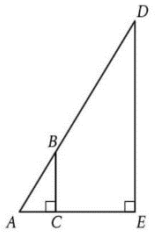
1-qism: Har bir topshiriq 0,9 balldan baholanadi

1. $\frac{\sqrt{9-x^2}}{x^{-1}-0,5}-\frac{1}{\sqrt{x^2-4}}$ ifodaning aniqlanish sohasiga tegishli bo`lgan $x$ sonning butun qiymatlari yig`indisini toping.
   A)-1 B) 0 C) 1 D) 2
2. 1012^2 sonining nechta bo`luvchisi 2024 sonining ham bo`luvchisi bo`ladi
   A) 32 B) 20 C) 16 D) 8
3. $\{a,b,c,d,e,f\}$ sonlar $\{1,2,3,4,5,6\}$ to`plamning qaysidir tartibdagi 6 ta elementi bo`lsa, $3(a+b)+2(c+d)+e-f$ ifodaning eng katta qiymatini toping.
   A) 48 B) 46 C) 51 D) 50
4. $ABCD$ trapetsiyaga ichki aylana ham tashqi aylana ham chizish mumkin. Ushbu trapetsiyaning o`rta chizig`i 35 ga va balandligi 12 ga teng bo`lsa, trapetsiyaning diogonallari yig`indisini toping.
   A) 74 B) 37 C) 49 D) 70
5. 50 dan katta bo`lmagan barcha murakkab toq sonlar sonini toping.
   A) 31 B) 10 C) 25 D) 16
6. x burchak uchun $\sin(x-90°)=-\frac{2}{3}$ va $270°<x<360°$ ekanligi ma`lum bo`lsa, $ctg2x$ ning qiymatini toping.
   A) $\frac{\sqrt{5}}{20}$ B) $-\frac{\sqrt{5}}{20}$ C) $\frac{3\sqrt{5}}{20}$ D) $-\frac{3\sqrt{5}}{20}$
7. p va q tub sonlar uchun $p+7q$ va $p+17q$ sonlarning ikkalasi ham to`la kvadrat bo`lsa, q tub sonning barcha qiymatlarining yig`indisini toping.
   A) 5 B) 3 C) 2 D) 8
8. Quyidagi chizmada $BC=7$, $AC=3$ va $CE=15$ bo'lsa ADE uchburchakning yuzini toping.



   A) 378 B) 263 C) 262,5 D) 352,5
9. Dengiz suvida 14% tuz mavjud. 7 litr Dengiz suviga ma'lum bir miqdorda chuchuk suv qo'shilganidan so'ng undagi tuz miqdori 2% ga teng bo'ldi. Dengiz suviga necha litr chuchuk suv qo'shilgan?
   A) 49 B) 7 C) 42 D) 24
10. Bir qatorda yozilgan 16 ta sonning yig`indisi 33 ga teng. Bu qatordagi ixtiyoriy 3 ta ketma-ket sonning yig`indisi 6 ga teng bo`lsa, 7-o`rinda turgan sonning qiymatini toping.
    A) 3 B) 4 C) 2 D) 5

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

11. $\frac{(a-2b)^2\cdot b^2-a^2}{4b^4-a^2(b-1)^2}$ ifodani soddalashtiring. Упростите выражение.

A) $\frac{2b^2-ab+a}{2b^2+ab-a}$ B) $\frac{2b^2+ab+a}{2b^2-ab+a}$ C) $\frac{2b^2-ab-a}{2b^2+ab+b}$ D) $\frac{2b^2-ab-a}{2b^2+ab-a}$

12. $625\times k$ sonining aynan 30 ta natural bo'luvchisi bor. (bu yerda k natural son) berilgan shartni qanoatlantiruvchi k sonning eng kichik qiymatini toping.

A) 12 B) 32 C) 80 D) 18

13. $sin1°\cdot sin2°\cdot sin3°\cdot \ldots\cdot sin359° = m$ va $cos1°\cdot cos2°\cdot cos3°°\cdot \ldots\cdot cos179° = n$ bo'lsa, quyidagi tengliklarning qaysi biri to'g'ri?

A) $m = n+1$ B) $m+n=1$ C) $m^2+n^2=1$ D) $m=n$

14. 1,2,3,4 va 5 raqamlardan tuzilgan nechta turli raqamli 5 xonali sonlar mavjud, bunda yonma-yon turgan hech qaysi ikkita raqamning farqi 3 ga teng emas.

A) 60 B) 48 C) 24 D) 72

15. Ixtiyoriy x va y haqiqiy sonlar uchun # amali quyidagicha aniqlangan, bunda $x\#y = y - x$, u holda $((\ldots(1\#2)\#3)\#\ldots\#4047)\#4048)\#4049$ ni toping.

A) 2025 B) 2024 C) 2023 D) 2022

16. ABC uchburchakning balandliklari kesishgan nuqtasi H bo`lsin. Agar $BH = AC = 4\sqrt{2}$ va $\angle HBC = 30°$ bo`lsa, HC kesmaning uzunligini toping.

A) 4 B) $2\sqrt{2}$ C) $2\sqrt{6}$ D)2

17. $f: N \to N$ (Funksiya natural sonni natural songa o`tkazadi)

$f(n) = \begin{cases} \frac{n}{2} \text{ agar } n \text{ juft son bo`lsa} \\ n+5 \text{ agar } n \text{ toq son bo`lsa} \end{cases}$. $f\left(f\left(f(n)\right)\right) = 25$ bo`ladigan barcha $n$ natural sonlar yig`indisini toping.

A) 295 B) 385 C) 465 D) 500

18. Radiusi 13 ga teng doiraga asosidagi burchagi $\frac{\pi}{6}$ va balandligi 5 ga teng teng yonli trapetsiya ichki chizilgan. Trapetsiya yuzini toping.

A) 54 B) 48 C) 60 D) 36

19. Agar a, b va c noldan farqli haqiqiy sonlar bo`lsa, u holda $S = 1 + \frac{|a|}{a} + \frac{2|b|}{b} + \frac{3|ab|}{ab} - \frac{4|c|}{c}$ ifodaning eng katta va eng kichik qiymatlari ayirmasini toping.

A) 12 B) 20 C) 18 D) 14

20. X va Y shaharlar orasidagi masofa $400m$. X shahardan A, B va C velosiped bir vaqtda o`zgarmas tezlik bilan yo`lga chiqdi. A velosipedchi Y shaharga yetib borgan payt B velesipedchi bilan Y shahar orasidagi masofa $80m$ edi. C velosipedchi bilan Y shahar orasidagi masofa $100m$ edi. B velosipedchi Y shaharga yetib kelgandan 4 sekund o`tgach $C$ velosipedchi ham $Y$ shaharga yetib keldi. $B$ velosipedchi $80m$ masofani qancha vaqtda bosib o`tadi?

A) 16 B) 12 C) 8 D) 20

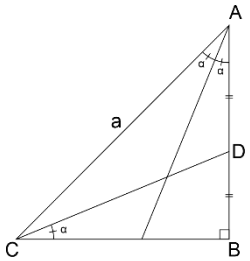
3-qism: Har bir topshiriq 2,6 balldan baholanadi

21. $f(x) = \frac{x+1}{x-1}$ bo'lsa, $f\big(f(x-1)\big) - f(f(x-2))$ ni toping.

22. $ABCD$ qavariq to`rtburchakda $AB = 10, CD = 5$ va $\angle BAD + \angle CDA = 90°$ bo`lsin. Agar E va F nuqtalar mos ravishda AC va BD diogonallarda $\frac{AE}{EC} = \frac{BF}{FD} = \frac{3}{2}$ shartni qanoatlantiruvchi nuqtalar bo`lsa, EF kesmaning uzunligini toping.

23. Raqamlari yig'indisi 10 ga bo'linadigan 10 xonali natural sonlar sonini toping.

24. ABC – to'g'ri burchakli uchburchak. $AD = DB = 2$ bo'lsa, AC ni toping



25. a va b musbat butun sonlar bo'lsin va shuningdek $\frac{a}{b-21}$ va $\frac{b+20}{a}$ lar ham musbat butun sonlar bo'lsa $a + b$ ning qabul qilishi mumkin bo'lgan eng katta qiymatini toping.

26. $\{1,2,3,\ldots,12,13\}$ to'plamning kamida bitta elementga ega qism to'plamlari nechta, bunda bu qism to'plamga tegishli barcha sonlarning eng katta umumiy bo'luvchisi 2 ga teng bo'lsin?

27. a, b, c haqiqiy sonlar uchun $a^3 + b^3 + c^3 = 25$, $\frac{1}{ab} + \frac{1}{bc} + \frac{1}{ca} = 1$ va $\frac{1}{a} + \frac{1}{b} + \frac{1}{c} = \frac{25}{9}$ tengliklar o'rinli bo'lsa, $a + b + c$ yig`indining qiymatini toping.

28. Chigirtka koordinatalar sistemasining $(0; 0)$ nuqtasida turibdi. U har qadamda o'ngga, chapga, tepaga yoki pastga 1 birlikka yura oladi. 10 ta qadamdan keyin chigirtkaning bora oladigan har xil nuqtalari sonini toping.

29. $(\sqrt{2} + \sqrt{5})^6$ sonidan kichik bo`lgan eng katta musbat butun sonni toping.

30. Matematiklar sayyorisidagi bir yilda 3 xil fasl bor. Algebra faslidagi har bir oy 35 kun, Geometriya faslidagi har bir oy 42 kun, Kombinatorika faslida esa har bir oy 36 kundan iborat. Ozodbek bir yil necha kundan iborat ekanligini biladi lekin bir yilda nechta oy mavjudligini aniqlay olmayapti. Bir yilda eng kamida necha kun bo'lishi mumkin.