---

1. $(\mathbf{3,1\ ball})$ Hisoblang: $\frac{(2+0+2+4)^3}{(2^0+2+5)^2}$

A)1,5 B)64 C)8 D)1

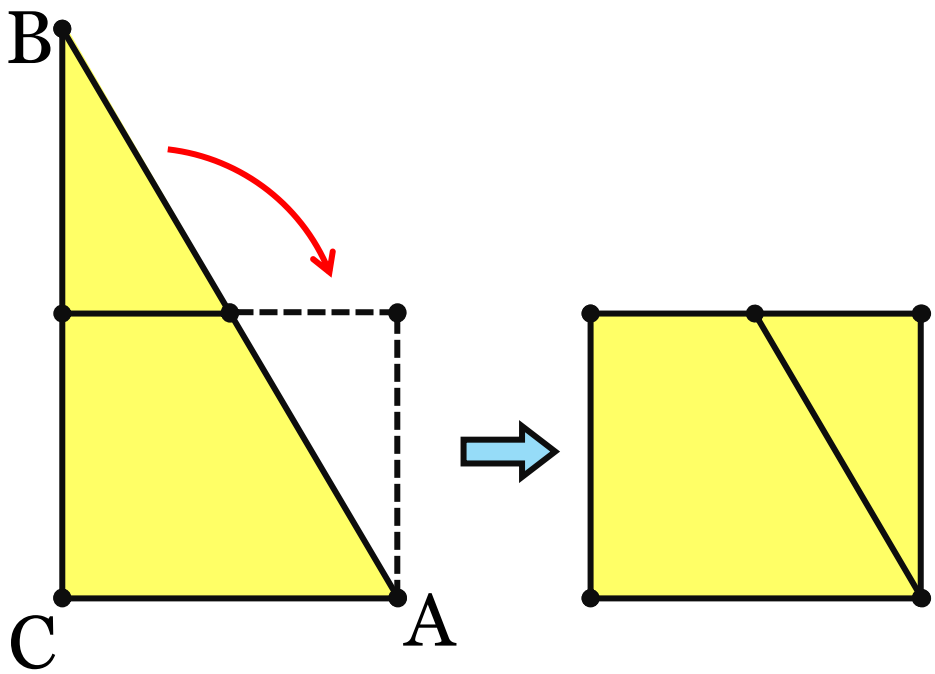
2. $(\mathbf{3,1\ ball})$ $\underbrace{20242024\ldots2024}_{2024\ ta\ 2024}$: 4 bo'linma natijasida hosil bo'lgan sonning toq o'rinda turgan raqamlari yig'indisi a ga, juft o'rinda turgan raqamlari yig'indisi b ga teng bo'lsa, $a-b$ ni toping.

A) 11121 B)5055 C)12144 D) 22264

3. $(\mathbf{3,1\ ball})$ A, B va C raqamlar uchun $\overline{567A5B4}$ soni 72 ga, $\overline{665AB7C5}$ soni 75 ga bo'linadi. C ning qiymatini toping.

A) 1 B) 2 C) 7 D) 9

4. $(\mathbf{3,1\ ball})$ Quyida berilgan to`g'ri burchakli uchburchak rasmdagidek qirqildi va kvadratga to`ldirildi. Agar uchburchakdagi BC kesma uzunligi 2024 bo`lsa, hosil bo'lgan kvadratning perimetrini toping.



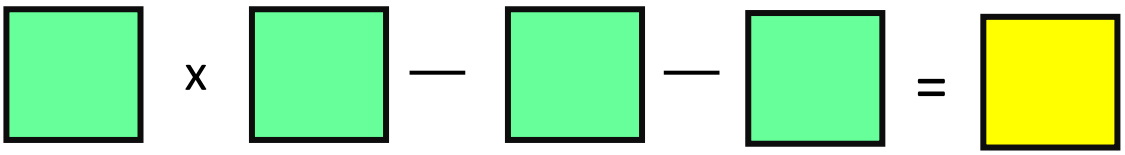
A)4048 B)8192 C)2024 D)8096

TASHKENT INTERNATIONAL MATHEMATICS OLYMPIAD

7-sinf savollar

---

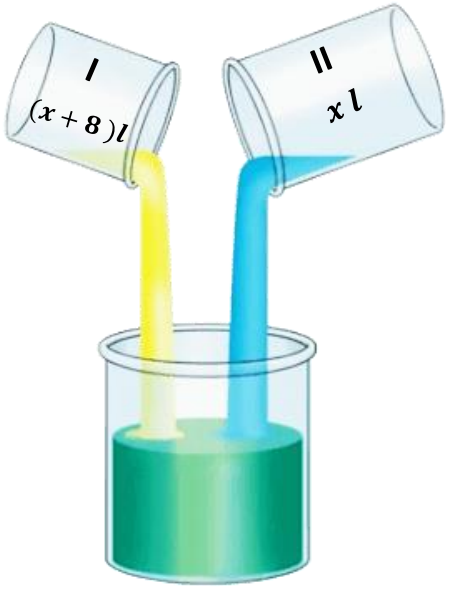
5. $(\mathbf{3,1\ ball})$ 2,6,8,10,12 sonlarini bir martadan foydalanib, kvadratlarga joylashtirildi.



Sariq kvadrat o’rnida bo’lishi mumkin bo’lgan sonning eng katta qiymatini toping.

A)12 B)10 C)8 D)6

6. $(\mathbf{4,2\ ball})$ Quyida konsentratsiyasi 40% bo’lgan birinchi suyuqlik, konsentratsiyasi 75% bo’lgan ikkinchi suyuqlik bilan aralashtirildi va hosil bo’lgan aralashmaning konsentratsiyasi 55,(5)% ni tashkil qildi.Agar birinchi aralashma ikkinchi aralashmadan 8 litr ko’p bo’lsa, yangi aralashma necha litr?

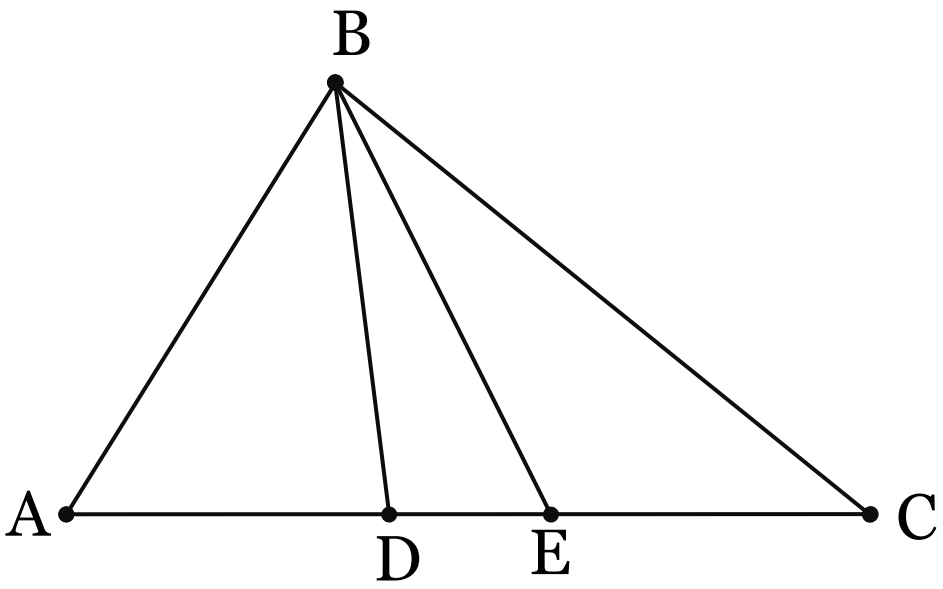


A)80 B)68 C)72 D)84

TASHKENT INTERNATIONAL MATHEMATICS OLYMPIAD

---

7. $(\mathbf{4,2\ ball})$ ABC uchburchakning AC tomonida D va E nuqtalar olingan. Bunda E nuqta D va C nuqtalar orasida. Agar $BD = CD, AE = BE$ va $\angle DBE = 30°$ bo'lsa, $\angle ABC$ ni toping.



A)$105°$ B) $120°$ C) $45°$ D) $75°$

8. $(\mathbf{4,2\ ball})$ Quyidagi qo'shish amalida turli harflar turli raqamni ifodalaydi. Agar $\boldsymbol{A = 4}$ bo'lsa, $\boldsymbol{I + M + O}$ ning qiymatini toping.

$$\begin{array}{r} I\ M\ O \\ I\ M\ O \\ +\quad I\ M\ O \\ \hline I\ M\ O \\ \hline P\ A\ S\ S \end{array}$$

A)12 B)9 C)15 D)14

TASHKENT INTERNATIONAL MATHEMATICS OLYMPIAD

---

9. $(\mathbf{4,2\ ball})$ ABC uchburchakning AB va AC tomonlarida mos ravishta N va M nuqtalar olingan, bunda $\frac{AN}{BN}=\frac{AM}{CM}=2{,}5$. Agar MN kesma ABC uchburchakni perimetrlari o`zaro teng bo`lgan ikkita qismga ajratsa, $\frac{AB+AC}{BC}$ ning qiymatini toping.

A) $\frac{10}{3}$ B) $\frac{7}{5}$ C) $\frac{8}{5}$ D) $\frac{7}{3}$

10. $(\mathbf{4,2\ ball})$ Boks bo'yicha olimpiadada O'zbekiston terma jamoasi 10 ta jamoa orasidan 4-o'rini egalladi. AQSh va Kuba davlatlari orasida O'zbekiston necha xil usulda bo'lishi mumkin?

A) $18\cdot 7!$ B)$36\cdot 7!$ C) $4!\cdot 7!$ D) $3!\cdot 7!$

11. $(\mathbf{5,3\ ball})$ Hasan va Asad to'la kvadrat sonlarni yaxshi ko'radi. Ular 24 yoshda bo'lgani uchun yaxshi ko'radigan sonlarining farqi 24 ga teng bo'lishini xohladi. Ular bunday sonlar juftligidan nechta tanlay oladi (Izoh: (a,b) va (b,a) juftliklari bitta juftlik hisoblanadi) ?

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

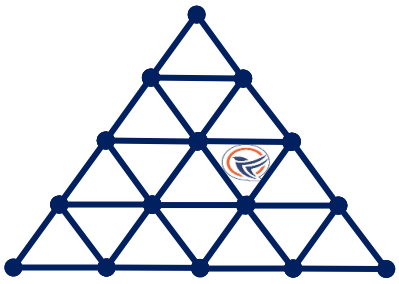
12. $(\mathbf{5,3\ ball})$ $EKUB(a,b)=99!$, $EKUK(a,b)=100!$ bo'lgan (a,b) juftliklar nechta (Izoh: (a,b) va (b,a) juftliklari ikkita juftlik hisoblanadi)?

A)24 ta B) 4 ta C)2 ta D)12 ta

13. $(\mathbf{5,3\ ball})$ a,b,c va d sonlari qandaydir tartibda 1,2,3,4 sonlarini ifodalaydi. a^b+c^d necha xil turli qiymat qabul qiladi?

A)24 B)12 C)10 D)18

14. $(\mathbf{5,3\ ball})$ Uchburchakning har bir tomoni to'rtta bo'lakka bo'lingan.Hasan TASIMO qushini o'z ichiga olmagan uchburchaklar sonini hisobladi. U eng ko'pi bilan nechta uchburchak sanagan?



A)21 B)19 C)17 D)24

TASHKENT INTERNATIONAL MATHEMATICS OLYMPIAD

---

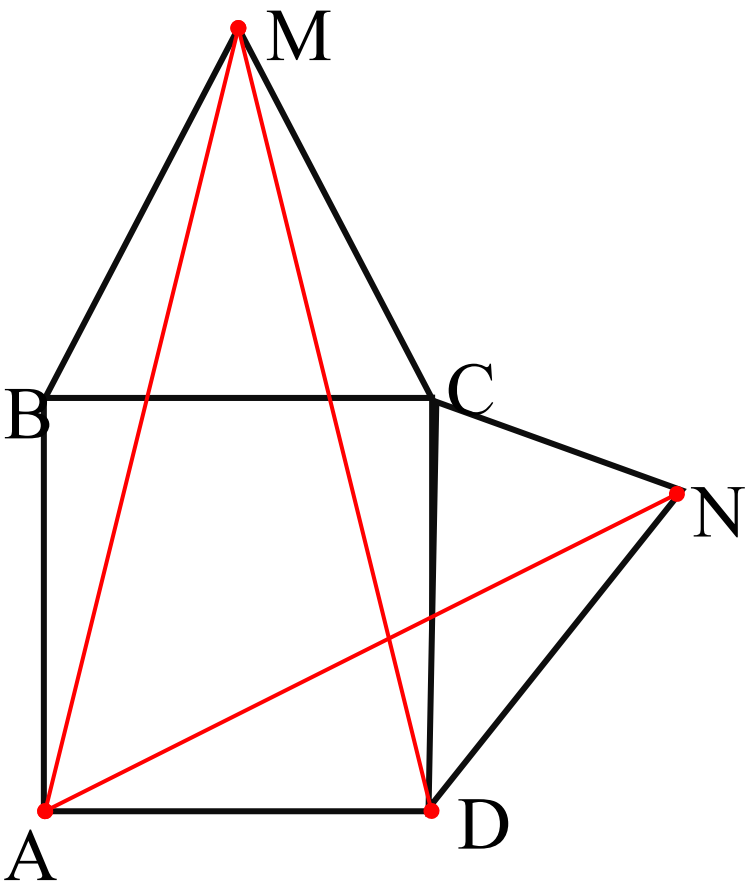
15. $(\mathbf{5,3\ ball})$ ABC to'g'ri burchakli uchburchakning BC gipotenuzasiga AD-mediana va AE -balandlik o'tkazildi. Agar ADE uchburchak tomonlari natural sonlardan iborat bo'lsa, ABC uchburchak yuzining eng kichik qiymatini toping.

A)25 B)20 C)10 D)15

16. $(\mathbf{7,4\ ball})$ 10 va 10^{20} sonlari orasida nechta sonning raqamlari ko'paytmasi 9^{19} ga teng?

17. $(\mathbf{7,4\ ball})$ $\overline{TAS}$ uch xonali son uchun quyida berilgan tenglik o'rinli. $\left[\frac{\overline{TA}}{\overline{SS}}\right]+\left[\frac{\overline{AT}}{\overline{SS}}\right]=10$ $\overline{TAS}$ ko'rinishidagi uch xonali sonlar nechta (bu yerda [a] soni a ning butun qismi)?

18. $(\mathbf{7,4\ ball})$ $ABCD$ kvadrat berilgan. Kvadrat tashqarisida shunday M va N nuqtalar olinganki, bunda BMC muntazam uchburchak va $DC=DN$. Agar MAN burchak 48^o bo'lsa, MDN burchakni toping.



TASHKENT INTERNATIONAL MATHEMATICS OLYMPIAD

19. $(\mathbf{7,4\ ball})$ a, b, c natural sonlar uchun quyida berilgan tenglamalar sistemasi o'rinli.
$\begin{cases} a(a+b)+c=45 \\ c(c-b)-a=32 \end{cases}$. $a+b+c$ ning qiymatini toping.

20. $(\mathbf{7,4\ ball})$ $(xy+z+1)^{10}$ qavslarni ochib, o'xshash hadlarni ixchamlagandan keyin darajasi 5 bo'lgan birhadlar oldidagi koeffitsiyentlari yig'indisini toping.

TASHKENT INTERNATIONAL MATHEMATICS OLYMPIAD