



## FAN OLIMPIADALARI MARKAZI

*Iste' dollarni kashfetamiz!*

IXTISOSLASHTIRILGAN TA'LIM MUASSASALARI AGENTLIGI HUZURIDAGI  
FAN OLIMPIADALARI MARKAZI

2025–2026-O'QUV YILIDA UMUMTA'LIM FANLARI BO'YICHA  
ASOSIY OLIMPIADANING IKKINCHI TUMAN (SHAHAR) BOSQICHI

MATEMATIKA (9-sinf)

FANIDAN

TEST TOPSHIRIQLARI KITOBI

Ishtirokchining familiyasi, ismi va otasining ismi

Imzo

Ushbu test topshiriqlari kitobi 30 ta (1–30) yopiq turdagi test topshiriqlaridan iborat.  
Har bir topshiriq uchun ajratilgan ball savol kitobida ko'rsatilgan.  
Topshiriqlar yopiq turdagi bo'lib, ularda A, B, C va D javob variantlari berilgan.  
Ishtirokchi har bir topshiriq uchun faqat bitta to'g'ri javobni tanlashi va javoblar varaqasida mos keluvchi doirachani to'liq bo'yashi kerak.

Ajratilgan vaqt: 90 daqiqa  
Savollar soni: 30 ta  
Maksimal ball: 50 ball

Ushbu savollar kitobi 4 sahifadan iborat

Fan olimpiadalari markazi  
rasmiy telegram sahifasi.  
@Fan\_olimpiadalari\_M

Olimpiada topshiriqlari  
yechimlari ushbu telegram  
kanalda e'lon qilib boriladi.



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1. [0,9 ball] Hisoblang:

$$2025 \cdot 2024 \cdot 2023 \cdot \left(\frac{1}{4} \cdot \frac{2}{5} \cdot \frac{3}{6} \cdot \dots \cdot \frac{2022}{2025}\right).$$

A) 1 B) 2025 C) 6 D) 2022!

2. [0,9 ball]  $1 \leq n \leq 20$  shartni

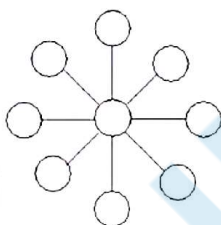
qanoatlantiradigan  $n$  natural son uchun  $a = 13 \cdot 13 + n$  soni tub son bo'ladigan nechta  $n$  natural son mavjud?

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

3. [0,9 ball]  $ABC$  teng yonli uchburchakda  $AB = AC$  shart bajariladi. Agar  $BC$  asosda tanlangan  $D$  nuqta uchun  $AD = CD$  va  $\angle BAD = 36^\circ$  tengliklar o'rinli bo'lsa,  $\angle ABD$  necha gradusga teng?

A) 36 B) 42 C) 48 D) 54

4. [0,9 ball] 2 dan 10 gacha bo'lgan natural sonlar (har bir son faqat bir marta ishlatiladi) quyidagi shakldagi to'qqizta doiraga joylashtirilgan. Bir to'g'ri chiziqda yotuvchi 3 ta doiracha ichidagi sonlarning yig'indilari teng bo'lsa, ushbu yig'indi necha xil qiymat qabul qila oladi?



A) 3 B) 4 C) 5 D) 6

5. [0,9 ball] Berilgan ketma-ketlik

1, 2, 3, 4, 5, 6, 7, 6, 5, 4, 3, 2, 1, 2, 3, 4, 5, 6, 7, 6, 5, ... ko'rinishda bo'lib, cheksiz marta 1 dan 7 gacha o'sib, 7 dan 1 gacha kamayadi. Ushbu ketma-ketlikning 2025-hadini toping.

A) 1 B) 7 C) 6 D) 5

6. [0,9 ball]  $\triangle ABC$  da  $\angle BAC = 25^\circ$  va  $\angle BCA > 90^\circ$ . Aytaylik  $B_1$  nuqta  $B$  nuqtaning  $AC$  tog'ri chiziqqa nisbatan simmetrigi,  $C_1$  nuqta  $C$  nuqtaning  $AB$  to'g'ri chiziqqa nisbatan simmetrigi bo'lsin. Agar  $\angle B_1BC_1 = 100^\circ$  bo'lsa,  $\angle BCA$  necha gradusga teng?

A)  $110^\circ$  B)  $120^\circ$  C)  $130^\circ$  D)  $140^\circ$

7. [0,9 ball] Dastlabki 100 ta natural sondan nechtasini  $2a + 3b$  ko'rinishida ifodalab bo'lmaydi? (Bunda  $a$  va  $b$  nomanfiy butun sonlar.)

A) 3 B) 5 C) 1 D) 4

8. [0,9 ball]  $n$  natural son uchun

$$n! = 1 \cdot 2 \cdot 3 \cdot \dots \cdot n \text{ bo'lsa,}$$

$1! + 2! + 3! + \dots + 2025!$  yig'indining oxirgi ikkita raqamining yig'indisini toping.

A) 3 B) 13 C) 4 D) 6

9. [0,9 ball]  $a$  va  $b$  natural sonlar uchun

$4a - 7b + 28ab = 2020$  bo'lsa,  $ab$  ko'paytma quyidagilardan qaysi biriga teng bo'lishi mumkin?

A) 96 B) 102 C) 106 D) 108

10. [0,9 ball] Agar  $f(x) = x^2 + kx + 110$  va  $f(1) = f(20)$  bo'lsa,  $f(10)$  ning qiymatini toping.

A) -21 B) 0 C) 100 D) 420

11. [1,5 ball] Eng katta  $n$  natural sonni toping bunda:  $n!$  soni  $7^{72}$  ga bo'linmasin. Bunda  $n! = 1 \cdot 2 \cdot 3 \cdot \dots \cdot n$

A) 433 B) 440 C) 439 D) 441

12. [1,5 ball] Jahongir do'konga kirib, 10 dollarlik mahsulotni 10 % chegirma bilan, 15 dollarlik mahsulotni 15 % chegirma bilan va 25 dollarlik mahsulotni 25 % chegirma bilan sotib oldi. Jahongir do'kondagi xaridida umumiy necha foiz chegirma oldi?

A) 19 % B)  $\frac{50}{3}$  % C) 50 % D) 20 %

13. [1,5 ball] Tenglamaning barcha ildizlari yig'indisini toping:

$$3 \cdot |x^2 - (2 - x)^2 + 1| = 10 - |8x - 6|$$

A) 2 B)  $\frac{5}{4}$  C) 1 D)  $\frac{3}{2}$

14. [1,5 ball]  $ABC$  uchburchakda  $\angle ACB = 90^\circ$  va  $AL$  bissektrisa,  $CM$  mediana bo'lsin. ( $L \in BC$  va  $M \in AB$ ) Agar  $AL \perp CM$  bo'lsa,  $\angle ABC$  necha gradusga teng?

A)  $60^\circ$  B)  $15^\circ$  C)  $45^\circ$  D)  $30^\circ$

15. [1,5 ball] O'nlik va birlik raqamlari o'rin almashtirilsa, hosil bo'lgan yangi son bilan asl son o'zaro tub bo'ladigan 10 dan katta va 40 dan kichik nechta natural son mavjud?

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

16. [1,5 ball]  $ABC$  uchburchakda  $\angle A : \angle B : \angle C = 2 : 3 : 7$  va  $BD$  kesma mediana bo'lsa,  $\angle ABD$  ning qiymatini toping. ( $D$  nuqta  $AC$  kesmada yotadi.)

A)  $10^\circ$  B)  $15^\circ$  C)  $22,5^\circ$  D)  $30^\circ$

17. [1,5 ball]  $a, b, c$  haqiqiy sonlar uchun  $\frac{a}{b} = \frac{b}{c} = k$  va  $\frac{a+3b-18c}{b+6c} = \frac{5}{3}$  bo'lsa,  $k$  sonning qiymatini toping.

A)  $-6$  B)  $\frac{7}{3}$  C)  $\frac{14}{3}$  D)  $\frac{18}{5}$

18. [1,5 ball]  $p, q, r$  tub sonlar uchun  $pqr + 2025 = 3(pq + qr + pr)$  bo'lsa,  $p + q + r$  yig'indining qiymatini toping.

A) 220 B) 227 C) 225 D) 228

19. [1,5 ball] Eng katta  $n$  natural sonni toping bunda  $n^5 - 2100$  soni

$(n^2 - n + 1)^2 + n(n - 1)^2$  soniga bo'linsin.

A) 2 B) 11 C) 7 D) 5

20. [1,5 ball] Berilgan

$3 \times 3$  jadvalda har bir qatordagi sonlar yig'indisi teng va har bir ustundagi sonlar yig'indisi teng (qator va ustundagi sonlar yig'indisi teng bo'lishi shart emas.) Agar berilgan rasmda  $a + b = 18$  bo'lsa,  $x$  ning qiymatini toping.

5		$x$
$a$	7	
	$b$	11

A) 7 B) 8 C) 9 D) 10

21. [2,6 ball] 10 000 dan kichik bo'lgan nechta natural sonning tarkibida aynan ikkita "2" raqami va aynan bitta "5" raqami bor? (masalan, 2025).

A) 96 B) 93 C) 84 D) 99

22. [2,6 ball]  $a < b < c$  butun sonlar quyidagi shartlarni qanoatlantiradi:  $b$  soni  $a$  va  $c$  sonlarning o'rta arifmetigi,  $c$  soni  $a$  va  $b$  sonlarning o'rta geometrigi.  $abc$  ko'paytmaning eng kichik qiymatini toping.

A) 12 B) 8 C) 6 D)  $-12$

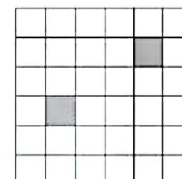
23. [2,6 ball]  $f(n)$  soni  $n$  ta natural bo'luvchiga ega eng kichik natural son bo'lsin. Masalan:  $f(2) = 2$ ,  $f(3) = 4$  bo'lsa,  $f(8) + f(9)$  yig'indining qiymatini toping.

A) 384 B) 54 C) 260 D) 60

24. [2,6 ball]  $ABCD$  to'rtburchak tomonlarining o'rtalari mos ravishda  $M, N, P, Q$  nuqtalar bo'lsin ( $M - AB$  ning o'rtasi,  $N - BC$  ning o'rtasi,  $P - CD$  ning o'rtasi,  $Q - DA$  ning o'rtasi).  $AC$  diagonalda  $S$  nuqta shunday tanlanganki bunda  $QSPD$ ,  $AMSQ$  va  $MBNS$  to'rtburchaklarning yuzalari mos ravishda 22, 24 va 32 ga teng.  $AS : SC$  nisbat nechaga teng?

A)  $\frac{4}{5}$  B)  $\frac{8}{11}$  C)  $\frac{3}{8}$  D)  $\frac{6}{11}$

25. [2,6 ball] Berilgan rasmda nechta to'g'ri to'rtburchak aynan bitta bo'yalgan kvadratchani o'z ichiga oladi?



A) 164 B) 417 C) 196 D) 172

26. [2,6 ball]  $a_5 = 5$  va har bir  $n \geq 6$  natural son uchun  $a_n = 1000a_{n-1} + n$  tenglik o'rinli.  $n \geq 6$  da  $a_n$  soni 111 ga bo'linadigan  $n$  natural sonlarning dastlabki ikkitasi yig'indisining qiymatini toping.

A) 221 B) 110 C) 341 D) 119

27. [2,6 ball]  $k$  haqiqiy sonni toping bunda:  $x^3 - 30x^2 + kx - 840 = 0$  tenglamaning ildizlari arifmetik progressiya tashkil qilsin.

A) 300 B) 284 C) 840 D) 256

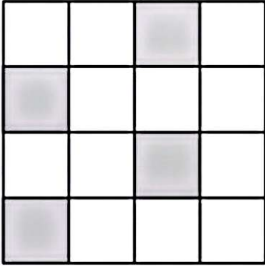
28. [2,6 ball] Ikkita beshburchakning jami 10 ta uchi ranglar bilan bo'yalgan: 3 tasi qizil, 4 tasi oq va 3 tasi ko'k. Hech bir beshburchakning tomoni ikkita qizil yoki ikkita ko'k uchni tutashtirmaslik ehtimoli  $\frac{m}{n}$  ga teng bo'lsa,  $m + n$  yig'indini hisoblang. (bu yerda  $m$  va  $n$  o'zaro tub natural sonlar.)

A) 101 B) 97 C) 93 D) 85

29. [2,6 ball]  $a$  va  $b$  har xil haqiqiy sonlar uchun  $2a^3 + (1 + \sqrt{3})ab + 2b^3 = \frac{(5+3\sqrt{3})}{54}$  bo'lsa,  $(6a + 6b - 1)^6$  ning qiymatini toping.

A) 24 B) 27 C) 36 D) 18

30. [2,6 ball]  $4 \times 4$  katakli jadvalda joylashgan 16 ta  $1 \times 1$  katakchadan bir nechtasini bir xil rangda necha xil usulda bo'yash mumkin? Bunda: har bir  $2 \times 2$  katakchalar to'plamida bir xil miqdorda bo'yalgan katak bo'lsin. Masalan, quyidagi misolda har bir  $2 \times 2$  katakchada bitta belgilangan katak mavjud. (*Hech qaysi katak bo'yalman holat ham hisobga olinadi.*)



A) 36 B) 48 C) 56 D) 60

# 9-sinf Matematika 2025

- |    |   |
|----|---|
| 1  | C |
| 2  | B |
| 3  | C |
| 4  | A |
| 5  | D |
| 6  | B |
| 7  | C |
| 8  | C |
| 9  | A |
| 10 | B |
| 11 | B |
| 12 | A |
| 13 | D |
| 14 | D |
| 15 | B |
| 16 | B |
| 17 | C |
| 18 | D |
| 19 | C |
| 20 | B |
| 21 | A |
| 22 | B |
| 23 | D |
| 24 | A |
| 25 | D |
| 26 | A |
| 27 | B |
| 28 | A |
| 29 | B |
| 30 | C |

