2017-yil matematika variant yechimlari (spectrum)
13-variant

Bizning kanal : @axborotnoma

Adminsratorlar hayati : @axborotnoma_bot

Matematika yordam guruhi : @axborotnomaguruhi

Reklama xizmati : @axborotnoma_reklama

1. a parametrning qanday qiymatiga $y = \sqrt[3]{2ax^2 - 4x}$ $x_0 = 1$ nuqtada minimumga ega bo'ladi.
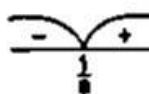
Yechish:

$y = \sqrt[3]{2ax^2 - 4x}$, $x_0 = 1$, y_{min}, $a = ?$

1) $y' = (\sqrt[3]{2ax^2 - 4x})' = ((2ax^2 - 4x)^{\frac{1}{3}})' =$

$= \dfrac{1}{3}(2ax^2 - 4x)^{-\frac{2}{3}} \cdot (4ax - 4)$

2) $y' = 0$, $\dfrac{4ax - 4}{3\sqrt{(2ax^2 - 4x)^2}} = 0$

$4ax - 4 = 0$.

$ax = 1$. $x = \dfrac{1}{a}$

$x = \dfrac{1}{a}$ minimum nuqta

3) $x_0 = 1$, $1 = \dfrac{1}{a}$, $a = 1$.

Javob: 1.

2. $f(x) = 12e^x$ funksiyaning boshlang'ich $F(x)$ ni $X_0 = 0$ nuqtadagi qiymati 7 ga teng. $F(-\ln 5)$ ni toping.

Yechish:

$f(x) = 12e^x$ funksiyaning booshang'ich

$F(x) = 12e^x + c$

Agar $F(0) = 7$, unda

$7 = 12 \cdot e^x + c \Rightarrow c = -5$ va $F(x) = 12e^x - 5$

$F(-\ln 5) = 12 \cdot e^{-\ln 5} - 5 = 12 \cdot \dfrac{1}{5} - 5 =$

$= 2,4 - 5 = -2,6$.

Javob: –2,6.

3. Hisoblang: $\dfrac{\dfrac{1}{2} + \dfrac{2}{3} + \dfrac{3}{4}}{\dfrac{4}{3} + \dfrac{3}{4} + 1} : \left(1 - \dfrac{14}{37}\right)$.

Yechish:

1) $\dfrac{1}{2} + \dfrac{2}{3} + \dfrac{3}{4} = \dfrac{6 + 8 + 9}{12} = \dfrac{23}{12}$.

2) $\dfrac{4}{3} + \dfrac{3}{4} + 1 = \dfrac{16 + 9 + 12}{12} = \dfrac{37}{12}$

3) $\dfrac{23}{12} \cdot \dfrac{37}{12} : \left(1 - \dfrac{14}{37}\right) = \dfrac{23}{12} \cdot \dfrac{12}{37} \cdot \dfrac{37}{23} = 1.$

Javob: 1.

4. Agar $a = 12{,}7$ va $b = -2{,}7$ bo'lsa, $a^3 + a^2b - ab^2 - b^3$ ni hisoblang.

Yechish:

$a = 12{,}7,\ b = -2{,}7$

1) $a^3 + a^2b - ab^2 - b^3 = a^2(a + b) - b^2(a + b) =$
$= (a + b)(a^2 - b^2) = (a + b)^2(a - b)$

2) $(a + b)^2(a - b) = (12{,}7 - 2{,}7)^2(12{,}7 + 2{,}7) =$
$= 10^2 \cdot 15{,}4 = 1540.$

Javob: 1540.

5. To'g'ri oltiburchakli prizmaning asos tomoni 4 ga, prizmaning yon yog'i asos bilan 45° burchak tashkil etadi. Prizma hajmini toping.

Yechish:

SABCDEF muntazam oltiburchakli piramida

$SO = H$

$AB = a = 4$

$\angle SKO = 45°$

$V = ?$

$V = \dfrac{1}{3} \cdot S_{asos} \cdot H$

$\triangle SOK$ to'g'ri burchakli,

$\angle SKO = \angle KSO = 45°$

$H = r$

$r = \dfrac{a\sqrt{3}}{2} = \dfrac{4\sqrt{3}}{2} = 2\sqrt{3}$

$H = 2\sqrt{3}$

$S_{asos} = 6 \cdot \dfrac{a^2\sqrt{3}}{4} = \dfrac{3}{2} \cdot 4^2\sqrt{3} = 24\sqrt{3}$
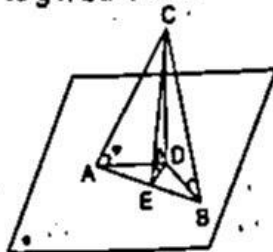
$V = \dfrac{1}{3} \cdot 2\sqrt{3} \cdot 24\sqrt{3} = 48.$

Javob: 48.

6. Teng yonli to'g'ri burchakli uchburchakning katetlari α tekislik bilan φ ga teng bo'lgan burchaklarni tashkil etadi,

$\sin\varphi = \dfrac{\sqrt{2}}{4}$. Uchburchakning gipotenuzasi α tekislikda yotadi. α tekislik bilan uchburchak tekislik orasidagi burchakni toping.

Yechish:

$\triangle ABC$ teng yonli to'g'ri burchakli

$\angle C = 90°$,

$AC = BC = a$

$\sin\varphi = \dfrac{\sqrt{2}}{4}$

$\angle CAD = \angle CBD = \varphi$

$CD \perp \alpha$

$AB \in \alpha$,

$\beta = ?$

$AC = BC = a$,

$AB = a\sqrt{2}$.

$CE = \sqrt{AC^2 - AE^2} = \sqrt{a^2 - \left(\dfrac{a\sqrt{2}}{2}\right)^2} =$

$= \sqrt{a^2 - \dfrac{a^2}{2}} = \dfrac{a}{\sqrt{2}}$

$\sin\varphi = \dfrac{CD}{AC}$, $CD = AC \cdot \sin\varphi = \dfrac{\sqrt{2}a}{4}$

$\sin\beta = \dfrac{CD}{CE} = \dfrac{\dfrac{\sqrt{2}a}{4}}{\dfrac{a}{\sqrt{2}}} = \dfrac{2}{4} = \dfrac{1}{2}$

$\sin\beta = \dfrac{1}{2}$, $\beta = 30°.$

Javob: 30°.

7. Agar $f(x) = mx^2 - (m - 14)x - 2$ parabolaning simmetriya o'qi tenglamasi $x = -3$ bo'lsa, m ning qiymatini toping.

Yechish:

$f(x) = mx^2 - (m - 14)x - 2,\ x = -3$

Simmetriya o'qi tenglamasi $x = -\dfrac{b}{2a}$.

$x = \dfrac{m - 14}{2m}$, $\dfrac{m - 14}{2m} = -3$,

$m - 14 = -6m$

$7m = 14,\ m = 2.$

Javob: 2.

8. Hisoblang: $\dfrac{\dfrac{5}{11} - 0{,}1}{0{,}(21)} : \dfrac{10 - (-3)}{7}$.

Yechish:

$$\dfrac{\dfrac{5}{11} - \dfrac{1}{10}}{\dfrac{21}{99}} : \dfrac{10 + 3}{7} = \dfrac{39}{11 \cdot 10} \cdot \dfrac{99}{21} \cdot \dfrac{7}{13} = \dfrac{9}{10} = 0{,}9.$$

Javob: 0,9.

9. $y = -25 \cdot 3^{-2 + \sin(2x + \pi)}$ funksiyaning eng kichik butun qiymatini toping.

Yechish:

$y = -25 \cdot 3^{-2 + \sin(2x + \pi)}$ eng kichik butun qiymatini topamiz.

1) $\sin(2x + \pi) = -\sin 2x$.

2) $-1 \le \sin 2x \le 1$

3) $y = -25 \cdot 3^{-2 - \sin 2x} = -25 \cdot 3^{-2 - (-1)} = -\dfrac{25}{3}$

$y = -25 \cdot 3^{-2 - 1} = -25 \cdot 3^{-3} = -\dfrac{25}{27}$

$y \in [-\dfrac{25}{3}; -\dfrac{25}{27}]$.

Oraliqdagi eng kichik butun son -8.

Javob: -8.

10. Qarang: 1-variant 14-savol (6-bet).

11. Tenglama ildizlari ko'paytmasini toping: $\sqrt{1 - x - x^2} = x - |x - 1|$.

Yechish:

$\sqrt{1 - x - x^2} = x - |x - 1|$.

1) $x - |x - 1| \ge 0$,

$|x - 1| \le x$, $x \ge \dfrac{1}{2}$

2) $x - 1 \ge 0$,

$x \ge 1$'da $\sqrt{1 - x - x^2} = x - (x - 1) = 1$

$\sqrt{1 - x - x^2} = 1$, $1 - x - x^2 = 1$,

$x^2 + x = 0$

$x = 0$, $x = -1$ $\varnothing$

3) $x - 1 < 0$, $x < 1$ da

$\sqrt{1 - x - x^2} = x - (1 - x) = 2x - 1$

$\left(\sqrt{1 - x - x^2} \right)^2 = (2x - 1)^2$,

$1 - x - x^2 = 4x^2 - 4x + 1$,

$5x^2 - 3x = 0$,

$x = 0$, $x = 0{,}6$, $\dfrac{1}{2} \le x < 1$ bo'lganligi uchun ildizlari ko'paytmasi 0,6 ga teng.
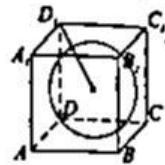
Javob: 0,6.

12. Qirrasi a ga teng bo'lgan kubga shar ichki chizilgan. Shar markazidan kub uchigacha bo'lgan masofani toping.

Berilgan:

Kub qirra – a

Ichki chizilgan shar

$OD - ?$

Yechish:

Kubga ichki chizilgan shar markazi kubning diagonallari kesishish nuqtasida joylashgan.

Demak, $OD_1 = \dfrac{1}{2} BD_1$

Kub diagonali:

$BD_1^2 = a^2 + a^2 + a^2 = 3a^2 \Rightarrow BD_1 = a\sqrt{3}$

$OD_1 = \dfrac{a\sqrt{3}}{2}$.

Javob: $\dfrac{a\sqrt{3}}{2}$.

13. $x \in [0; \dfrac{\pi}{2}]$ dagi $\log_{24\sin x}(24\cos x) = \dfrac{3}{2}$ bo'lsa, $24\, ctg^2 x$ ning qiymatini toping.

Yechish:

$x \in [0; \dfrac{\pi}{2}]$.

$\log_{24\sin x}(24\cos x) = \dfrac{3}{2}$

$24\, ctg^2 x = ?$

1) aniqlanish sohasi $\begin{cases} \sin x > 0 \\ \sin x \ne 1 \\ \cos x > 0 \end{cases}$

2) $24\cos x = (24\sin x)^{\frac{3}{2}}$

$(24\cos x)^2 = (24\sin x)^3$

$\cos^2 x = 24\sin^3 x,$

$24\sin^3 x = 1 - \sin^2 x$

$24\sin^3 x + \sin^2 x - 1 = 0, \ \sin x = \dfrac{1}{3}$

$\cos x = \sqrt{1 - \sin^2 x} = \sqrt{1 - \dfrac{1}{9}} = \dfrac{2\sqrt{2}}{3},$

$ctg\alpha = 2\sqrt{2}$

3) $24ctg^2\alpha = 24(2\sqrt{2})^2 = 24 \cdot 8 = 192.$
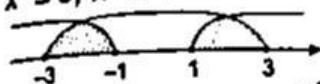
Javob: 192.

14. $f(x) = \sqrt{4 - |x^2 - 5|}$ funksiyaning aniqlanish sohasini toping.

Yechish:

$f(x) = \sqrt{4 - |x^2 - 5|}$ funksiya aniqlangan

bo'lishi uchun $4 - |x^2 - 5| \geq 0$ bo'lishi kerak

$|x^2 - 5| \leq 4, \ 5 - 4 \leq x^2 \leq 4 + 5,$

$1 \leq x^2 \leq 9$

$x^2 \leq 9, \ x^2 \leq 1$

$x \in [-3; -1] \cup [1; 3].$

Javob: $x \in [-3; -1] \cup [1; 3].$

15. Nikel foizi 5% va 40% bo'lgan 2 nav po'lat parchasi bor. Nikel foizi 30% bo'lgan 140 t po'lat qotishmasini olish uchun har bir nav po'lat parchasining miqdorini toping.

Yechish:

$x - 1$ nav $y - 2$ nav

1) $x + y = 140$

2) $5\% \cdot x + 40\% \cdot y = 140 \cdot 30\%$

$\dfrac{5}{100}x + \dfrac{40}{100}y = 140 \cdot \dfrac{30}{100}$

$x + 8y = 840$

3) $\begin{aligned} x + y &= 140 \\ x + 8y &= 840 \end{aligned}$

$-7y = -700,$

$y = 100, \ x = 40.$

Javob: 40 t, 100 t.
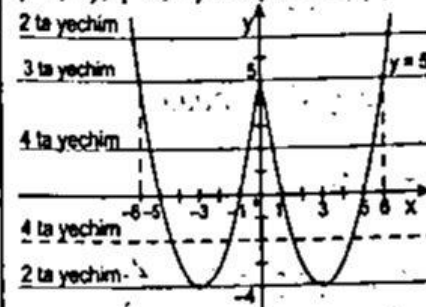
16. Qarang: 10-variant 8-savol (76-bet).

17. a ning qanday qiymatida $x^2 - 6|x| + 5 = a$ tenglama 3 ta turli xil ildizga ega bo'ladi?

Yechish:

1) $x^2 - 6|x| + 5 = a$ tenglamani grafik usulida yechamiz.

$y = x^2 - 6|x| + 5, \ y = a.$

$y = x^2 - 6|x| + 5$ parabola grafigini chizamiz. Parabola uchi $(3; -4)$ va $(-3; -4)$ nuqtalar. Oy o'qi bilan $(0; 5)$ nuqtada kesishadi. Ox o'qi bilan $(1; 0), (5; 0), (-1; 0), (-5; 0)$ nuqtalarda kesishadi.

$y = a$ to'g'ri chiziq. $a = 5$ bo'lganda tenglama 3 ta turli xil ildizga ega bo'ladi.

$x = -6, \ x = 0, \ x = 6.$

Javob: 5.

18. $\log_3 10 \cdot lg9$ dan kichik bo'lgan natural sonlar nechta?

Yechish:

$\log_3 10 \cdot lg9 = \log_3 10 \cdot \dfrac{\log_3 9}{\log_3 10} = \log_3 9 = 2.$

2 dan kichik natural son 1.

Javob: 1.

19. a va b natural sonlarning eng katta umumiy bo'luvchisi 5 ga teng bo'lsa, $2a + b$ va a sonlarning eng katta umumiy bo'luvchisi nechaga teng?

Yechish:

$a, b \in N$, EKUB$(a; b) = 5$ bo'lsa, u holda EKUB$(2a + b; a) = 5$ bo'ladi.

Javob: 5.

20. 3 stakan olma va 7 stakan apelsin sharbati 1760 so'm, 7 stakan olma va 8 stakan apelsin soki 2440 so'm turadi.

http://bit.ly/Docufy

3 stakan olma va 1 stakan apelsin sharbati necha so'm turadi?

Yechish:

Olma sharbati x, apelsin sharbati y so'm.

$$\begin{cases} 3x + 7y = 1760 \\ 7x + 8y = 2440 \end{cases} \Rightarrow$$

$$\Rightarrow -\dfrac{\begin{cases} 21x + 49y = 12320 \\ 21x + 24y = 7320 \end{cases}}{25y = 5000}$$

$y = 200$

$3x + 7 \cdot 200 = 1760$

$x = 120$

$3x + y = 3 \cdot 120 + 200 = 560$ so'm.

Javob: 560.

21. Agar a > 1 bo'lsa, $y = \log_a(x - a)$ funksiyaning vertikal asimptotasini toping.
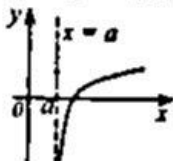
Yechish:

$a > 1$, $y = \log_a(x - a)$ – vertikal asimptota.
Logarifmik funksiyaning aniqlanish sohasi
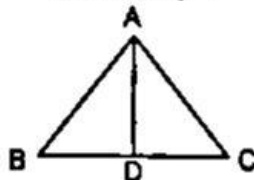$x - a > 0$, $x > a$.
$x = a$ – vertikal asimptota.

Javob: x = a.

22. Tekislikga bir nuqtadan ikkita og'ma tushirildi. Proyeksiyalar uzunliklarining ayirmasi 11 ga teng, kichik proyeksiyaning uzunligi 25 ga, umumiy perpendikulyar uzunligi esa 24 ga teng. Katta og'maning uzunligini toping.

Yechish:

AB, AC – og'malar
AD – perpendikulyar
BC, DC proeksiyalar
BD – DC = 11
c = 25
AD = 24
AB = ?

1) AC = 25, AD = 24,

$DC = \sqrt{AC^2 - AD^2} = \sqrt{25^2 - 24^2} = 7$

2) $BD = 11 + DC = 11 + 7 = 18$
3) $AB^2 = AD^2 + BD^2 = 24^2 + 18^2 = 30^2$.
$AB = 30$.

Javob: 30.

23. Konusga shar ichki chizilgan. Konus asosining yuzi shar sirti yuziga teng. Konus o'q kesimi burchakning tangensini toping.
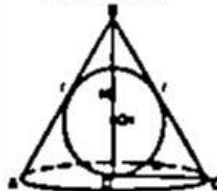
Berilgan: **Yechish:**

$S_{asos} = \pi R^2$
$S_{sh} = 4\pi r^2$
$S_{asos} = S_{sh}$
$tg\alpha = ?$

1) $\pi R^2 = 4\pi r^2$, $R^2 = 4r^2$, $R = 2r$
2) uchburchakka ichki chizilgan aylana

radiusi $r = \dfrac{2S}{a + b + c}$.

$r = \dfrac{2 \cdot \dfrac{2R \cdot H}{2}}{2\ell + 2R} = \dfrac{RH}{\ell + R}$

$r = \dfrac{2r \cdot H}{\ell + 2r}$

$\ell + 2r = 2H$
$\ell = 2H - R$
3) $\ell^2 = H^2 + R^2$
$(2H - R)^2 = H^2 + R^2$
$4H^2 - 4HR = H^2$

$3H = 4R \qquad H = \dfrac{4}{3}R \qquad \dfrac{R}{H} = \dfrac{3}{4}$

$tg\dfrac{\alpha}{2} = \dfrac{R}{H} = \dfrac{3}{4}$, $tg\alpha = \dfrac{2tg\dfrac{\alpha}{2}}{1 - tg^2\dfrac{\alpha}{2}}$

$tg\alpha = \dfrac{2 \cdot \dfrac{3}{4}}{1 - \dfrac{9}{16}} = \dfrac{24}{7} = 3\dfrac{3}{7}$.

Javob: $3\dfrac{3}{7}$.

24. Qarang: 3-variant 1-savol (19-bet).

25. $f(x) = -3x^2 + 9x + t - 1$ funksiyaning maksimumi 6 ga teng. t ning qiymatini toping.

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Yechish:

$f(x) = -3x^2 + 9x + t - 1, f_{max} = 6, t = ?$

1) $f'(x) = (-3x^2)' + (9x)' + (t-1)' = -6x + 9$

2) $f'(x) = 0, -6x + 9 = 0, x = 1,5$

3)

$$\underline{\qquad\qquad} $$
$$\qquad 1,5 \qquad\qquad x = 1,5 \; max$$

4) $f\left(\dfrac{3}{2}\right) = -3 \cdot \dfrac{9}{4} + 9 \cdot \dfrac{3}{2} + t - 1$

$f_{max} = 6 \Rightarrow -\dfrac{27}{4} + \dfrac{27}{2} + t - 1 = 6$

$t = 7 - \dfrac{27}{4} = 7 - 6\dfrac{3}{4} = \dfrac{1}{4} = 0,25.$

Javob: 0,25.

26. Qarang: 7-variant 7-savol (53-bet).

27. a va b ning qanday qiymatlarida (5; –3) sonlar juftligi quyidagi tenglamalar sistemasining yechimini tashkil etadi?

$$\begin{cases} 3x - by + 4b = 1 \\ ax + 2y + a + b = 4 \end{cases}$$

Yechish:

$$\begin{cases} 3x - by + 4b = 1 \\ ax + 2y + a + b = 4 \end{cases} \quad (5; -3)$$
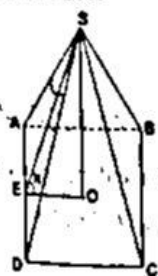
$a = ?, b = ?$

$x = 5, y = -3.$

$$\begin{cases} 15 + 3b + 4b = 1 \\ 5a - 6 + a + b = 4 \end{cases} \Rightarrow \begin{cases} 7b = -14 \\ 6a = 10 - b \end{cases} \Rightarrow$$

$$\begin{cases} b = -2 \\ a = 2 \end{cases} \to a = 2, b = -2.$$

Javob: a = 2, b = –2.

28. To'rtburchakli muntazam piramidaning uchidagi yassi burchagi α ga teng. Piramida asosidagi ikki yoqli x burchakni toping.

Yechish:

SABCD piramida
$\angle ASD = \alpha$
$SE = h_a$ – *apofema*
$AD = AB = a,$
$\angle SED = x$
$\angle ASD$ *da*

$tg\dfrac{\alpha}{2} = \dfrac{ED}{SE} = \dfrac{a}{2 \cdot h_a}$

$\triangle EOS$ da $\cos x = \dfrac{EO}{SO} = \dfrac{a}{2 \cdot h_a}$

Demak, $\cos x = tg\dfrac{\alpha}{2}.$

Javob: $\cos x = tg\dfrac{\alpha}{2}.$

29. Radiusi 3 ga teng bo'lgan sharga yasovchi 5 ga teng bo'lgan konus ichki chizilgan. Konus yasovchisining asos tekisligi bilan tashkil etgan burchak sinusini toping.
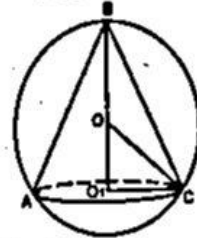
Berilgan:
$AB = BC$ – konus yasovchisi
$AB = 5$
$OC = 3$
$\angle BCO_1 = \alpha$
$\sin\alpha = ?$

Yechish:

1) $O_1C = r, OC = R, OO_1 = x, \sin\alpha = \dfrac{H}{\ell}$

$H = OB + OO_1 = 3 + OO_1 = 3 + x$

2) $\triangle OO_1C$ to'g'ri burchakli
$R^2 = OO_1^2 + r^2 = x^2 + r^2$

3) $\triangle BO_1C$ to'g'ri burchakli
$AB^2 = BC^2 = H^2 + r^2$
$25 = H^2 + r^2 = (3+x)^2 + r^2$
$9 = x^2 + r^2$

$$\begin{cases} (3+x)^2 + r^2 = 25 \\ x^2 + r^2 = 9 \end{cases} \Rightarrow x = \dfrac{7}{6}$$

4) $H = \dfrac{7}{6} + 3 = \dfrac{25}{6}, \; tg\alpha = \dfrac{H}{\ell} = \dfrac{\frac{25}{6}}{5} = \dfrac{5}{6}$

Javob: $\dfrac{5}{6}.$

30. a = 4, b = 3, c = 2 bo'lsa,

$$\dfrac{a - (2a - (3b - 2(4c - 2a)) - 3(b-c))^{-1}}{0,5a - \dfrac{1}{2}\left(\dfrac{2b}{3} - 0,5a\right) + \left(a - \left(1\dfrac{1}{2}a - \dfrac{b}{3}\right)\right)^2}$$

ni hisoblang.

Yechish:

1) $a - (2a - (3b - 8c + 4a) - 3b + 3c)^{-1} =$

$= a - (2a - 3b + 8c - 4a - 3b + 3c)^{-1} =$

$= a - (-2a - 6b + 11c)^{-1} =$

$= 4 - (-8 - 18 + 22)^{-1} = 4 - (-4)^{-1} =$

$= 4 + \dfrac{1}{4} = 4\dfrac{1}{4}.$

2) $\dfrac{1}{2}a - \dfrac{b}{3} + \dfrac{a}{4} + (a - \dfrac{3}{2}a + \dfrac{b}{3})^2 =$

$= 2 - 1 + 1 + (4 - 6 + 1)^2 = 2 + 1 = 3.$

3) $4\dfrac{1}{4} : 3 = \dfrac{17}{12} = 1\dfrac{5}{12}.$

Javob: $1\dfrac{5}{12}.$

31. Quyidagi HTML-hujjat kodi yozilishi bo'yicha kataklar ketma-ket sanalganda nechanchi katakda ta'riflash ro'yxati ishlatilgan?

```
<table> <tr> <td colspan=2> <u> <ol> <li> test </ol>
</u> </td> <td rowspan=2> <b> <ul> <li> test </ul>
</b> </td> </tr> </tr> <td> <i> <ol> <li> test
</ol> </i> </td> <td> <sub> <dl> <dd> test </dl>
</sub> </td> </tr> </table>
```

Yechish:

<td> va </td> bu teglar juftligi jadvalning har bir yacheykasi uchun matn ajratadi; <dl> va </dl> bu teglar juftligi tariflash ro'yxati uchun ishlatiladi. Bu juft teg ichida <dt>(definition term – atamani tariflash) va <dd> (definition description – tariflash bayoni) juftmas teglar ishlatiladi.

1-katak: `<tr> <td colspan=2> <u> <ol> <li> test </ol></u> </td>`

2-katak: `<td rowspan=2> <b> <ul> <li> test </ul></b> </td> </tr>`

3-katak: `<td> <i> <ol> <li> test</ol> </i> </td>`

4-katak: `<td> <sub> <dl> <dd> test </dl></sub> </td> </tr>`

Javob: to'rtinchi katakda.

32. Qarang: 10-variant 32-savol (81-bet).

33. Elektron jadvaldagi murojaat (ssilka) – bu:

Yechish:

Yacheyka (katakcha) – electron jadvalning ustuni va satrining kesishmasi bilan aniqlanadigan va yagona manziliga ega bo'lgan soha. Yacheyka manzili kesishayotgan ustun nomi (simvoli) va satr nomi (raqami) bilan aniqlanadi, masalan, A10. Yacheykalar diapazoni ikki nuqta (;) bilan ajratilgan yuqori chap va quyi o'ng yacheykalar manzillaridan iborat. Masalan, A2;E9. Ssilka – yacheyka yoki diapazonning manzilini ko'rsatishdir. Ssilkalar odatda formulalarda ishlatiladi.

Javob: formulada yacheykadagi "=" dan keyin ko'rsatiladigan yacheyka yoki diapazon manzili.

34. Bir nechta bola 36 dona olmani yeyishmoqchi edi. Ali "Men olmalarni shunday taqsimlay olmanki, har birimizda 5 tadan ko'p olma bo'lmaydi" dedi. Vah esa "Men olmalarni shunday taqsimlay olamanki, xech birimiz olmasiz qolmaymiz va barchamizda olmalar soni turlicha bo'ladi", bolalar sonini aniqlang.

Yechish:

Olmalas soni 36 dona Ali olmalarni shunday taqsimlay oladiki, har bir bolaga 6 tadan ko'p olma bo'lmaydi.

Agar bolalar soni 8 nafar bo'lsa, nar bir bola kamida 4 ta, ba'zilari esa 5 tadan olma yeishi mumkin. Demak bolalar soni 8 nafas.

Javob: 8.

35. Ali sakkizlik sanoq sistemasida (57; 72) oraliqdagi barcha butun sonlarni yozib chiqdi. Vali esa shu sonlardan 6 raqami qatnashgan barcha sonlarni o'chirib tashladi. Qolgan sonlar yig'indisini sakkizlik sanoq sistemasida aniqlang va o'n oltilik sanoq sistemasiga o'tkazing.

Yechish:

Ali yozgan sonlar: 60, 61, 62, 63, 64, 65, 66, 67, 70, 71. Vali shu sonlardan 6 raqami qatnashgan barcha sonlarni o'chirganidan keyin 70, 71 sonlar qoladi. Ularning sakkizlik sanoq sistemasidagi yig'indisini hisoblaymiz: $70_8 + 71_8 = 161_8$. Endi bu sonni avval 10-lik sanoq sistemasiga, keyin 16-likka o'tkazamiz.

$$161_8 = 1 \cdot 8^2 + 6 \cdot 8^1 + 1 \cdot 8^0 = 64 + 48 + 1 = 113_{10}$$

$$
\begin{array}{r|l}
113 & 16 \\
\underline{112} & \overline{7} \\
1 &
\end{array}
$$

Demak, $113_8 = 71_{16}$ ekan.

Javob: 71.

36. Nashriyot tizimlarida qaysi dasturlar ishlatiladi?

Yechish:

Asl maketlarni tayyorlashda hozirgi zamon dasturlash vositalari QuarkXPress, PostScript, PAGE MAKER nashriyot tizimlaridan foydalaniladi. Turli formulali matnlarni (matematika, fizika, kimyo fanlariga oid) tayyorlashda TEX va uning keyingi versiyalari LATEX lahrirlovchi dasturlaridan foydalanish dunyo ilmiy amaliyotida keng qo'llaniladi. Bunday tahrirlovchilar kompyuter xotirasida ko'p joy olmaydi. Quark XPress, PAGE MAKER tizimlari katta hajmdagi xotiraga ega bo'lgan kompyuterda ishlashi mumkin bo'lsa, LATEX tizimi hatto 286 protsessorida ham bemalol ishlatiladi. Bu esa uning juda katta afzalligidir.

Javob: Adobe Page Maker, Latex, Tex, Quark Xpress.