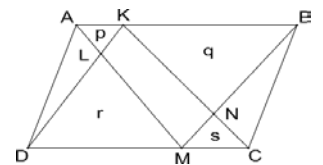


**1-qism: Har bir topshiriq 0,9 balldan baholanadi**

- Tenglamani haqiqiy ildizlari ko'paytmasini toping:  $x^2 + 3x \cdot \frac{|x-2|}{x-2} - 10 = 0$   
A) -2    B) -10    C) -25    D) -20
- $a < 0 < b < c$  bo'lsa, quyidagilardan qaysi biri  $a, b, c$  haqiqiy sonlarning ixtiyoriy qiymatida doimo musbat boladi?    A)  $a + b - c$     B)  $-b + c - a$     C)  $-b + a + c$     D)  $2a - b + c$
- Tenglamani yeching:  $\frac{\frac{x+6}{2} - 3}{2 - \frac{1}{2}} - \frac{\frac{x-6}{3} + 2}{2 - 2\frac{1}{3}} = \frac{x}{6} + 4\frac{1}{3}$     A) -26    B)  $4\frac{10}{17}$     C)  $-3\frac{1}{17}$     D) 39
- Yon tomoni 8 ga teng bo'lgan teng yonli trapetsiyaga radiusi 3 ga teng aylana ichki chizilgan. Trapetsiya yuzini toping.    A) 24    B) 36    C) 48    D) 64
- Tengsizlikning butun yechimlari sonini toping:  $\frac{x^3}{x-2} \leq \frac{36x}{x-2}$     A) 9    B) 10    C) 8    D) 11
- $y = \frac{|x|}{2}, y = 1, y = 3$  grafiklar bilan chegaralangan figura yuzini toping.  
A) 16    B) 18    C) 24    D) 12
- Teng yonli trapetsiyaning diagonali o'tkir burchagining bissektrisasi. Katta asosi 19 ga, perimetri 40 ga teng bo'lsa, trapetsiyaning o'rta chizig'ini toping.    A) 12    B) 10    C) 11    D) 13
- $\frac{\sqrt{4-\sqrt{x}}}{\sqrt{4-x}} > 0$  tengsizlikning butun yechimlari o'rta arifmetigini toping.  
A) 1,5    B) 2    C) 2,5    D) 1
- $a$  va  $b$  parametrlarning qanday qiymatlarida  $\frac{25x-3}{25x^2-9} = \frac{a}{5x+3} + \frac{b}{5x-3}$  tenglik ayniyat bo'ladi?  
A)  $a = 1, b = 3$     B)  $a = 3, b = 1$     C)  $a = 2, b = 3$     D)  $a = 3, b = 2$
- Решите неравенство  $4^x + 2^{2x+4} - 4 \cdot 2^{2x} \geq 52$ .  
A)  $(-\infty; 1]$     B)  $(-\infty; 0]$     C)  $[1; +\infty)$     D)  $[0; +\infty)$

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

- Chizmada  $ABCD$  parallelogram berilgan.  $p, q, r$  va  $s$  mos ravishda  $ALK, BNK, DLM$  va  $CNM$  uchburchaklarning yuzlari. Quyidagi munosabatlardan qaysi biri doim to'g'ri?



- A)  $p + r = q + s$                       B)  $q - p = r - s$

C)  $p + q = r + s$                       D)  $2(p + s) = q + r$
- $a, b, c$  va  $d$  sonlari geometrik progressiyaning ketma-ket hadlari. Agar  $a + d = 10, a \cdot d = 7$  ekanligi ma'lum bo'lsa,  $b^3 + c^3$  ni toping.    A) 70    B) 63    C) 56    D) 84
- Tenglamani haqiqiy ildizlari yig'indisini toping:  $(x^2 - 6x)^2 - 2(x - 3)^2 = 81$   
A) 6    B) 9    C) 12    D) 15
- $A(x_0; y_0)$  nuqta  $y = 2x^2 - bx + 1$  parabola uchi bo'lsa,  $y_0 + 2x_0^2$  ifadaning qiymatini toping.  
A) -1    B) 2    C) 0    D) 1



15.  $f(x)$  funksiya uchun  $f(0) + f(x - 1) = 4x - 2$  tenglik o'rinli bo'lsa,  $f(f(3) - 2f(1))$  ni toping.  
A) 13                      B) 9                      C) 14                      D) 17
16. A va B shaharlar orasidagi masofa 80 km. A shahardan B shaharga mashina yo'lga chiqdi, oradan 20 minut o'tgach tezligi 90km/h bo'lgan mototsikl mashina izidan yo'lga chiqdi va mashinani C shaharda (C shahar A va B shaharlar orasida) quvib yetdi hamda darhol orqaga qaytdi. Mashina B shaharga yetib kelganda, mototsiklchi C dan A gacha masofaning yarmini bosib o'tdi. A va C shaharlar orasidagi masofani toping.  
A) 60                      B) 80                      C) 50                      D) 90
17. Agar  $a = \sqrt[3]{4} + 1$  bo'lsa,  $a(a - 1)(a - 2) + a$  ni toping A) 4                      B) 5                      C) 6                      D) 3
18. Perimetri  $2p$  va yuzi  $\frac{1}{6}p^2$  ga teng bo'lgan to'g'ri burchakning diagonallari orasidagi burchakni toping.  
A)  $60^\circ$                       B)  $45^\circ$                       C)  $30^\circ$                       D)  $90^\circ$
19. Turnirda to'rtta futbol jamoasi o'zaro bir-biri bilan bir martadan o'ynadi. G'alaba uchun 3 ochko, durang uchun 1 ochko beriladi. Jamoalar 5, 3, 3 va 2 ochkolarni qo'lga kiritishgan bo'lsa, nechta o'yin durang natija bilan tugagan? A) 5                      B) 4                      C) 3                      D) 1
20. To'g'ri burchakli uchburchakning tomonlari ayirmasi 1,5 ga teng arifmetik progressiya tashkil qiladi. Uchburchak perimetrini toping. A) 18                      B) 17                      C) 15                      D) 16

**3-qism: Har bir topshiriq 2,6 ballan baholanadi**

21.  $x^2 + \frac{1}{x^2+2x} = 1$  tenglama ildizlari yig'indisini toping.
22. Agar  $\overline{ab} + a^b = 115$  bo'lsa, bu yerda  $a, b$  - raqamlar,  $7a + 6b$  ni toping.
23. ABCDE beshburchak aylanaga tashqi chizilgan. Agar A, C va E burchaklarning har biri  $120^\circ$  bo'lsa,  $\angle ACE$  burchak nimaga teng? (chizmaga qarang)
24. Hisoblang  $\sqrt[4]{2^{20} + 2^{27} + 2^{31} + 2^{32} + 2^{37} + 2^{40}}$
25. ABC teng yonli uchburchakning AB asosidagi D nuqta orqali o'tkazilgan CD to'g'ri chiziq ABC uchburchakka tashqi chizilgan aylanani E nuqtada kesib o'tadi. Agar  $DE = CD = 4\sqrt{2}$  bo'lsa, AC ni toping.
26. Ifodaning ozod hadini toping  $\left(4x + \frac{1}{x}\right)^6$
27. ABKC qavariq to'rtburchakda AB tomon  $\sqrt{3}$  ga, BC diagonal 1 ga teng. ABC, BKA va BKC burchaklar mos ravishda  $120^\circ, 30^\circ$  va  $60^\circ$  ni tashkil qiladi.  $\text{ctg} \angle BAK$  ning qiymatini toping.
28. ABC uchburchakning AB tomonida D nuqta, BC tomonida esa E nuqta olingan, bunda  $AD = BE = 1$  va  $CE = 3$ . Agar AB tomon davomida B nuqtadan keyin  $BF = 4$  va  $AC = EF$  shartlarni qanoatlantiradigan F nuqta olingan bo'lsa, CD kesma uzunligini toping.
29.  $\begin{cases} x^2 + yz = a \\ y^2 + zx = b \\ z^2 + xy = c \end{cases}$  va  $x + y + z = 0$  bo'lsa,  $\frac{1}{a+b} + \frac{1}{b+c} + \frac{1}{c+a}$  yig'indini toping.
30.  $x_0$  soni  $\log_{0,5}(\log_4 \frac{1}{x}) + \log_4(\log_2(16x^2)) = 0$  tenglamaning ildizi bo'lsa,  $16^{\sqrt{2}} \cdot x_0$  ni hisoblang.

