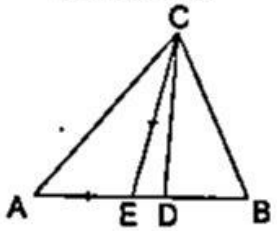
Javob: jadvallarni o'zaro bog'layd.

7-variant

1. Yuzasi $\frac{9\sqrt{3}}{2}$ ga teng, gipotenuzasi 6 ga teng bo'lgan to'g'ri burchakli uchburchakning to'g'ri burchakdan tushirilgan bissektrisa va mediana orasidagi burchakni toping.

Yechish:



ΔABC to'g'ri burchakli
CD – bissektrisa
CE – mediana
$S=\frac{9\sqrt{3}}{2}$, $c=6$, $\varphi=?$

1) $\angle ACD=\angle BCD=45°$
2) $CE=AE=EB$
3) $S=\frac{a\cdot b}{2}=\frac{9\sqrt{3}}{2}$, $ab=9\sqrt{3}$
4) $\begin{cases}a^2+b^2=36\\ab=9\sqrt{3}\end{cases}\Rightarrow\begin{cases}b=3\sqrt{3}\\a=3\end{cases}$
5) $\sin\alpha=\frac{a}{c}=\frac{3}{6}=\frac{1}{2}$, $\alpha=30°$
6) $\angle ECD=\angle ACD-\angle ACE=45°-30°=15°$.

Javob: 15°.

2. a parametrning qanday qiymatida $y=\sqrt[3]{x^2-ax}$ funksiya $x_0=3$ nuqtada minimumga ega bo'ladi..

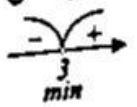
Yechish:

1) $y=\sqrt[3]{x^2-ax}$ funksiyaning hosilasini topamiz.

$y'=\frac{1}{3}(x^2-ax)\cdot(2x-a)$

Agar $x_0=3$ nuqta shu funksiyaning minimum nuqtasi bo'lsa, unda $y'(3)=0$.

$\frac{1}{3}(9-3a)(6-a)=0$
$(3-2a)(6-a)=0\Rightarrow$
$3-2a=0$ yoki $6-a=0$



$a=\frac{3}{2}$ yoki $a=6$.

Javob: 6.

3. x va y $\begin{cases}\log_3 x+\log_3 y=\log_3 6\\ \log_5(x+y)-\log_5(x-y)=1\end{cases}$ tenglamalar sistemasining yechimlari bo'lsa, $2x+3y$ ning qiymatini toping.

Yechish:

$\begin{cases}\log_3 x+\log_3 y=\log_3 6\\ \log_5(x+y)-\log_5(x-y)=1\end{cases}$
$2x+3y=?$
1) aniqlanish sohasi

$\begin{cases}x>0\\x-y>0\\y>0\\x+y>0\end{cases}\Rightarrow\begin{cases}x>0\\y>0\\x>y\end{cases}$

2) $\begin{cases}\log_3 x\cdot y=\log_3 6\\ \log_5\frac{(x+y)}{x-y}=1\end{cases}\Rightarrow\begin{cases}x\cdot y=6\\ \frac{x+y}{x-y}=5\end{cases}\Rightarrow$

$\Rightarrow\begin{cases}x\cdot y=6\\2x=3y\end{cases}\Rightarrow\begin{cases}x=\pm3\\y=\pm2\end{cases}$

3) $x>0$, $y>0$, $x>y$ bo'lganligi sababli
$x=3$,
$y=2$.
4) $2x+3y=2\cdot3+3\cdot2=12$.

Javob: 12.

4. Hisoblang: $\dfrac{(3^{15}+3^{13})\cdot 2^9}{(3^{14}+3^{12})\cdot 1024}$.

Yechish:

Eng kichik darajali ifodani qavsdan tashqariga chiqaramiz:

$$\frac{(3^{15}+3^{13})\cdot 2^9}{(3^{14}+3^{12})\cdot 1024}=\frac{3^{13}(3^2+1)\cdot 2^9}{3^{12}(3^2+1)\cdot 2^{10}}=\frac{3}{2}=1{,}5.$$

Javob: 1,5.

5. Qarang: 5-variant 1-savol (37-bet).

6. $\int_1^e \dfrac{\sin(\ln x)}{x}dx$ integralni hisoblang.

Yechish:

$$\int_1^e \frac{\sin(\ln x)}{x}dx=\int_1^e \sin(\ln x)d(\ln x)=$$

$$=-\cos(\ln x)\Big|_1^e=-\cos(\ln e)-(-\cos\ln 1)=$$

$$=-\cos 1+\cos 0=-\cos 1+1=1-\cos 1.$$

Javob: $1-\cos 1$.

7. Balandligi 8 sm bo'lgan silindr hajmi $\dfrac{500\pi}{3}$ bo'lgan sharga ichki chizilgan. Silindr yon sirti yuzini toping.

Yechish:

$H = 8$ sm

$V_{shar}=\dfrac{500\pi}{3}$

$S_{yon}=?$

$$V_{shar}=\frac{4\pi R^3}{3}=\frac{500\pi}{3},\ R^3=125,\ R=5$$

$D = 2R = 10$

$D^2=H^2+(2r)^2$

$(2r)^2=D^2-H^2$

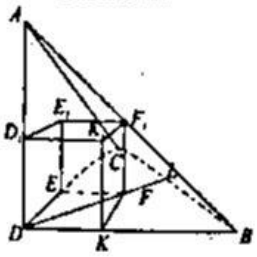
$$r=\frac{\sqrt{D^2-H^2}}{2}=\frac{\sqrt{10^2-8^2}}{2}=\frac{6}{2}=3$$

$S_{yon}=2\pi rH=2\pi\cdot 3\cdot 8=48\pi.$

Javob: 48π.

8. ABCD tetraedrning D uchidagi barcha yassi burchaklari to'g'ri. Shu tetraedrga kub shunday ichki chizilganki, kubning bitta uchi D nuqtada, unga qarama-qarshi uchi esa ABC yoqda yotibdi. Agar DA = 2, DB = 5 va DC = 6 bo'lsa, kub qirrasining uzunligini toping.

Yechish:



$DEFK$

$D_1E_1F_1K_1$ – kub.

$D_1F_1=x\sqrt{2}$

$DD_1=x$

$D_1A=2-x$

DL – bissektrisa

$$DL=l=\frac{2\cdot 5\cdot 6\cdot\frac{\sqrt{2}}{2}}{5+6}=\frac{30\sqrt{2}}{11}.$$

$$\frac{2-x}{2}=\frac{x\sqrt{2}}{\frac{30\sqrt{2}}{11}}$$

$$30-15x=11x,\ x=\frac{30}{26}=\frac{15}{13}.$$

Javob: $\dfrac{15}{13}$.

9. Ifodani soddalashtiring:

$x^{\frac14}-[(16x)^{\frac14}-(81x)^{\frac14}-(256x)^{\frac14}]$.

Yechish:

$$x^{\frac14}-((16x)^{\frac14}-(81x)^{\frac14}-(256x)^{\frac14})=$$

$$=x^{\frac14}-((2^4x)^{\frac14}-(3^4x)^{\frac14}-(4^4x)^{\frac14})=$$

$$=x^{\frac14}-2x^{\frac14}+3x^{\frac14}+4x^{\frac14}=6x^{\frac14}=6\sqrt[4]{x}.$$

Javob: $6\sqrt[4]{x}$.

10. $x^2+x-2x\sqrt{x-2}-6=0$ tenglama ildizlari ko'paytmasini toping.

Yechish:

1) aniqlanish sohasi $x-2\ge 0,\ x\ge 2$.

$2)\ x^2+x-6-2x\sqrt{x-2}=0$

$(x+3)(x-2)-2x\sqrt{x-2}=0$

$\sqrt{x-2}((x+3)\sqrt{x-2}-2x)=0$

$a)\ \sqrt{x-2}=0,\ x=2$

$b)\ (x+3)\sqrt{x-2}=2x$

$(x+3)^2(x-2)=4x^2$

$(x^2 + 6x + 9)(x - 2) = 4x^2$
$x^3 - 3x - 18 = 0,\ x = 3$
3) $x = 2$, $x = 3$ tenglama ildizlari.
Ildizlari ko'paytmasi $2 \cdot 3 = 6$.

Javob: 6.

11. 4 ga bo'linganda qoldig'i 3 ga teng bo'lgan barcha natural ikki xonali sonlar yig'indisini toping.

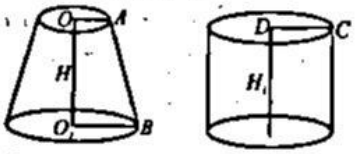
Yechish:
$x_n = 4n + 3$
$n = 1$ $x_1 = 7$ *ikki xonali son emas.*
$n = 2$ $x_2 = 11$
$n = 3$ $x_3 = 15$
... ...
$n = 24$ $x_{24} = 99$ *hadlar soni 23 ta*
Demak 11, 15, 19, ..., 99.

$$S = \frac{11+99}{2} \cdot 23 = \frac{110}{2} \cdot 23 = 55 \cdot 23 = 1265.$$

Javob: 1265.

12. Asoslarining radiuslari 3 va 6 ga teng bo'lgan kesik konus va unga tengdosh silindrning balandliklari bir xil. Silindr asosining radiusini toping.

Yechish:



$OA = r = 3,\ O_1B = R = 6$
$H = H_1,\ CD = R_1$
Kesik konus va silindr tengdosh.

$$\frac{1}{3}\pi H(R^2 + r^2 + Rr) = \pi \cdot H_1 \cdot R_1^2$$

$$\frac{1}{3}(6^2 + 3^2 + 6 \cdot 3) = R_1^2,\ R_1^2 = 21$$

$$R_1 = \sqrt{21}.$$

Javob: $\sqrt{21}$.

13. $x \cdot 5^{\log_x 6} < 30$ tengsizlikning butun sonlardan iborat yechimlari nechta?

Yechish:
1) aniqlanish sohasi $x > 0,\ x \neq 1$.
2) tengsizlikning ikkala qismini logarifmlaymiz.

$$\log_5 x \cdot 5^{\log_x 6} < \log_5 30$$
$$\log_5 x + \log_5 5^{\log_x 6} < \log_5 5 \cdot 6$$
$$\log_5 x + \log_x 6 < 1 + \log_5 6$$
$$\log_5 x + \frac{\log_5 6}{\log_5 x} < 1 + \log_5 6$$

$\log_5 x = a$

$$a + \frac{\log_5 6}{a} < 1 + \log_5 6$$
$$a^2 - a(1 + \log_5 6) + \log_5 6 < 0$$
$a_1 = 1,\ a_2 = \log_5 6$
$1 < a < \log_5 6,\ 1 < \log_5 x < \log_5 6$
$\log_5 5 < \log_5 x < \log_5 6$
$5 < x < 6$
Tengsizlik butun yechimga ega emas.
Butun yechimlari 0 ta.

Javob: 0.

14. Rustam ishni 12 soatda bajaradi. Anvar undan 50% tez bajaradi. Ikkalasi bu ishni birgalikda necha soatda bajarishadi.

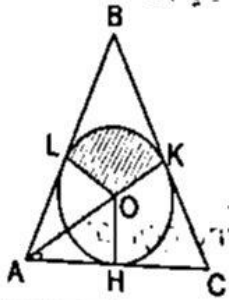
Yechish:
Rustam ishni 12 soatda bajarsa, Anvar 6 soatda bajaradi.

Rustam 1 soatda ishning $\frac{1}{12}$ qismini, Anvar 1 soatda ishining $\frac{1}{6}$ qismini, ikkalasi birgalikda 1 soatda $\frac{1}{12} + \frac{1}{6} = \frac{1}{4}$ qismini bajarishadi.
Ikkalasi ishni 4 soatdan bajarishadi.

Javob: 4.

15. Asosi $AC = 6\sqrt{3}$ bo'lgan teng yonli uchburchakga radiusi 3 ga teng bo'lgan ichki doira chizilgan. Urinish nuqtalarga o'tkazilgan radiuslar hosil qilgan sektor yuzasini uchburchak yuzasiga nisbatini toping.

Yechish:



$\Delta ABC,\ AB = BC$
AB, BC urinmalar
$AC = 6\sqrt{3}$
$OK = 3$
$\frac{S_{sektor}}{S_\Delta} = ?$

1) $S_{sektor} = \frac{\pi r^2 \cdot \alpha}{360^\circ}$, $S_\Delta = p \cdot r$.

2) ΔAHO to'g'ri burchakli.

$AH = 3\sqrt{3}$.

$tg\alpha = \frac{OH}{AH} = \frac{3}{3\sqrt{3}} = \frac{1}{\sqrt{3}}$, $\alpha = 30^\circ$.

$\angle BAC = \angle ACB = 2\alpha = 2 \cdot 30^\circ = 60^\circ$

$\angle ABC = 60^\circ$.

Demak ΔABC teng tomonli

$S_\Delta = \frac{a^2\sqrt{3}}{4} = \frac{(6\sqrt{3})^2\sqrt{3}}{4} = 27\sqrt{3}$.

3) $\angle LOK = 120^\circ$

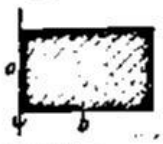
$S_{sektor} = \frac{\pi \cdot 3^2 \cdot 120^\circ}{360^\circ} = 3\pi$

4) $\frac{3\pi}{27\sqrt{3}} = \frac{\pi\sqrt{3}}{27}$.

Javob: $\frac{\pi\sqrt{3}}{27}$.

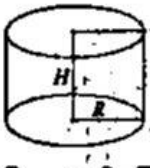
16. Tomonlari $\sqrt{\frac{3}{\pi}}$ va $\sqrt{\frac{27}{\pi}}$ bo'lgan to'g'ri to'rtburchak kichik tomoni aylantirildi. Hosil bo'lgan jism to'la sirtini toping.

Yechish:



$a = \sqrt{\frac{3}{\pi}}$, $b = \sqrt{\frac{27}{\pi}}$.

Kichik tomoni atrofida aylantirilsa, silindr hosil bo'ladi.



$H = a = \sqrt{\frac{3}{\pi}}$, $R = b = \sqrt{\frac{27}{\pi}}$

$S_{to'la} = 2\pi R^2 + 2\pi RH = 2\pi R(R + H)$

$S_{to'la} = \frac{3\sqrt{3}}{\sqrt{\pi}} \cdot 2\pi\left(\frac{3\sqrt{3}}{\sqrt{\pi}} + \frac{\sqrt{3}}{\sqrt{\pi}}\right) = 2\pi \cdot \frac{36}{\pi} = 72$.

Javob: 72.

17. $(\log_3 6 - \log_3 2)^{\sqrt{\log_3 9}} -$ $- (\log_7 14 - \log_7 2)^{\sqrt{\log_9 3}}$ ifodaning qiymatini toping.

Yechish:

1) $\log_a b - \log_a c = \log_a \frac{b}{c}$ ga asosan

$\log_3 6 - \log_3 2 = \log_3 \frac{6}{2} = \log_3 3 = 1$.

$\log_7 14 - \log_2 = \log_7 \frac{14}{2} = \log_7 7 = 1$.

2) *1 ning ixtiyoriy darajasi 1 ga teng.*

$1 - 1 = 0$.

Javob: 0.

18. Soddalashtiring: $\frac{16^3 \cdot 3^{21}}{2^8 \cdot 5^6} : \frac{18^{10}}{2^7 \cdot 5^8}$.

Yechish:

$\frac{16^3 \cdot 3^{21}}{2^8 \cdot 5^6} : \frac{18^{10}}{2^7 \cdot 5^8} = \frac{2^{4\cdot3} \cdot 3^{21}}{2^8 \cdot 5^6} \cdot \frac{2^7 \cdot 5^8}{2^{10} \cdot 3^{20}} =$

$= \frac{2^{12} \cdot 2^7 \cdot 3^{21} \cdot 5^8}{2^{18} \cdot 3^{20} \cdot 5^6} = 2 \cdot 3 \cdot 5^2 = 150$.

Javob: 150.

19. $\{x | x \in N, x^2 < 36\}$ to'plamni nechta usul bilan ikkita kesishmaydigan qism-to'plamlar birlashmasi ko'rinishida ifodalash mumkin?

Yechish:

$A = \{1, 2, 3, 4, 5\}$. A to'plam 5 ta elementdan iborat. Qism to'plamlari sonini topamiz. 1 ta elementdan iborat qism to'plamlari soni:

$C_5^1 = \frac{5!}{1! \cdot (5-1)!} = \frac{4! \cdot 5}{4!} = 5$, 5 ta

2 ta elementdan iborat qism to'plamlari soni:

$C_5^2 = \frac{5!}{2! \cdot (5-2)!} = \frac{3! \cdot 4 \cdot 5}{2! \cdot 3!} = \frac{4 \cdot 5}{1 \cdot 2} = 10$ ta

3 ta elementdan iborat qism to'plamlari soni:

$C_5^3 = \frac{5!}{3! \cdot (5-3)!} = \frac{3! \cdot 4 \cdot 5}{3! \cdot 1 \cdot 2} = 10$ ta

4 ta elementdan iborat qism to'plamlari soni 5 ta, 5 ta elementdan iborat qism to'plamlari soni 1 ta. Bo'sh to'plam ham qism to'plam. Demak, 32 ta qism to'plam. Kesishmaydigan qism to'plamlar soni 16 ta.

Javob: 16 ta.

20. Qarang: 4-variant 20-savol (32-bet).

21. $\frac{(a-3)^2}{a}$ ifoda natural qiymatlar qabul qiladigan a ning barcha natural qiymatlarining yig'indisini toping.

Yechish:

$\frac{(a-3)^2}{a} = \frac{a^2-6a+9}{a} = a-6+\frac{9}{a}$ *ifoda natural son bo'lishi uchun* $\frac{9}{a}$ *natural son bo'lishi kerak.*

$a = 1, 3, 9$ *da* $\frac{9}{a}$ *ifoda natural son bo'ladi.*

$a = 1$ *da* $1-6+9 = 4 \in N$

$a = 3$ *da* $3-6+3 = 0 \notin N$

$a = 9$ *da* $9-6+1 = 4 \in N$

Demak, $a = 1$, $a = 9$ *da* $\frac{(a-3)^2}{a}$ *ifodaning qiymati natural son bo'ladi.*

$1 + 9 = 10$.

Javob: 10.

22. Tenglama ildizlari yig'indisini toping.

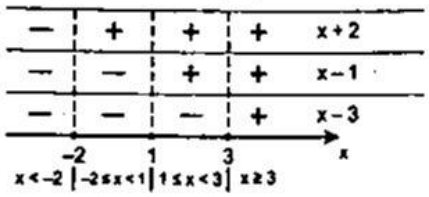
$|x+2| - |x-3| + |x-1| = 4$.

Yechish:

Modul ichidagi ifodalarning nollarini topamiz.

$x = -2$, $x = 3$, $x = 1$.

Ularni sonlar to'g'ri chizig'iga joylashtirib, ishoralarni aniqlaymiz.



1) $x < -2$ *da*

$-(x+2) + (x-3) - (x-1) = 4$

$-x-2+x-3-x+1 = 4$

$-x = 8$, $x = -8$.

$x < -2$ *bo'lganligi uchun* $x = -8$ *tenglama ildizi bo'ladi.*

2) $-2 \le x < 1$ *da*

$x + 2 + (x-3) - (x-1) = 4$

$x+2+x-3-x+1 = 4$

$x = 4$

$-2 \le x < 1$ *bo'lganligi uchun* $x = 4$ *oraliqqa tegishli emas, demak* $x = 4$ *yechim emas.*

3) $1 \le x < 3$ *da* $x + 2 + (x-3) + (x-1) = 4$

$x+2+x-3+x-1 = 4$

$3x = 6$

$x = 2$

$1 \le x < 3$ *bo'lganligi uchun* $x = 2$ *tenglama ildizi bo'ladi.*

4) $x \ge 3$ *da* $x + 2 - (x-3) + (x-1) = 4$

$x+2-x+3+x-1 = 4$

$x = 0$

$x \ge 3$ *bo'lganligi uchun* $x = 0$ *tenglama ildizi emas.*

$x = -8$ *va* $x = 2$ *tenglama ildizlari*

$-8 + 2 = -6$.

Javob: −6.

23. Soddalashtiring:

$(2\sqrt{6} - \sqrt{5} + 4\sqrt{2})(3\sqrt{5} + \sqrt{6} - 2\sqrt{2})$.

Yechish:

$(2\sqrt{6} - \sqrt{5} + 4\sqrt{2}) \cdot (3\sqrt{5} + \sqrt{6} - 2\sqrt{2}) =$

$= 6\sqrt{30} - 15 + 12\sqrt{10} + 12 - \sqrt{30} + 4\sqrt{12} -$

$- 4\sqrt{12} + 2\sqrt{10} - 16 = 5\sqrt{30} + 14\sqrt{10} - 19$.

Javob: $5\sqrt{30} + 14\sqrt{10} - 19$.

24. Qandaydir a, b uchun $\cos 4x = a\cos^4 x - 8\cos^2 x + b$ ayniyat bajarilsa, b ni toping.

Yechish:

$\cos 4x = a\cos^4 x - 8\cos^2 x + b$ *ayniyat.*

1) $\cos 4x = \cos^2 2x - \sin^2 2x = 2\cos^2 2x - 1$

2) $2\cos^2 2x - 1 = 2(\cos^2 x - \sin^2 x)^2 - 1 =$

$= 2(2\cos^2 x - 1)^2 - 1 =$

$= 2(4\cos^4 x - 4\cos^2 x + 1) - 1 =$

$= 8\cos^4 x - 8\cos^2 x + 2 - 1 =$

$= 8\cos^4 x - 8\cos^2 x + 1$

3) $8\cos^4 x - 8\cos^2 x + 1 = a \cdot \cos^4 x - 8\cos^2 x + b$

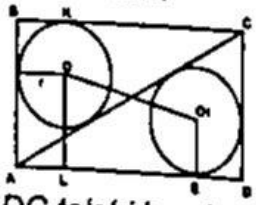
Bundan $a = 8$, $b = 1$.

Javob: 1.

25. ABCD to'g'ri to'rtburchak AC diagonali orqali ikkita ABC va ACD uchburchaklarga ajratilgan. Agar AB = 12, AD = 16 bo'lsa, ABC va ACD uchburchaklarga ichki chizilgan aynanalar markazlari orasidagi masofani toping.

Berilgan:
$AB = 12$
$AD = 16$
$OO_1 = ?$

Yechish:



1) ΔABC va ΔADC to'g'ri burchakli.

$$r = \frac{AB + BC - AC}{2},\ AC = 20$$

$$r = \frac{12 + 16 - 20}{2} = 4$$

$OK = O_1E = 4$

2) $OLEO_1$ to'g'ri burchakli trapetsiya.

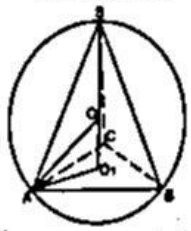
$LE = AD - 2r = 16 - 2 \cdot 4 = 8$
$OL = AB - r = 12 - 4 = 8$
$NO = LO - r = 8 - 4 = 4$
3) ΔO_1NO to'g'ri burchakli
$O_1O^2 = O_1N^2 + NO^2 = 8^2 + 4^2 = 80$
$O_1O = \sqrt{80} = 4\sqrt{5}$.

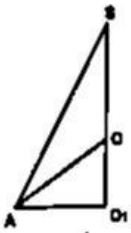
Javob: $4\sqrt{5}$.

26. Asosining tomoni $4\sqrt{3}$ ga va balandligi 4 ga teng bo'lgan uchburchakli muntazam piramidaga tashqi chizilgan sharning radiusini toping.

Berilgan:
$SABC$
$AB = 4\sqrt{3}$
$SO = 4$
$R = ?$

Yechish:





1) ΔSO_1A – to'g'ri burchakli
$AO = SO = R$
ΔOO_1A – to'g'ri burchakli
AO_1 muntazam uchburchakka tashqi chizilgan aylana radiusi.
$AB = a = 4\sqrt{3}$, $AO_1 = r$

$$r = \frac{a}{\sqrt{3}} = \frac{4\sqrt{3}}{\sqrt{3}} = 4$$

$AO^2 = OO_1^2 + AO_1^2$
$OO_1 = H - R = 4 - R$
$R^2 = (4 - R)^2 + 4^2$
$R^2 - (4 - R)^2 = 16$
$(2R - 4) \cdot 4 = 16$,
$R - 2 = 2$, $R = 4$.

Javob: 4.

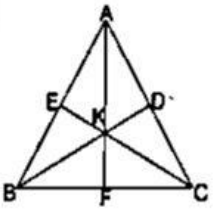
27. 6, 8, 10, ... va 1, 2, 4, ... progressiyalar 61 ta haddan iborat. Bu progressiyalarning nechta umumiy hadlari bor?

Yechish:
6, 8, 10 ... arifmetik progressiya 1, 2, 4 ... geometrik progressiya.
1) $a_1 = 6$, $a_2 = 8$, $a_3 = 10$
$d = 2$
$a_n = 6 + 2(n - 1)$, $n = 61$,
$a_{61} = 6 + 2(61 - 1) = 126$
2) $b_1 = 1$, $b_2 = 2$, $b_3 = 4$, $q = 2$
$b_k = 1 \cdot 2^{k-1}$, $k = 61$, $b_{61} = 2^{60}$
3) $a_n = 6 + 2(n - 1) = 2^{k-1}$, $2^{k-1} < 126$
Progressiyalarning umumiy hadlari (6; 126) oraliqda va 2 ning darajalaridan iborat bo'ladi, bular 8, 12, 32, 64. Demak umumiy hadlari 4 ta.

Javob: 4.

28. Uchburchakning asosi 23 sm, yon tomonlari medianalari 15 sm va $22\frac{1}{2}$ sm. Uchinchi tomon medianasini toping.

Yechish:



$a = 23$, $m_b = 15$,
$m_c = 22\frac{1}{2}$
$a = BC$, $BD = m_b$,
$CE = m_c$, $AF = m_a$

1) $BK = \frac{2}{3} m_b = \frac{2}{3} \cdot 15 = 10$

$CK = \frac{2}{3} m_c = \frac{45}{2} \cdot \frac{2}{3} = 15$

2) ΔBCK dan KF mediana uzunligini topamiz.

$$KF = \frac{1}{2}\sqrt{2 \cdot BK^2 + 2 \cdot CK^2 - a^2} =$$

$= \frac{1}{2}\sqrt{2(15^2+10^2)-23^2} = \frac{1}{2}\sqrt{121} = \frac{11}{2}$

$m_a = 3 \cdot KF = 3 \cdot \frac{11}{2} = \frac{33}{2} = 16{,}5.$

Javob: 16,5.

29. Geometrik progressiyaning $x_1; x_2; x_3$ hadlari yig'indisi 93 bo'lib, $x_1 - 48; x_2; x_3$ lar arifmetik progressiya tashkil qiladi. x_3 ning qiymatini toping.

Yechish:

$x_1; x_2; x_3$. $x_1 + x_2 + x_3 = 93$ geometrik progressiya. $x_1 - 48; x_2, x_3$ – arifmetik progressiya

1) arifmetik progressiya xossasidan

$x_2 = \frac{x_1 - 48 + x_3}{2},$

$2x_2 + 48 = x_1 + x_3$

2) $x_1 + x_2 + x_3 = 93,\ 2x_2 + 48 + x_2 = 93$

$3x_2 = 45,\ x_2 = 15$

$x_1 + x_2 + x_3 = 93,\ x_1 + x_2 = 78$

3) geometrik progressiya xossasidan

$x_2^2 = x_1 \cdot x_3,\ x_1 \cdot x_3 = 15^2$

$\begin{cases} x_1 \cdot x_3 = 225 \\ x_1 + x_3 = 78 \end{cases} \Rightarrow \begin{cases} x_1 = 3, x_3 = 75 \\ x_1 = 75, x_3 = 3 \end{cases}$

Javob: 3 va 75.

30. Tenglamani yeching.

$(x^2 + 4x)^2 + x^2 + 4x - 30 = 0$

Yechish:

$(x^2 + 4x)^2 + x^2 + 4x - 30 = 0$

$x^2 + 4x = a$ *belgilash kiritamiz.*

$a^2 + a - 30 = 0,\ a = -6,\ a = 5$

$x^2 + 4x = -6,\ x^2 + 4x + 6 = 0\ \varnothing$

$x^2 + 4x = 5,\ x^2 + 4x - 5 = 0,\ x = -5,\ x = 1.$

Javob: 1; –5.

31. Qarang: 1-variant 36-savol (11-bet).

32. To'g'ri tenglikni ko'rsating:

Yechish:

To'g'ri tenglikni ko'rsating:

A) 1024 bayt = 1 Kbayt

B) 1000 bit ≈ 0,98 Kbit

C) 1024 bit = 1 Kbit

D) 1 bayt = 8 bit

Javob: 1 Kbit = 1024 bit.

33. Brauzer so'zining ma'nosi:

Yechish:

Brauzer – tarmoqdagi axborotlarni ko'rish yoki izlashni ta'minlovchi amaliy dastur. Shundan Brauzer ma'nosi ko'rinishni ta'minlash va ko'rsatish.

Javob: ko'rinishni ta'minlash, ko'rsatish.

34. Quyidagi HTML-hujjat kodi yozilishi bo'yicha kataklar ketma-ket sanalganda nechanchi katakda og'ma shift qo'llanilgan?

```
<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:

<i> – og'ma shift;

<td> va </td> – bu teglar juftligi jadvalning har bir yacheykasi uchun matn ajratadi;

1-katak: <tr> <td colspan=2> <u>   test </u> </td>
2-katak: <td rowspan=2>   test </td> </tr>
3-katak: <tr> <td>   test </td>
4-katak: <td> _{<dl> <dd> test </dl>} </td> </tr>

Javob: uchinchi katakda.

35. MS Excel 2003 dasturida to'g'ri yozilgan formulani ko'rsating:

Yechish:

*=A1+4*B5*

Excel dasturida formula yozish uchun quyidagilar inobatga olinadi.
1) Formula albatta tenglik (=) belgisidan boshlanadi.
2) Formula yozganda arifmetikaning to'rt amallar quyidagicha yoziladi.
+ yig'indi
– ayirma
** ko'paytma*
/ bo'linma
3) Yacheyka nomida avval ustun nomi keyin satr raqami ko'rsatiladi. Masalan B5.

Javob: =A1+4*B5.

36. A="Kompyuter qurilmalarini boshqaruvchi dasturlar drayverlar deb ataladi."
B="Fayllar nomida <, >, ? belgilarni ishlatish mumkin emas".
C="Total Commander dasturi qobiq dasturdir".
Shu mulohazalar asosida quyidagi mantiqiy ifodaning natijasini toping:
$A \wedge \neg(C \vee \neg B)$

Yechish:

Mulohazalarni tahlil qilamiz:
A="Kompyuter qurilmalarini boshqaruvchi dasturlar drayverlar deb ataladi." – rost (1)
B="Fayllar nomida <, >, ? belgilarni ishlatish mumkin emas." – rost (1)
C="Total Commander dasturi qobiq dasturdir". – rost (1)
Shu mulohazalar asosida quyidagi mantiqiy ifodaning natijasini topamiz:
$A \wedge \neg(C \vee \neg B) = 1 \wedge \neg(1 \vee \neg 1) = 1 \wedge \neg 1 = 1 \wedge 0 = 0$

Javob: yolg'on.