soddalashtiring $log_{25}\sqrt{5} + log_6^2 3 \cdot log_3 6 + log_6 2$
    A) 1 B) $1{,}25 + log_6 3$ C) $0{,}25 + log_6 12$ D) 1,25

2-qism: Har bir topshiriq 1,5 balldan baholanadi

11. Tenglamaning haqiqiy ildizlari sonini toping.
    $(2^{x-1} - 1)(|x+1| - 2)(log_2 x - 1) = 0$
    A) 1 B) 2 C) 3 D) ∅

12. Burchaklari $15^\circ, 60^\circ, 105^\circ$ bo‘lgan uchburchakka tashqi chizilgan aylana radiusi $2\sqrt[4]{3}$ ga teng. Uchburchak yuzini toping.
    $A)$ 3 $B)$ $2\sqrt{3}$ $C)$ 2 $D)$ $3\sqrt{3}$

13. x va y sonlari $x(x-y) = y(x+y) = 1$ tenglikni qanoatlantiradi. $xy(x^4 - y^4)$ ifodaning qiymatini toping A) 1 B) 2 C) 4 D) 8

14. $\cos(-2024^\circ) \cdot \sqrt{cos^{-2}2024^\circ} =?$ $A)$ 1 $B)$ -1 $C)$ $-tg44^\circ$ $D)$ $-tg56^\circ$

15. ABCD kvadratnng AD tomonida K nuqta belgilandi, AB nurning B dan keyin davomida L nuqta olindi. Agar $\angle KCB = 60^0, KD = 2\sqrt{2}, LB = 1$ ekani ma’lum bo’lsa, LC ni toping. $A)$ 5 $B)$ 4 $C)$ $\sqrt{26}$ $D)$ $\sqrt{33}$

16. Agar $f(1-x)=1-x^2$ bo‘lsa, $f(-1)+f(0)+f(1)$ yig‘indini toping.
A) 0 B) -1 C) 1 D) -2

17. $9\cdot 99\cdot 999\cdot\ldots\cdot\underbrace{999\ldots9}_{2024}$ ko‘paytmani 1000 ga bo‘lgandagi qoldiqni toping.
A) 9 B) 109 C) 891 D) 991

18. Tengsizlikning butun yechimlari sonini toping. $\sqrt{28-x^2}+\sqrt{-x}\geq 4$
$A)$ 4 $B)$ 5 $C)$ 6 $D)$ 11

19. O markazli aylananing OA, OB, OC radiuslari o‘tkazilgan. Agar $\overrightarrow{OA}+\overrightarrow{OB}=\overrightarrow{OC}$ bo‘lsa, AOB burchakni toping. A) 90^o B) 30^o C) 120^o D) 60^o

20. $5^{2024}-3^{2024}$ ayirmani 34 ga bo‘lgandagi qoldiqni toping.
A) 24 B) 2 C) 18 D) 0

3-qism: Har bir topshiriq 2,6 balldan baholanadi

21. Soddalashtiring: $\left(\frac{3}{\sqrt[3]{64}-\sqrt[3]{25}}+\frac{\sqrt[3]{40}}{\sqrt[3]{8}+\sqrt[3]{5}}-\frac{10}{\sqrt[3]{25}}\right)^{-1}\cdot\left(13-4\sqrt[3]{5}-2\sqrt[3]{25}\right)+\sqrt[3]{25}$

22. Agar $a^2+a+11=6\sqrt{a^2+a+2}$ bo‘lsa, $a-\frac{7}{a}$ ifodaning qiymatini toping.

23. Agar $tg\alpha+sin a=1\left(0<\alpha<\frac{\pi}{2}\right)$ bo‘lsa, $(sin2\alpha+2)^2$ ni hisoblang

24. O‘nli yozuvida hech bo‘lmasa bitta juft raqam bo‘lgan to‘rt xonali sonlar nechta?

25. Radiusi 16 ga teng bo‘lgan aylanaga ichki chizilgan qavariq to‘rtburchakning uchta tomoni 8 ga teng bo‘lsa, uning to‘rtinchi tomonini toping.

26. a,b,c –turli raqamlar, $\overline{aabc}$ – to‘rt xonali son va $\overline{aabc}=(a+b+c)^3$ bo‘lsa, $a+b-c$ ni hisoblang.

27. Balandligi $\sqrt{19}+2$ ga, yoyi 120° ga teng bo‘lgan segmentga kvadrat ichki chizilgan. Kvadrat yuzini toping.

28. $\frac{x^2-3px+2p^2}{x+2p-6}=0$ tenglama faqat bitta ildizga ega bo‘ladigan p parametrning nechta qiymati mavjud?

29. $20\cdot[u]=24\cdot\{u\}$ tenglamaning ildizlari yig’indisini toping, bunda $[u]$– u sonining butun qismi, $\{u\}-u$ sonining kasr qismi.

30. Doskada 36 soni yozilgan. Har minutda doskadagi son o’chiriladi va uning o’rniga o‘chirilgan son raqamlari ko‘paytmasiga 13 ni qo‘shib, hosil qilingan son yoziladi. bir soatdan keyin doskada qaysi son hosil bo’ladi?