№	Test topshirig'i	Muqobil Javob	Muqobil Javob	Muqobil Javob	Muqobil Javob
1.	$A=\begin{pmatrix}1 & 2 & 3\\ 0 & 1 & -1\end{pmatrix}$ va $B=\begin{pmatrix}-2 & 3 & 0\\ 2 & 1 & 1\end{pmatrix}$ matritsalar berilgan $C=2A+3B$ matritsani toping.	$\begin{pmatrix}-4 & 13 & 6\\ 6 & 5 & 1\end{pmatrix}$	$\begin{pmatrix}4 & 13 & 6\\ 6 & -6 & 1\end{pmatrix}$	$\begin{pmatrix}-4 & 13 & 6\\ 6 & -5 & 1\end{pmatrix}$	$\begin{pmatrix}4 & 13 & 6\\ 6 & 5 & 1\end{pmatrix}$
2.	Quyidagilarning qaysi biri simmetrik matritsa emas?	$\begin{pmatrix}1 & 0 & 3\\ 4 & 0 & 4\\ 3 & 0 & 3\end{pmatrix}$	$\begin{pmatrix}13 & 5\\ 5 & -16\end{pmatrix}$	$\begin{pmatrix}1 & 0 & 0\\ 0 & 2 & 0\\ 0 & 0 & 3\end{pmatrix}$	$\begin{pmatrix}2 & 0 & 0\\ 0 & 2 & 0\\ 0 & 0 & 2\end{pmatrix}$
3.	Agar $A=\begin{pmatrix}1 & -2\end{pmatrix}$, $B=\begin{pmatrix}3\\ 4\end{pmatrix}$ bo'lsa, BA ko'paytmani toping.	$\begin{pmatrix}3 & -6\\ 4 & -8\end{pmatrix}$	$\begin{pmatrix}-5\end{pmatrix}$	BA ko'paytma mavjud emas	$\begin{pmatrix}3 & 4\\ -6 & -8\end{pmatrix}$
4.	$B=\begin{pmatrix}3 & 1\\ 6 & 2\\ 1 & -4\end{pmatrix}\begin{pmatrix}1 & 0 & 3 & 1\\ 2 & 1 & 6 & 2\end{pmatrix}$, B matritsaning uchinchi ustun elementlari yig'indisini toping.	24	–39	10	15
5.	$A=\begin{pmatrix}0 & 2\\ -3 & 1\end{pmatrix}$ matritsani transponirlang.	$A^T=\begin{pmatrix}0 & -3\\ 2 & 1\end{pmatrix}$	$A^T=\begin{pmatrix}0 & 1\\ 2 & -3\end{pmatrix}$	$A^T=\begin{pmatrix}1 & -3\\ 0 & 1\end{pmatrix}$	$A^T=\begin{pmatrix}-3 & 0\\ 2 & 1\end{pmatrix}$
6.	$B=\begin{pmatrix}3 & 1\\ 6 & 2\\ 1 & -4\end{pmatrix}\begin{pmatrix}1 & 0 & 3 & 1\\ 2 & 1 & 6 & 2\end{pmatrix}$, B matritsaning ustunlari soni nechta?	4	3	2	1
7.	Agar $E=\begin{pmatrix}1 & -2\\ 3 & 12\\ 5 & 9\end{pmatrix}$ va $L=\begin{pmatrix}0 & 3\\ 6 & 7\\ -8 & 2\end{pmatrix}$ bo'lsa $E+L$ ni hisoblang:	$\begin{pmatrix}1 & 1\\ 9 & 19\\ -3 & 11\end{pmatrix}$;	$\begin{pmatrix}1 & 1\\ 9 & 19\\ 3 & 11\end{pmatrix}$;	$\begin{pmatrix}1 & 1\\ 9 & 19\\ -3 & -11\end{pmatrix}$;	$\begin{pmatrix}1 & 1\\ 9 & 19\\ 3 & -11\end{pmatrix}$

8.	Agar $L=\begin{pmatrix} a_1 & a_2 & a_3 \\ a_4 & a_5 & a_6 \end{pmatrix}$ bo‘lsa, $k\cdot L$ ni hisoblang	$\begin{pmatrix} ka_1 & ka_2 & ka_3 \\ ka_4 & ka_5 & ka_6 \end{pmatrix}$	$\begin{pmatrix} ka_1 & ka_2 & ka_3 \\ a_4 & a_5 & a_6 \end{pmatrix}$	$\begin{pmatrix} ka_1 & a_2 & a_3 \\ ka_4 & a_5 & a_6 \end{pmatrix}$	$\begin{pmatrix} a_1 & ka_2 & a_3 \\ a_4 & ka_5 & a_6 \end{pmatrix}$
9.	Agar $L=\begin{pmatrix} 1 & 0 & 0 \\ -2 & 1 & 3 \end{pmatrix}$ va $M=\begin{pmatrix} 4 & 5 \\ 0 & 1 \\ -3 & 0 \end{pmatrix}$ bo‘lsa, $L\cdot M$ ni toping:	$\begin{pmatrix} 4 & 5 \\ -17 & -9 \end{pmatrix}$	$\begin{pmatrix} 4 & 5 \\ 17 & -9 \end{pmatrix}$;	$\begin{pmatrix} 4 & 5 \\ -17 & 9 \end{pmatrix}$;	$\begin{pmatrix} 4 & 5 \\ 17 & 9 \end{pmatrix}$;
10.	Agar $L=\begin{pmatrix} -1 & 2 \\ 8 & 9 \end{pmatrix}$ va $M=\begin{pmatrix} 4 & 0 \\ -1 & 3 \end{pmatrix}$ bo‘lsa, $L\cdot M$ ni toping	$\begin{pmatrix} -6 & 6 \\ 23 & 27 \end{pmatrix}$	$\begin{pmatrix} 6 & 6 \\ 23 & 27 \end{pmatrix}$	$\begin{pmatrix} -6 & -6 \\ 23 & 27 \end{pmatrix}$	$\begin{pmatrix} -6 & 6 \\ -23 & 27 \end{pmatrix}$.
11.	Noto’g’ri tenglikni aniqlang.	$(AB)^T=A^TB^T$	$(AB)^T=B^TA^T$	$(A+B)^T=A^T+B^T$	$(kA)^T=kA^T$
12.	Microsoft Excelda matritsalarni ko’paytirish uchun qaysi buyruqdan foydalaniladi.	МУМНОЖ	ПРОИЗВЕД	УМНОЖ	МОПРЕД
13.	Agar $M=\begin{pmatrix} 4 & 0 \\ -1 & 3 \end{pmatrix}$ va $f(x)=x+x^2$ bo‘lsa, $f(M)$ ni toping	$\begin{pmatrix} 20 & 0 \\ -8 & 12 \end{pmatrix}$	$\begin{pmatrix} 16 & 0 \\ -8 & 9 \end{pmatrix}$	$\begin{pmatrix} 20 & 5 \\ -10 & 12 \end{pmatrix}$	$\begin{pmatrix} 20 & 0 \\ 0 & 9 \end{pmatrix}$
14.	Quyidagi matritsalarningqaysi biri pog‘onasimon matritsa?	$\begin{pmatrix} 1 & 2 & 4 & 7 \\ 0 & -1 & -1 & -3 \\ 0 & 0 & 0 & 0 \end{pmatrix}$	$\begin{pmatrix} 0 & -1 & -1 & -3 \\ 1 & 2 & 4 & 7 \\ 5 & 0 & 10 & 5 \end{pmatrix}$	$\begin{pmatrix} 1 & 2 & 4 & 7 \\ 0 & -1 & -1 & -3 \\ 0 & 4 & 1 & 5 \end{pmatrix}$	$\begin{pmatrix} 1 & 0 & 0 & 0 \\ 0 & -1 & -1 & -3 \\ 1 & 4 & 1 & 5 \end{pmatrix}$
15.	$C=BA$ matritsa o’lchamini aniqlang. $B=\begin{pmatrix} 3 \\ 1 \\ -1 \\ 5 \\ 2 \end{pmatrix}$, $A=\begin{pmatrix} 4 & 0 & -2 & 3 & 1 \end{pmatrix}$	5x5	1x1	Ko’paytma mavjud emas	1x5

16.	M_{21} ning algebraik to'ldiruvchisi nimaga teng?	$A_{21}=-M_{21}$	$A_{21}=M_{21}$	$A_{21}=M_{12}$	$A_{21}=-M_{12}$
17.	Microsoft Excelda determinantni hisoblash uchun qaysi matematik funksiyadan foydalaniladi?	МОПРЕД	МУМНОЖ	ОПРЕД	МОБР
18.	Determinantni qulay usulda hisoblang: $\begin{vmatrix} 15 & 30 & 60 \\ -2 & 0 & 2 \\ -0.5 & -0.5 & 0 \end{vmatrix}$.	15	1	30	0
19.	Determinantni hisoblang: $\begin{vmatrix} \sin\alpha & \cos\beta \\ \cos\alpha & \sin\beta \end{vmatrix}$.	$-\cos(\alpha+\beta)$	$-\sin(\alpha+\beta)$	$\sin(\alpha-\beta)$	$-\cos(\alpha-\beta)$
20.	Tenglamaning eng kichik musbat ildizini toping. $\begin{vmatrix} \sin 2x & \cos 2x \\ \cos x & \sin x \end{vmatrix}=0.$	$\frac{\pi}{6}$	$\frac{\pi}{12}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$
21.	Uchinchi tartibli determinantni qulay usulda hisoblang: $\begin{vmatrix} 1 & 1 & 1 \\ -1 & 0 & 1 \\ -1 & -1 & 0 \end{vmatrix}$.	1	–1	0	2
22.	$\begin{vmatrix} 3 & 0 & 2 \\ -5 & 3 & -1 \\ 6 & 0 & 3 \end{vmatrix}$ determinant berilgan. A_{22} ni toping?	–3	27	0	9
23.	Tenglamani yeching: $\begin{vmatrix} 2x+1 & 3 \\ x+5 & 2 \end{vmatrix}=0.$	13	17	11	10

24.	Tengsizlikni yeching: $\begin{vmatrix} -1 & 3 & -2 \\ 2-3x & 0 & 5 \\ 3 & 2 & 1 \end{vmatrix} \geq 0$	$x \geq -\frac{41}{21}$	$x \geq -\frac{21}{41}$	$x < -\frac{41}{21}$	$x \leq -\frac{41}{21}$
25.	Berilgan determinantlarni taqqoslang: $\Delta_1 = \begin{vmatrix} 1 & 2 \\ -3 & 4 \end{vmatrix}, \Delta_2 = \begin{vmatrix} 6 & 1 \\ 1 & 1 \end{vmatrix}$	$\Delta_2 + 5 = \Delta_1$.	$\Delta_1 = \Delta_2$	$\Delta_1 \leq \Delta_2$	$\Delta_1 < \Delta_2$
26.	$\Delta = \begin{vmatrix} -4 & 3 & 12 \\ -5 & 6 & 0 \\ 2 & -1 & 0 \end{vmatrix}$ determinant qiymati nimaga teng	–84	144	-144	84
27.	Determinantni hisoblang $\begin{vmatrix} 12 & 23 & 34 & 45 \\ 0 & 21 & 32 & 43 \\ 7 & 7 & 7 & 7 \\ 29 & 29 & 29 & 29 \end{vmatrix}$.	0	1	-1	-7
28.	To’g’ri tasdiqni aniqlang.	Agar determinantning biror satri (yoki ustuni) elementlariga boshqa satr (ustun)ning mos elementlarini biror songa ko‘paytirib qo‘shilsa, determinantning qiymati o‘zgarmaydi.	Agar determinantning biror satri (yoki ustuni) elementlari biror songa ko‘paytirilsa, determinantning qiymati o‘zgarmaydi.	Determinantning qiymati nol bo’lishi uchun uning biror satri (yoki ustuni) nollardan iborat bo’lishi shart.	Agar determinantning biror satri (yoki ustuni) elementlari biror noldan farqli songa ko‘paytirilsa, determinantning qiymati o‘zgarmaydi.
29.	$n-$tartibli determinant uchun quyidagi tengliklarning qaysi biri o‘rinli:	$\det(kA) = k^n \cdot \det(A)$	$\det(kA) = k \det(A)$	$\det(kA) = kn \det(A)$	$\det(kA) = n \det(A)$

30.	n – tartibli determinantni hisoblashning Laplas qoidasini ko'rsating	$\begin{vmatrix} a_{11} & a_{12} & \dots & a_{1n} \\ \dots & \dots & \dots & \dots \\ a_{i1} & a_{i2} & \dots & a_{in} \\ \dots & \dots & \dots & \dots \\ a_{n1} & a_{n2} & \dots & a_{nn} \end{vmatrix} = \sum_{j=1}^{n} (-1)^{i+j} a_{ij} M_{ij}$	$\begin{vmatrix} a_{11} & a_{12} & \dots & a_{1n} \\ \dots & \dots & \dots & \dots \\ a_{i1} & a_{i2} & \dots & a_{in} \\ \dots & \dots & \dots & \dots \\ a_{n1} & a_{n2} & \dots & a_{nn} \end{vmatrix} = \sum_{j=1}^{n} (-1)^{i+j} a_{ij} A_{ij}$	$\begin{vmatrix} a_{11} & a_{12} & \dots & a_{1n} \\ \dots & \dots & \dots & \dots \\ a_{i1} & a_{i2} & \dots & a_{in} \\ \dots & \dots & \dots & \dots \\ a_{n1} & a_{n2} & \dots & a_{nn} \end{vmatrix} = \sum_{j=1}^{n} (-1)^{i+j} M_{ij}$	$\begin{vmatrix} a_{11} & a_{12} & \dots & a_{1n} \\ \dots & \dots & \dots & \dots \\ a_{i1} & a_{i2} & \dots & a_{in} \\ \dots & \dots & \dots & \dots \\ a_{n1} & a_{n2} & \dots & a_{nn} \end{vmatrix} = \sum_{j=1}^{n} (-1)^{i+j} A_{ij}$
31.	Matritsa rangini toping: $A = \begin{pmatrix} 2 & -1 & 5 & 6 \\ 1 & 1 & 3 & 5 \\ 1 & -5 & 1 & -3 \end{pmatrix}$.	$r(A) = 3$	$r(A) = 2$	$r(A) = 1$	$r(A) = 4$
32.	Matritsa rangini toping: $A = \begin{pmatrix} 1 & 3 & 3 & 4 \\ 0 & 0 & 1 & 2 \\ 2 & 6 & 1 & -2 \end{pmatrix}$.	$r(A) = 2$	$r(A) = 1$	$r(A) = 4$	$r(A) = 3$
33.	a parametrning qanday qiymatida $A = \begin{pmatrix} 1 & 0 & 2 \\ 3 & -1 & 0 \\ 4 & -1 & a \end{pmatrix}$ matritsaning rangi 3 ga teng bo'ladi.	$a \neq 2$	$a = 0$	$a = 2$	$a \neq -2$
34.	$A = \begin{pmatrix} 5 & 8 \\ 3 & 5 \end{pmatrix}$ matritsaga teskari matritsani toping.	$\begin{pmatrix} 5 & -8 \\ -3 & 5 \end{pmatrix}$	A^{-1} mavjud emas	$\begin{pmatrix} 5 & 3 \\ 8 & 5 \end{pmatrix}$	$\frac{1}{49}\begin{pmatrix} 5 & -8 \\ -3 & 5 \end{pmatrix}$
35.	A^{-1} teskari matritsani toping: $A = \begin{pmatrix} \cos\phi & \sin\phi \\ -\sin\phi & \cos\phi \end{pmatrix}$.	$\begin{pmatrix} \cos\phi & -\sin\phi \\ \sin\phi & \cos\phi \end{pmatrix}$	$\frac{1}{cos2\phi}\begin{pmatrix} \cos\phi & -\sin\phi \\ \sin\phi & \cos\phi \end{pmatrix}$	A^{-1} mavjud emas.	$\begin{pmatrix} \cos\phi & \sin\phi \\ -\sin\phi & \cos\phi \end{pmatrix}$.

36.	Teskari matrisani toping: $A=\begin{pmatrix}3 & -1 & 2\\ 4 & -3 & 3\\ 1 & 3 & 0\end{pmatrix}$.	A^{-1} mavjud emas	$\begin{pmatrix}9 & 3 & 15\\ 6 & -2 & 10\\ 3 & 2 & -5\end{pmatrix}$	$\begin{pmatrix}9 & -3 & 15\\ -6 & -2 & -10\\ 3 & -2 & -5\end{pmatrix}$	$\begin{pmatrix}9 & -3 & 15\\ -6 & 2 & -10\\ 3 & -2 & 5\end{pmatrix}$
37.	Matritsali tenglamani yeching: $\begin{pmatrix}-1 & 2\\ 2 & -3\end{pmatrix}\cdot X=\begin{pmatrix}-2 & 3\\ 1 & -4\end{pmatrix}$	$X=\begin{pmatrix}-4 & 1\\ -3 & 2\end{pmatrix}$	X mavjud emas	$X=\begin{pmatrix}2 & -\frac{3}{2}\\ -\frac{1}{2} & \frac{4}{3}\end{pmatrix}$	$X=\begin{pmatrix}8 & 1\\ 9 & 2\end{pmatrix}$
38.	Matritsali tenglamani yeching: $X\cdot\begin{pmatrix}-1 & 1\\ 0 & 1\end{pmatrix}=\begin{pmatrix}2 & 0\\ -1 & 3\end{pmatrix}$.	$X=\begin{pmatrix}-2 & 2\\ 1 & 2\end{pmatrix}$	$X=\begin{pmatrix}-2 & 0\\ 0 & 3\end{pmatrix}$	$X=\begin{pmatrix}-2 & 1\\ 2 & 2\end{pmatrix}$	X mavjud emas.
39.	Aynigan matritsani aniqlang	$\begin{pmatrix}1 & 2 & 3\\ 4 & 5 & 6\\ 7 & 8 & 9\end{pmatrix}$	$\begin{pmatrix}1 & -2 & 3\\ 0 & 4 & -1\\ 5 & 0 & 0\end{pmatrix}$	$\begin{pmatrix}1 & 0 & 0\\ 0 & 1 & 0\\ 0 & 0 & 1\end{pmatrix}$	$\begin{pmatrix}-2 & 1\\ 2 & 2\end{pmatrix}$
40.	Aynimagan matritsani aniqlang	$\begin{pmatrix}1 & 0 & 0\\ 0 & 1 & 0\\ 0 & 0 & 1\end{pmatrix}$	$\begin{pmatrix}1 & 2 & 3\\ 4 & 5 & 6\\ 7 & 8 & 9\end{pmatrix}$	$\begin{pmatrix}10 & 11 & 12\\ 4 & 5 & 6\\ 7 & 8 & 9\end{pmatrix}$	$\begin{pmatrix}2 & 3 & 4\\ -4 & -5 & -6\\ 7 & 8 & 9\end{pmatrix}$
41.	Microsoft Excelda matritsa teskarisini hisoblash uchun qaysi matematik funksiyadan foydalaniladi?	МОБР	МУМНОЖ	ОПРЕД	МОПРЕД
42.	$\begin{pmatrix}25 & 31 & 17 & 43\\ 75 & 94 & 53 & 132\\ 75 & 94 & 54 & 134\\ 25 & 32 & 20 & 48\end{pmatrix}$ matritsa teskarisini toping	Mavjud emas	$\frac{1}{214}\begin{pmatrix}2 & 1 & 7 & 3\\ 5 & 9 & 3 & 12\\ 5 & 4 & 4 & 14\\ 2 & 2 & 0 & 8\end{pmatrix}$	$\frac{1}{214}\begin{pmatrix}1 & 2 & 1 & 3\\ 4 & -1 & -5 & -6\\ 1 & -3 & -4 & -7\\ 2 & 1 & -1 & 0\end{pmatrix}$	$\frac{1}{214}\begin{pmatrix}1 & 2 & 1 & 0\\ 1 & 1 & 3 & 1\\ 1 & 2 & 1 & 1\\ 1 & 1 & 3 & 0\end{pmatrix}$

43.	$\begin{pmatrix} 1 & 7 & 5 & 8 & 9 & 2 \\ 3 & 21 & 15 & 24 & 27 & 6 \\ 2 & 14 & 10 & 16 & 18 & 4 \end{pmatrix}$ matritsa teskarisini toping	Teskarisi mavjud emas	$\frac{1}{25}\begin{pmatrix} 0 & -2 & 1 & 3 \\ 4 & -1 & -5 & -6 \\ 1 & -3 & -4 & -7 \\ 2 & 1 & -1 & 0 \end{pmatrix}$	$\frac{1}{25}\begin{pmatrix} 0 & 2 & 1 & 3 & 4 \\ 3 & -4 & 2 & 6 & -8 \\ 1 & 2 & 1 & 8 & 4 \end{pmatrix}$	$\frac{1}{25}\begin{pmatrix} 0 & 2 & -4 \\ -1 & -4 & 5 \\ 3 & 1 & 7 \\ 0 & 5 & -12 \\ 5 & 3 & 0 \end{pmatrix}$
44.	$\begin{pmatrix} tg\alpha & 1 \\ 2 & ctg\alpha \end{pmatrix}$ matritsaning teskarisi mavjudmi? Agar mavjud bo'lsa toping	$\begin{pmatrix} -ctg\alpha & 1 \\ 2 & -tg\alpha \end{pmatrix}$	$\begin{pmatrix} -tg\alpha & 2 \\ 1 & -ctg\alpha \end{pmatrix}$	$\begin{pmatrix} -ctg\alpha & 2 \\ 1 & -tg\alpha \end{pmatrix}$	Mavjud emas
45.	$\begin{pmatrix} 1 & 7 & 5 & 8 & 9 & 2 \\ 3 & 21 & 15 & 24 & 27 & 6 \\ 2 & 14 & 10 & 16 & 18 & 4 \end{pmatrix}$ matritsa rangini toping	2	1	3	0
46.	$\overline{b} = (7;3;\alpha)$ ва $\overline{c} = (3;\alpha;-6)$ vektorlar ortogonal vektorlar. α ni toping.	7	-1	5	9
47.	m ning qanday qiymatlarida $\vec{a} = m\vec{i} - 3\vec{j} + 2\vec{k}$ va $\vec{b} = \vec{i} + 2\vec{j} - m\vec{k}$ vektorlar perpendikulyar.	$m = -6$	$m = 6$	$m \in R$	$m = 3$
48.	$\vec{a} = -2\vec{j} + \vec{k}$, $\vec{b} = 2\vec{i} + \vec{j}$ vektorlarga qurilgan parallelogramm diagonallari orasidagi burchakni toping.	90^0	60^0	45^0	30^0
49.	$\vec{a} = 2\vec{i} + 3\vec{j} - 6\vec{k}$ vektor uzunligi va uning yo'naltiruvchi kosinuslarini toping.	$\left\|\vec{a}\right\| = 7;\ \cos\alpha = \frac{2}{7},$ $\cos\beta = \frac{3}{7},$ $\cos\gamma = -\frac{6}{7}$	$\left\|\vec{a}\right\| = 7;\ \cos\alpha = -\frac{2}{7},$ $\cos\beta = \frac{6}{7},$ $\cos\gamma = -\frac{3}{7}$	$\left\|\vec{a}\right\| = 7;\ \cos\alpha = \frac{6}{7},$ $\cos\beta = \frac{3}{7},\ \cos\gamma = -\frac{2}{7}$	$\left\|\vec{a}\right\| = 7;\ \cos\alpha = \frac{2}{7},$ $\cos\beta = \frac{3}{7},\ \cos\gamma = \frac{6}{7}$

50.	Qanday vektorlar kolleniar deyiladi?	parallel vektorlar	perpendikulyar vektorlar	bir xil yo‘nalishli vektorlar	uzunliklari bir xil bo‘lgan vektorlar.
51.	$\vec{a}=(2;1;0)$ va $\vec{b}=(1;-2;-1)$ vektorlarning skalyar ko‘paytmasini hisoblang.	0	1	–1	2
52.	$\overline{a}=(1;6)$ vektorning $\overline{b}=(3;-4)$, $\overline{c}=(-5;3)$ bazisdagi koordinatlarini toping.	$(-3;-2)$	$(3;2)$	$(-2;3)$	$(2;-3)$
53.	$a_1(1;1;1)$, $a_2(0;1;1)$, $a_3(0;0;1)$ vektorlar sistemasi ustida ortogonal sistema quring.	$b_1=(1;1;1)$ $b_2=\left(-\frac{2}{3};\frac{1}{3};\frac{1}{3}\right)$ $b_3=\left(0;-\frac{1}{2};\frac{1}{2}\right)$	$b_1=(1;1;1)$ $b_2=(-2;1;1)$ $b_3=\left(1;-\frac{1}{2};\frac{1}{2}\right)$	$b_1=(1;1;1)$ $b_2=\left(-2;\frac{1}{3};\frac{1}{3}\right)$ $b_3=(0;-1;1)$	$b_1=(1;1;1)$ $b_2=(-2;1;1)$ $b_3=(2;-1;1)$
54.	Quyidagi vektorlar sistemasining bazislarini toping: $a_1=(1;2;0;0)$; $a_2=(1;2;3;4)$; $a_3=(3;6;0;0)$;	$a_1;a_2$	$a_1;a_3$	$a_1;a_2;a_3$	$a_1;a_3;a_2$
55.	$a_1(x;1;1;1), a_2(1;1;1;0), a_3(1;0;1;1)$ vektorlar x ning nechta haqiqiy qiymatida o’zaro komplanar vektorlar bo’ladi?	Cheksiz ko’p	1 ta	2 ta	0 ta
56.	Quyida berilgan vektorlar sistemasining rangini aniqlang: $a_1(1;-1;\ 2;\ 3), a_2(-2;-3;\ 0;\ 1)$, $a_3(-2;-9;4;6), a_4(-1;\ 2;-2;-1)$.	3	4	2	1
57.	Quyida berilgan vektorlar sistemasining bazislaridan birini quring va ranglarini aniqlang: $a_1=(1;-2;-5)$,	$a_1;a_2;a_3$. $r=3$	$a_1;a_2$. $r=2$	$a_2;a_3$. $r=2$	$a_1;a_3$. $r=2$

	$a_2 = (3;4;-1),\ a_3 = (2;-3;0)$				
58.	n o’lchovli fazoda n ta vektor bazis tashkil qilishi uchun qanaqa shart bajarilishi kerak?	Berilgan vektorlardan tuzilgan matritsa determinanti noldan farqli bo’lishi kerak	Berilgan vektorlardan tuzilgan matritsa determinanti nolgateng bo’lishi kerak	Berilgan vektorlar komplanar bo’lishi kerak	Berilgan vektorlar kollinear bo’lishi kerak
59.	Ortogonal sistemani ortonormallash uchun nima qilish kerak?	Har bir vektorni birlikka keltirish kerak	Har bir vektorni o’zining uzunligiga ko’paytirish kerak	Shmild formulasidan foydalanish kerak	Har bir vektorni o’zining uzunligidan kvadrat ildiz chiqarish kerak
60.	Ortogonal vektorlar sistemasi deb qanday sistemaga aytiladi?	n o’lchovli vektorlardan tarkib topgan vektorlar sistemasi berilgan bo’lib, sistema vektorlarining har qanday ikkitasining skalyar ko’patmasi nolga teng bo’lsa	n o’lchovli vektorlardan tarkib topgan vektorlar sistemasi berilgan bo’lib, sistema vektorlarining har qanday ikki jufti o’zaro parallel bo’lsa	n o’lchovli vektorlardan tarkib topgan vektorlar sistemasi berilgan bo’lib, sistema vektorlarining har qanday ikkitasining skalyar ko’patmasi noldan farqli bo’lsa	Berilgan vektorlardan tuzilgan matritsa determinanti noldan farqli bo’lsa

“IQTISODCHILAR UCHUN MATEMATIKA” FANIDANTEST TOPSHIRIQLARI
(Chiziqliprogrammalashtirishbo‘limi)

№	Savol	Javob 1	Javob 2	Javob 3	Javob 4
1.	Chiziqliprogramma lashtirishbo‘limini manio‘rgatadi?	Chiziqlifunksiyaninguningtarkibigakiruvchinoma’lum largachegaralovchishartlarqo‘yilgandaengkattavaengk ichikqiymatiniizlashvatopishusulini.	Chiziqli tenglama yoki tengsizliklar bilan chegaralangan sohaning yuzasini topish usulini.	Murakkab funksiyaning hosilasini topish usulini.	Maqsadfunksiyaningen gkattavaengkichikqiym atinitopishusulini.
2.	Ishlab chiqarishni tashkil qilish va rejalashtirish masalasida maqsad funksiya qanday ma’noga ega?	Ishlab chiqarilgan mahsulotlarni sotishdan olinadigan daromadni maksimallashtirish.	Ishlab chiqariladigan mahsulotlarning miqdorini maksimallashtirish.	Ishlab chiqariladigan mahsulotlarning miqdorini chegaralash.	Ishlab chiqariladigan mahsulotlarni sifatinioshirish.
3.	Iqtisodiy jarayonning matematik modelini tuzish ketma-ketligini aniqlang.	Masalaning iqtisodiy ma’nosi bilan tanishib, undagi asosiy shartlar va maqsadni aniqlash, masaladagima’lum va noma’lum parametrlarni belgilash, masaladagi cheklamalarni chiziqli tenglamalar yoki tengsizliklar orqali ifodalash, masalaning maqsadini chiziqli funksiya orqali ifodalash.	Masaladagi cheklamalarni chiziqli tenglamalar yoki tengsizliklar orqali ifodalash, masalaning iqtisodiy ma’nosi bilan tanishish, masalaning maqsadini funksiya orqali ifodalash, masaladagi ma’lum parametrlarni belgilash, masalaning noma’lumlarini aniqlash.	Masalaning maqsadini funksiya orqali ifodalash, masalaning iqtisodiy ma’nosi bilan tanishish, masaladagi ma’lum parametrlarni belgilash, masalaning noma’lumlarini aniqlash, masaladagi cheklamalarni tenglama yoki tengsizliklar orqali ifodalash.	Masalaning iqtisodiy ma’nosi asosida chiziqli tenglamalar yoki tengsizliklar sistemasini tuzish, masalaning maqsadini funksiya orqali ifodalash.
4.	Chiziqliprogramma lashtirishatamasinin gmuallifini toping.	T.Kupmans	L.V.Kantorovich	Dansing	JonvonNyuman
5.	Iste’mol savati masalasining iqtisodiy ma’nosi	Inson organizmi qabul qiladigan turli oziqa moddasining miqdori belgilangan minimal miqdordan kam bo‘lmasligini; iste’mol savatining umumiy	Iste’mol savatiga qaysi tur mahsulotdan qanchadan kiritganda inson organizmi	Iste’mol savatiga qaysi tur ozuqa mahsulotdan	Iste’mol savatiga qaysi tur mahsulotdan qanchadan kiritganda

	nimadan iborat?	bahosi minimal bo‘lishini topishdan.	qabul qiladigan ozuqa moddasi belgilangan me’yordan oshmaydi va iste’mol savatining umumiy bahosi maksimal qilishdan.	qanchadan kiritganda inson organizmi me’yordan kam bo‘lmagan mahsulot iste’mol qilishini aniqlashdan.	odam organizmi qabul qiladigan ozuqa moddalar miqdori belgilangan me’yordan kam bo‘lmasligini topish va iste’mol savatining umumiy bahosi minimal qilishdan.
6.	Optimal bichish masalasining maqsadi nimadan iborat?	Xomaki materiallardan qanchasini qaysi usul bilan kesganda tayyorlangan detallar miqdori rejadagiga teng bo‘ladi va hosil bo‘lgan chiqindilarning umumiy miqdori eng kam (minimal) bo‘ladi.	Eng ko‘p miqdordayarim tayyor mahsulot tayyorlash.	Chiqindisizxomaki mahsulot tayyorlash.	Rejalashtirilgan miqdordankam bo‘lmagan miqdordaxomakimahsulot ishlabchiqarish.
7.	Quyidagi chiziqli programmalashtirish masalasini kanonik shaklga keltiring. $\begin{cases}2x_1+3x_2\le 12\\5x_1-2x_2\le 10\end{cases}$ $x_1\ge 0,\quad x_2\ge 0$ $F=x_1+x_2\to\max$	$\begin{cases}2x_1+3x_2+x_3=12\\5x_1-2x_2+x_4=10\end{cases}$ $x_1\ge 0,\quad x_2\ge 0,\ x_3\ge 0,\ x_4\ge 0$ $F=-x_1-x_2+0(x_3+x_4)\to\min$	$\begin{cases}2x_1+3x_2-x_3=12\\5x_1-2x_2-x_4=10\end{cases}$ $x_1\ge 0,\quad x_2\ge 0,\ x_3\ge 0,\ x_4\ge 0$ $F=x_1+x_2+0(x_3+x_4)\to\max$	$\begin{cases}2x_1+3x_2=12\\5x_1-2x_2=10\end{cases}$ $x_1\ge 0,\quad x_2\ge 0$ $F=x_1+x_2\to\min$	$\begin{cases}2x_1+3x_2=12\\5x_1-2x_2=10\end{cases}$ $x_1\ge 0,\quad x_2\ge 0$ $F=x_1+x_2\to\max$
8.	Joiz reja (joiz yechim) deb nimaga aytiladi?	Chegaraviyshartlarni qanoatlantiruvchiyechimga aytiladi.	Maqsad funksiyaga eng kichik yoki eng katta qiymat beruvchi yechimga aytiladi.	Chegaraviy shartlarni qanoatlantirib,maqsadfunksiyaga engkichik qiymatberuvchi yechimga aytiladi.	Chegaraviy shartlarni qanoatlantirib,maqsadfunksiyaga engkatta qiymatberuvchi yechimga aytiladi.
9.	Chiziqli programmalashtirish masalasining qanday rejasi optimal reja	Maqsad funksiyasiga ekstremum qiymat beruvchi reja.	Berilgan chegaraviy shartlarni qanoatlantiruvchi va maqsad funksiyasiga ekstremum qiymat	Chegaraviy shartlarni qanoatlantiruvchi ixtiyoriy reja.	Berilgan chegaraviy shartlarni qanoatlantiruvchi va maqsad funksiyasini nolga aylantiruvchireja.

	bo‘ladi?		beruvchi reja.		
10	Chiziqli programmalashtirish masalasida maqsad funksiya o‘zining ekstremum qiymatiga qanday nuqtada erishadi?	Berilgan masalaning rejalaridan tashkil topgan qavariq ko‘pburchakning burchak nuqtasida.	Berilgan masalaning joiz rejalaridan tashkil topgan qavariq ko‘pburchakning ichki nuqtasida.	Berilgan masalaning joiz rejalaridan tashkil topgan qavariq ko‘pburchakning tashqi nuqtasida.	Berilgan masalaning joiz rejalaridan tashkil topgan qavariq ko‘pburchakning ixtiyoriy nuqtasida.
11	Chiziqli programmalashtirish masalasiningbazisyechimi deb qandayyechimgaaytiladi.	ChPMningjoiz rejalar to‘plamiga tegishlibo‘lgan X^0 vektorning $n-m$ $(m<n)$ta koordinatalari 0ga tengbo‘lib, m takoordinatalarigamoskelgan P_i $(i=1,...,m)$ vektorlar o‘zarochiziqli erklibo‘lsa, X^0 bazisyechimdeyiladi.	ChPMbarchashartlariniqanoatlantiruvchiyechimigabazisyechimdeyiladi.	ChPMning chegaraviy shartlarini qanoatlantiruvchi yechimiga bazis yechim deyiladi.	Maqsad funksiyani qanoatlantiruvchi yechimiga bazis yechim deyiladi.
12	Agar ChPM uchun joiz rejalar to‘plamining burchak nuqtalari $A(0;0)$, $B(0;5)$, $C(9;2)$ va $D(12;0)$ bo‘lsa, $Z=2x_1-3x_2$ funksiya o‘zining maksimal qiymatiga qaysi nuqtada erishadi?	D nuqtada.	B nuqtada.	C nuqtada.	A nuqtada.
13	Ikkitadan ortiq noma’lumga ega bo‘lgan ChPMni grafik usulda yechish uchun qanday shart bajarilishi kerak?	Masaladagi noma’lumlar soni tenglamalar soniga teng bo‘lishi kerak.	Masaladagi noma’lumlar soni bilan tenglamalar soni orasidagi farq 4 ga teng bo‘lishi kerak.	Masaladagi noma’lumlar soni bilan tenglamalar soni orasidagi farq 3 ga teng bo‘lishi kerak.	Masaladagi noma’lumlar soni bilan tenglamalar soni orasidagi farq 2 ga teng bo‘lishi kerak.

14	Agar ChPMning maqsad funksiyasi yechimlar to‘plamining ikkita burchak nuqtalarida maksimal qiymatga erishsa, u holda…	Funksiyaning optimal qiymati cheksiz bo‘ladi.	Funksiyaning optimal qiymati ikkita bo‘ladi.	Funksiyaning optimal qiymati yagona bo‘ladi.	Yuqoridagi barcha javoblar noto‘g‘ri
15	Quyidagi ChPMning bazis yechimlari soni nechta? $\begin{cases} -2x_1 + 3x_2 \le 6 \\ 3x_1 - 4x_2 \le 12 \\ x_1 + x_2 \le 6 \end{cases}$ $x_i \ge 0 \ \ (i = \overline{1,2})$ $F = 2x_1 + x_2 \to \max$	$\varnothing$	3 ta.	2 ta.	5 ta
16	Quyidagi ChPMning nomanfiy bazis yechimi qaysi javobda to‘g‘ri ko‘rsatilgan? $\begin{cases} 2x_1 + x_2 + x_3 = 0 \\ -x_1 - 2x_3 = 5 \\ x_1 - 2x_2 = 2 \end{cases}$ $x_i \ge 0 \ \ (i = \overline{1,3})$	$(0; 0; 0)$	$(1; 1; 1)$	Nomanfiy bazisyechimiyo‘q	$(2; 0; 0)$
17	Quyidagi ChPMning nomanfiy bazis	$X = (0; 0; 0; 0)$	$X = (0; 0; 2; -6)$	$X = (3; 0; 0; -6)$	$X = (2; 0; 3; 6)$

	yechimi qaysi javobda to‘g‘ri ko‘rsatilgan? $\begin{cases} 2x_1 + x_2 + 3x_3 = 6 \\ 2x_1 + 3x_3 + 3x_3 + \end{cases}$ $x_j \geq 0 \ \ (j = \overline{1,4})$				
18	Aniqlovchi koeffisiyent nima?	Tenglamalar sistemasidagi har bir i -tenglamada x_k noma’lum bo‘yicha hisoblangan $\frac{b_i}{\lvert a_{ik} \rvert}$ $(a_{ik} < 0)$ nisbat.	Tenglamalar sistemasidagi har bir i -tenglamada x_k noma’lum bo‘yicha hisoblangan $\frac{b_i}{a_{ik}}$ $(a_{ik} > 0)$ nisbat.	Tenglamalar sistemasidagi har bir i -tenglamada x_k noma’lum bo‘yicha hisoblangan $\frac{a_{ik}}{b_i}$ nisbat.	Tenglamalar sistemasidagi har bir i -tenglamada x_k noma’lum bo‘yicha hisoblangan $\frac{\lvert a_{ik} \rvert}{b_i}$ $(a_{ik} < 0)$ nisbat.
19	Dansig usulida bazis yechimning optimallik shartini baholovchi son quyidagi javoblarning qaysi birida to‘g‘ri ko‘rsatilgan?	$\Delta_j = \sum_{i=1}^{m} a_{ij} c_i - C_j \ \ (j = \overline{1,n})$	$\Delta_j = \sum_{j=1}^{n} b_j - C_i \ \ (i = \overline{1,m})$	$\Delta_j = \sum_{i=1}^{m} a_{ij} c_i \ \ (j = \overline{1,n})$	$\Delta_j = b_i - \sum_{i=1}^{m} a_{ij} c_i \ \ (j = \overline{1,n})$
20	Quyidagi chiziqli programmalashtirish masalasining bazis yechimlar soni nechta? $\begin{cases} 2x_1 + 7x_2 \leq 14 \\ 5x_1 + 2x_2 = 0 \end{cases}$ $x_i \geq 0 \ (i = \overline{1,2})$ $F = x_1 + x_2 \rightarrow \max$	1ta	0ta	2 ta	3 ta

21	Y→min ko‘rinishdagi ChPMni simpleks (Dansig) usuli bilan yechganda maqsad funksiya chekli minimumning mavjud bo‘lmaslik sharti qanday?	Agar tayin bir j uchun $\Delta_j > 0$ bo‘lib, buustundagi barcha elementlar $a_{ij} \le 0$ bo‘lsa.	Barcha j ustunlarda $\Delta_j \le 0$ bo‘lib, P_0 vektor elementlardan birortasi ma’nfiy bo‘lsa.	Agar tayinbir j uchun $\Delta_j > 0$ bo‘lib, bu ustundagi barcha elementlar $a_{ij} \ge 0$ bo‘lsa.	Barcha j ustunlarda $\Delta_j > 0$ bo‘lib, P_0 vektor elementlardan birortasi musbat bo‘lsa.
22	Simpleks usulda yangi yechimni topish uchun (keyingi qadamga o‘tish uchun) bazisga kiritiladigan vektor qanday shart asosida tanlanadi?	$\max_{Z_j - c_j > 0}(Z_j - c_j) = Z_k - c_k = \Delta_k$	$\min_{b_i < 0} b_i = b_k$	$\max_{Z_j - c_j < 0}(Z_j - c_j) = Z_k - c_k = \Delta_k$	$\max_{b_i < 0} b_i = b_k$
23	Shartlari "$\le$" ko‘rinishdagi ChPM qanday qilib simpleks jadvalga joylashtiriladi?	Qo‘shimcha o‘zgaruvchilarga mos kelgan $P_{n+s}\left(s = \overline{1,m}\right)$ vektorlar bazis vektorlar deb qabul qilinadi.	Sun’iy bazis vektorlar kiritish yo‘li bilan.	Bunday masalalarni simpleks jadvalga joylashtirib bo‘lmaydi.	Qo‘shimcha o‘zgaruvchilarga mos kelgan $P_{n-s}\left(s = \overline{1,m}\right)$ vektorlar bazis vektorlar deb qabul qilinadi.
24	F→max ko‘rinishdagi ChPMni simpleks usuli bilan yechganda optimallik sharti qanday?	Simpleks jadvalining Δ_j qatoridagi barcha elementlar nomusbat bo‘lib, bazis vektorga tegishli ozod hadlar $x_i \ge 0$ bo‘lsa.	Ozod hadlar ustunidagi elementlar manfiy bo‘lmasa.	Simpleks jadvalining Δ_j qatoridagi barcha elementlar nomanfiy bo‘lsa.	Simpleks jadvalining Δ_j qatoridagi barcha elementlar 0 lardan iborat bo‘lsa.
25	Agar simpleks jadvalining Δ_j qatorida kamida	Masalaning optimal yechimi topilmagan bo‘ladi. Yangibazisyechimgao‘tishkerak.	Masala yechimga ega bo‘lmaydi	Masala cheksiz ko‘p optimal yechimga ega	Masalaningyechimianiq lanmagan.

	bitta noma’lum musbat koeffisiyent bilan qatnashsa, u holda …			bo‘ladi.	
26	Sun’iy bazis usuli qachon qo‘llanadi?	ChPMning chegaraviy shartlarida o‘zaro erkli bazis vektorlar soni tenglamalar sonidan kam bo‘lsa.	ChPMning chegaraviy shartlarida o‘zaro erkli $n-m$ ta bazis vektorlar qatnashmasa.	ChPMning chegaraviy shartlarida o‘zaro erkli bazis vektorlar soni tenglamalar sonidan kam bo‘lsa.	To‘g‘rijavobyo‘q.
27	Quyidagi ChPMga sun’iy o‘zgaruvchilar kiritib kengaytirilgan masala tuzing. $\begin{cases} x_1 + x_2 \geq 4 \\ x_1 + 2x_2 \leq 6 \end{cases}$ $x_i \geq 0 \ \ (i = \overline{1,2})$ $F = 4x_1 - 2x_2 \rightarrow$	$\begin{cases} x_1 + x_2 - x_3 + x_4 = 4 \\ x_1 + 2x_2 + x_5 = 6 \end{cases}$ $x_i \geq 0 \ \ (i = \overline{1,5})$ $F = 4x_1 - 2x_2 + M(x_4) +$ $+0(x_3 + x_5) \rightarrow \min$	$\begin{cases} x_1 + x_2 - x_3 + x_4 = 4 \\ x_1 + 2x_2 + x_5 = 6 \end{cases}$ $x_i \geq 0 \ \ (i = \overline{1,5})$ $F = 4x_1 - 2x_2 \rightarrow \max$	$\begin{cases} x_1 + x_2 - x_3 = 4 \\ x_1 + 2x_2 + x_4 = 6 \end{cases}$ $x_i \geq 0 \ \ (i = \overline{1,4})$ $F = 4x_1 - 2x_2 \rightarrow \max$	$\begin{cases} x_1 + x_2 - x_3 + x_4 = 4 \\ x_1 + 2x_2 + x_5 = 6 \end{cases}$ $x_i \geq 0 \ \ (i = \overline{1,5})$ $F = 4x_1 - 2x_2 + M(x_4 + x_5) \rightarrow \min$
28	Quyidagi ChPMni qanday yo‘l bilan simpleks jadvalga joylashtirish mumkin? $\begin{cases} 6x_1 + 5x_2 + 3x_3 \\ 12x_1 + 9x_2 + 3x \end{cases}$ $x_i \geq 0 \ \ (i = \overline{1,3})$ $F = 3x_1 + 4x_2 + x$	Masalada x_4 va x_5 sun’iy o‘zgruvchilar kiritib, uni quyidagi ko‘rinishga keltirish kerak: $\begin{cases} 6x_1 + 5x_2 + 3x_3 + x_4 = 8 \\ 12x_1 + 9x_2 + 3x_3 + x_5 = 14 \end{cases}$ $x_i \geq 0 \ \ (i = \overline{1,5})$ $F = -3x_1 - 4x_2 - x_3 + M(x_4 + x_5) \rightarrow \min$	Hech qanday o‘zgarishsiz simpleks jadvalga joylashtirish mumkin.	Masalada x_4 va x_5 sun’iy o‘zgaruvchilar kiritib, uni quyidagi ko‘rinishga keltirish kerak: $\begin{cases} 6x_1 + 5x_2 + 3x_3 + x_4 = 8 \\ 12x_1 + 9x_2 + 3x_3 + x_5 = 14 \end{cases}$ $x_i \geq 0 \ \ (i = \overline{1,5})$ $F = 3x_1 + 4x_2 + x_3 + M(x_4 + x_5) \rightarrow$ n	Masalani simpleks jadvalga joylashtirish mumkin emas.

29	Agar berilgan masalaning o‘lchovi $n \times m$ bo‘lsa, u holda ikkilangan masalaning o‘lchovi qanday bo‘ladi?	$m \times n$	$n \times m$	$(n-m) \times n$	$(n-m) \times m$
30	Quyidagi masalaga mos ikkilangan masala qaysi javobda to‘g‘ri ko‘rsatilgan? $\begin{cases} x_1 - 2x_2 \geq -4 \\ 5x_1 + 2x_2 \leq 20 \end{cases}$ $x_1 \geq 0;\ \ x_2 \geq 0$ $F = x_1 - 5x_2 \to \max$	$\begin{cases} -y_1 + 5y_2 \geq 1 \\ 2y_1 + 2y_2 \geq -5 \end{cases}$ $y_1 \geq 0;\ y_2 \geq 0$ $Z = 4y_1 + 20y_2 \to \min$	$\begin{cases} y_1 + 5y_2 \geq 1 \\ -2y_1 + 2y_2 \geq -5 \end{cases}$ $y_1 \geq 0;\ y_2 \geq 0$ $Z = -4y_1 + 20y_2 \to \min$	$\begin{cases} -y_1 + 5y_2 = 1 \\ 2y_1 + 2y_2 = -5 \end{cases}$ $Z = 4y_1 + 20y_2 \to \min$	$\begin{cases} y_1 + 5y_2 = 1 \\ 2y_1 + 2y_2 = -5 \end{cases}$ $Z = 4y_1 + 20y_2 \to \max$
31	Quyidagi masalaga mos ikkilangan masala qanday ko‘rinishda bo‘ladi? $AX = B$ $X \geq 0$ $Y = CX \to \max$	$A^T Y \geq C^T$ $G = B^T Y \to \min$	$A^T Y \leq C^T$ $G = B^T Y \to \max$	$A^T Y \geq C^T$ $G = B^T Y \to \max$	$A^T Y \leq C^T$ $G = B^T Y \to \min$

32	Quyidagi masalaga mos ikkilangan masala qaysi javobda to‘g‘ri ko‘rsatilgan? $\begin{cases} 3x_1 + x_3 - 4x_4 \le 1 \\ x_2 + 2x_3 + x_4 = 3 \\ 2x_1 + x_2 - 4x_3 \le 6 \end{cases}$ $x_j \ge 0, \quad j = 1,2,3,$ $F = 8x_1 - 2x_2 + 4$	$\begin{cases} 3y_1 + 2y_3 \ge 8 \\ y_2 + y_3 \ge -2 \\ y_1 + 2y_2 - 4y_3 \ge 4 \\ -4y_1 + y_2 \ge -1 \end{cases}$ $y_1 \ge 0,\ y_3 \ge 0,\ y_3 \ge 0$ $G = 12y_1 + 3y_2 + 6y_3 \to \min$	$\begin{cases} 3y_1 + 2y_3 \ge 8 \\ y_2 + y_3 \ge -2 \\ y_1 + 2y_2 - 4y_3 \ge 4 \\ -4y_1 \ge -1 \end{cases}$ $y_i \ge 0,\ i = \overline{1,3}$ $G = 12y_1 + 3y_2 + 6y_3 \to \min$	$\begin{cases} 3y_1 + 2y_3 = 8 \\ y_2 + y_3 = -2 \\ y_1 + 2y_2 - 4y_3 = 4 \\ -4y_1 + y_2 = -1 \end{cases}$ $y_i \ge 0,\ i = \overline{1,3}$ $G = 12y_1 + 3y_2 + 6y_3 \to \min$	$\begin{cases} 3y_1 + 2y_3 \ge 8 \\ y_2 + y_3 \ge -2 \\ y_1 + 2y_2 - 4y_3 \ge 4 \\ -4y_1 + y_2 \ge -1 \end{cases}$ $y_i \ge 0,\ i = \overline{1,3}$ $G = 12y_1 + 3y_2 + 6y_3 \to \max$
33	Berilgan masala cheklamalari bilan ikkilangan masala noma’lumlari orasida qanday bog‘lanish bor?	Ikkilangan masaladagi noma’lumlar soni berilgan masaladagi cheklamalar soniga teng bo‘ladi.	Ikkilangan masaladagi noma’lumlar soni berilgan masaladagi cheklamalar sonidan kam bo‘ladi.	Ikkilangan masaladagi noma’lumlar soni berilgan masaladagi cheklamalar sonidan ko‘p bo‘ladi.	Hech qanday bog‘lanish yo‘q.
34	Agar berilgan masalaning optimal yechimi uchun quyidagi ma’lumotlar o‘rinli bo‘lsa,ikkilangan masala yechimini toping. $X^0 = (4;0),\ B' = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$	$Y^0 = \left(0; \frac{1}{15}\right)$	$Y^0 = \left(\frac{1}{5}; \frac{1}{15}\right)$	$Y^0 = \left(\frac{2}{3}; \frac{1}{3}\right)$	$Y^0 = \left(\frac{3}{2}; \frac{1}{2}\right)$
35	Berilgan masalaga ikkilangan masalaning yechimi iqtisodiy jihatdan qanday	Xom ashyolarning ikkilangan bahosi.	Ishlab chiqarilgan mahsulotning pul qiymati.	Mahsulot ishlab chiqarish uchun sarf qilinadigan xarajat.	Ishlab chiqarilgan mahsulotni sotishdan keladigan daromad.

	ma’noni anglatadi?				
36	Ishlab chiqarishda to‘la ishlatiladigan xomashyolarning ikkilamchi bahosi qanday bo‘ladi?	Noldan farqlibo‘ladi.	0 ga teng bo‘ladi.	Manfiy ishoralibo‘ladi.	Musbat ishoralibo‘ladi.
37	Ikkilanish nazariyasida ikkilangan bahoning nolga tengligi iqtisodiy jihatdan qanday ma’noga ega?	Ishlab chiqarish resurslarining kamyob bo‘lmagan, ya’ni ortiqcha resurs ekanligini bildiradi.	Ishlab chiqarish resurslarining kamyob resurs ekanligini bildiradi.	Olinadigandaromadning 0 ga tengligini.	Sariflanadigan xarajatning 0 ga tengligini bildiradi.
38	Ikkilanish nazariyasida ikkilangan bahoning noldan farqli bo‘lishi iqtisodiy jihatdan nimani anglatadi?	Ishlab chiqarish resurslarining kamyob resurs ekanligini.	Ishlab chiqarish resurslarining kamyob bo‘lmagan resurs ekanligini.	Olinadigan daromadni.	Sariflanadigan xarajatni.
39	Resurslarningikkilanganbahosinima?	Berilgan masalaga ikkilangan masalaning yechimi.	Berilganmasalaningyechimi.	Sarfqilinganresurslarmiqdori.	Olingandaromadlarmiqdori.
40	Masalaning chala joiz yechimi nima?	Optimallikshartiniqanoatlantiruvchinomusbatyechim.	Optimallikshartiniqanoatlantiruvchinomanfiyyechim.	Optimallikshartiniqanoatlantiruvchimanfiyyechim.	Optimallikshartiniqanoatlantiruvchimusbatyechim.
41	Transport masalasi yechimidagi noldan farqli noma’lumlar soni nechta?	$n+m-1$ta	$n+m+1$ ta	$n+m$ ta	$n+m-2$ ta
42	Transport masalasining iqtisodiy ma’nosi nimadan iborat?	Yuk tashishning shunday rejasini tuzish kerakki, har bir ta’minotchidagi mahsulot to‘la taqsimlansin va har bir iste’molchining mahsulotga bo‘lgan talabi to‘la qondirilsin.	Yuk tashishning shunday rejasini tuzish kerakki, faqat ta’minotchidagi mahsulot to‘la taqsimlansa bo‘ldi.	Yuk tashishning shunday rejasini tuzish kerakki, faqat iste’molchining mahsulotga bo‘lgan talabi to‘la	Barcha javoblar noto‘g‘ri.

				qondirilsa bo‘ldi.	
43	Transport masalasini boshlang‘ich bazis yechimini qaysi usul bilan aniqlanganda u optimal yechimga yaqin bo‘ladi?	Minimal xarajatlar usuli.	Shimoliy-g‘arb burchak usuli.	Ustundagi minimal xarajatlar usuli.	Satrdagi minimal xarajatlar usuli.
44	Transport masalasining matematik modeli qanday?	$\sum_{i=1}^{m} x_{ij} = b_j,\ \sum_{j=1}^{n} x_{ij} = a_i$ $x_{ij} \geq 0\ \left(i = \overline{1,m};\ j = \overline{1,n}\right)$ $F = \sum_{i=1}^{m}\sum_{j=1}^{n} c_{ij}x_{ij} \to \min$	$\sum_{i=1}^{m} x_{ij} = b_j$ $x_{ij} \geq 0\ \ (j = \overline{1,n})$ $F = \sum_{i=1}^{m}\sum_{j=1}^{n} c_{ij}x_{ij} \to \min$	$\sum_{j=1}^{m} x_{ij} = a_i,$ $x_{ij} \geq 0_i,$ $F = \sum_{i=1}^{m}\sum_{j=1}^{n} c_{ij}x_{ij} \to \min.$	$\sum_{i=1}^{m} x_{ij} = b_j,$ $\sum_{j=1}^{n} x_{ij} = a_i,$ $F = \sum_{i=1}^{m}\sum_{j=1}^{n} c_{ij}x_{ij} \to \min.$
45	Transport masalasining yechimi mavjud bo‘lishi uchun …	$\sum_i a_i = \sum_j b_j$ bo‘lishi kerak	$\sum_i a_i \leq \sum_j b_j$ bo‘lishi kerak	$\sum_i a_i \geq \sum_j b_j$ bo‘lishi kerak	$\sum_i a_i \neq \sum_j b_j$ bo‘lishi kerak
46	Transport masalasi cheklamalar sistemasining rangi…	$r = m + n - 1$bo‘ladi	$r < m + n - 2$ bo‘ladi.	$r > n + m + 1$ bo‘ladi.	$r = n + m + 2$ bo‘ladi.
47	Ochiq modelli transport masalasini yopiq modelli transport masalasiga aylantirish uchun …	Agar $\sum a_i < \sum b_j$ shart bajarilsa, u holda mahsulot zahirasi $\sum b_j - \sum a_i = a_{m+1}$ga teng bo‘lgan soxta ta’minotchi kiritiladi.	Agar $\sum a_i < \sum b_j$ shart bajarilsa, u holda mahsulot zahirasi $\sum b_j - \sum a_i = a_{m+1}$ga teng bo‘lgan soxta iste’molchi kiritiladi.	Agar $\sum a_i > \sum b_j$ shart bajarilsa, u holda talabhajmi $\sum b_j - \sum a_i = a_{m+1}$ga teng bo‘lgan soxta ta’minotchi kiritiladi.	Agar $\sum a_i < \sum b_j$ shart bajarilsa, u holda talabhajmi $\sum b_j - \sum a_i = a_{m+1}$ga teng bo‘lgan soxta iste’molchi kiritiladi.
48	Transport masalasini potensiallar usuli bilan yechishning	Dastlab boshlang‘ich bazis reja topiladi, so‘ngra topilgan bazis rejani optimal rejaga ketma-ket yaqinlashtirib boriladi.	Dastlab bazis reja topiladi, so‘ngra optimal reja aniqlanadi.	Dastlab topilgan bazis reja masalaning optimal rejasi ham	To‘g‘ri javob yo‘q

	asosiy g‘oyasi qanday?			bo‘ladi.	
49	Transport masalasining bazis yechimidan optimal yechimga o‘tish uchun quydagilardan qaysi biri o‘rinli bo‘lishi kerak?	Transport jadvalidagi bo‘sh kataklardan kamida bittasida $\Delta_{ij} = U_i + V_j - c_{ij} > 0$ shart bajarilishi kerak.	Transport jadvalidagi to‘liq kataklarda $m + n - 1$ ta $\Delta_{ij} = U_i + V_j - c_{ij} \le 0$ shartlar bajarilishi kerak.	Transport jadvalidagi to‘liq kataklar bo‘yicha sikllanish ro‘y berishi kerak.	Transport jadvalidagi bo‘sh kataklardan kamida bittasida $\Delta_{ij} = U_i + V_j - c_{ij} < 0$ shart bajarilishi kerak.
50	Transport masalasining bazis yechimi optimal bo‘lishi uchun qanday shart o‘rinli bo‘lishi kerak?	To‘ldirilgan katakchalarda $\Delta_{ij} = U_i + V_j - c_{ij} = 0$ Bo‘sh kataklarda $\Delta_{ij} = U_i + V_j - c_{ij} \le 0$	Bo’shkatakchalarda $\Delta_{ij} = U_i + V_j - c_{ij} > 0$	Bo’shkatakchalarda $\Delta_{ij} = U_i + V_j - c_{ij} \le 0$	To‘ldirilgan katakchalarda $\Delta_{ij} = U_i + V_j - c_{ij} > 0$
51	Transport masalasiga doir quyidagi tasdiqlardan qaysi biri to‘g‘ri?	Ixtiyoriy yopiq modelli transport masalasi chekli yechimga ega.	Ixtiyoriy ochiq modelli transport masalasi cheksiz ko‘p yechimga ega.	Ixtiyoriy transport masalasichekli yechimga ega.	Ixtiyoriy yopiq modelli transport masalasi chekli yechimga ega emas.
52	Transport masalasida sikllanish holatidan qutilish uchun qanday usul qo‘llaniladi?	ε-usul.	Brudnousuli.	Potensiallarusuli.	Minimal harajatlarusuli.
53	Transport masalasida sikllanish nima va u qanday bartaraf etiladi?	Sikllanish ma’lum bosqichdga etgandan so‘ng oldingi bosqichlarga qaytishdan iborat. U ε-usulniqo‘llab bartaraf etiladi.	Transport masalasida sikllanish holi ro‘y bermaydi.	Sikllanish holi har qanday masalada ro‘y berishi mumkin. Unibartaraf etishshart emas.	Hechqachonbartarafetil maydi.
54	Transport masalasi qachon yechimga ega bo‘lmaydi?	Yopiq modelli transport masalasi doimo yechimga ega bo‘ladi.	Har doim yechimga ega bo‘ladi.	Ochiq modelli transport masalasiayrim	Ochiq modelli transport masalasi doimo yechimga ega bo‘ladi.

				hollarda yechimga ega bo‘lmaydi.	
55	Transport masalasidaqachon sikllanish holati ro‘y berishi mumkin?	Talab va takliflarning xususiy yeg‘indilari teng bo‘lganda.	Agar $\sum_{i=1}^{m_1} a_i \neq \sum_{j=1}^{n_1} b_j$ $(m_1 < m, n_1 < n)$ bo‘lganda.	Agar $\sum_{i=1}^{m_1} a_i > \sum_{j=1}^{n_1} b_j$ $(m_1 < m, n_1 < n)$ bo‘lganda.	Agar $\sum_{i=1}^{m} a_i = \sum_{j=1}^{n} b_j$ tengliko‘rinli bo‘lsa.

	Fannomi (uz, ru)	Savol	Javobturi: birjavobli (0)/ ko`pjavobli (1)	Javob 1	Javob 2	Javob3	Javob4
1	Iqtisodchilaruchunmatematika	$\bar{b}=(7;3;\alpha)$ ва $\bar{c}=(3;\alpha;-6)$ vektorlarortogonalvektorlar. α ni toping.	0	7	-1	5	9
2	Iqtisodchilar uchun matematika	m ningqandayqiymatlarida $\vec{a}=m\vec{i}-3\vec{j}+2\vec{k}$ va $\vec{b}=\vec{i}+2\vec{j}-m\vec{k}$ vektorlarperpendikulyar.	0	$m=-6$	$m=6$	$m=3$	$m=-3$
3	Iqtisodchilar uchun matematika	$\vec{a}=-2\vec{j}+\vec{k}$, $\vec{b}=2\vec{i}+\vec{j}$ vektorlargaqurilganparallelogramm diagonallari orasidagi burchakni toping.	0	90^0	60^0	45^0	30^0
4	Iqtisodchilar uchun matematika	Qanday vektorlar kolleniar deyiladi?	0	parallel vektorlar	perpendikulyar vektorlar	bir xil yo‘nalishli vektorlar	uzunliklari bir xil bo‘lgan vektorlar
5	Iqtisodchilar uchun matematika	$\vec{a}=(2;1;0)$ va $\vec{b}=(1;-2;-1)$ vektorlarning skalyar ko‘paytmasini hisoblang.	0	-1	1	2	-2
6	Iqtisodchilar uchun matematika	Ikki vektorning skalyar ko‘paytmasi deb nimaga aytiladi?	0	Ikkita $\vec{a}$ va $\vec{b}$ vektorning skalyar ko’paytmasi deb, bu vektorlar uzunliklarini ular orasidagi burchak kosinusiga ko‘paytmasiga teng bo‘lgan skalyarga (songa) aytiladi.	Ikkita $\vec{a}$ va $\vec{b}$ vektorning skalyar ko‘paytmasi deb, bu vektorlar uzunliklariga teng bo‘lgan skalyarga (songa) aytiladi.	Ikkita $\vec{a}$ va $\vec{b}$ vektorning skalyar ko‘paytmasi deb, bu vektorlar uzunliklariga teng bo‘lgan skalyarga (songa) aytiladi.	Ikkita $\vec{a}$ va $\vec{b}$ vektorning skalyar ko‘paytmasi deb, bu vektorlar uzunliklariga teng bo‘lgan skalyarga (songa) aytiladi.

7	Iqtisodchilar uchun matematika	$\bar{a}=(1;6)$ vektorning $\bar{b}=(3;-4)$, $\bar{c}=(-5;3)$ bazisdagikoordinatlarinitoping.	0	$(-3;-2)$	$(3;2)$	$(-2;3)$	$(2;-3)$
8	Iqtisodchilar uchun matematika	Qarama-qarshiuchlari $A(4;-2)$, $C(-1;3)$ nuqtalardabo'lgankvadratningyuzinianiqlang.	0	25	$2\sqrt{5}$	16	9
9	Iqtisodchilar uchun matematika	Parallelogrammningqo'shniuchlari $A(5;2)$, $B(3;5)$ nuqtalarvadiagonallariningkesishishnuqtasi $M(4;3)$ berilgan. Qolgan C va D uchlarianiqlansin.	0	$C(3;4),\ D(5;1)$	$C(3;2),\ D(5;1)$	$C(1;4),\ D(5;1)$	$C(5;4),\ D(5;1)$
10	Iqtisodchilar uchun matematika	M_1M_2 kesmaningo`rtasinitoping, agar $M_1(4,-7)$, $M_2(-4,7)$ bo`lsa	0	$(0,0)$	$(0,7)$	$(4,0)$	$(4,7)$
11	Iqtisodchilar uchun matematika	Ikki vektorning skalyar ko`paytmasi nolga teng bo`ladi, agar ular orasidagi burchak … bo`lsa.	0	90^o	180^0	45^0	0^0
12	Iqtisodchilar uchun matematika	Agar $\vec{a}=5\vec{i}+3\vec{j}$, $\vec{b}=-4\vec{i}+6\vec{j}$, $\vec{c}=3\vec{i}-7\vec{j}$ berilgan bo'lsa, $\vec{a}+\vec{b}+\vec{c}$ vektornung koordinatasini toping.	0	(4;2)	(4;-2)	(-4;2)	(0;6)
13	Iqtisodchilar uchun matematika	KoordinatlarboshidanA(-3;4) nuqtagachabo'lganmasofani toping.	0	5	$\sqrt{5}$	25	7
14	Iqtisodchilar uchun matematika	$\vec{a}(2;1)$, $\vec{b}(3,-2)$ vektorlarningskalarko'paytmasinianiqlang	0	4	2	6	12
15	Iqtisodchilar uchun matematika	$\vec{a}(2;1)$, $\vec{b}(2,-2)$ vektorlarningskalarko'paytmasinianiqlang	0	2	8	6	12
16	Iqtisodchilar uchun matematika	$\bar{a}=(3;2;5)$, $\bar{b}=(1;3;7)$ vektorlarustidachiziqliamallarnibajaring: $2\bar{a}+\bar{b}=?$	0	$(7;7;17)$	$(-7;7;17)$	$(7;-7;17)$	$(7;7;-17)$
17	Iqtisodchilar uchun matematika	$\bar{a}=(3;1;-4;5)$, $\bar{b}=(0;3;-2;0)$ vektorlarustidachiziqliamallarnibajaring: $3\bar{a}-2\bar{b}=?$	0	$(9;-3;-8;15)$	$(9;-3;-6;-15)$	$(9;-3;-5;15)$	$(9;3;-8;15)$
18	Iqtisodchilar uchun matematika	$\vec{a}=2\vec{i}+3\vec{j}-6\vec{k}$ vektor uzunligi toping.	0	$\left\|\vec{a}\right\|=7;$	$\left\|\vec{a}\right\|=1;$	$\left\|\vec{a}\right\|=9;$	$\left\|\vec{a}\right\|=2;$

19	Iqtisodchilar uchun matematika	$\vec{a}=(3;m;2)$ va $\vec{b}=(6;2;4)$ vektorlar qachon kolleniar?	0	$m=1$	$m=8$	$m=3$	$m=-1$
20	Iqtisodchilar uchun matematika	Vektorlarsistemasiningranginitoping: $\bar{a}(2;1;1)$; $\bar{b}(-1;1;-5)$ $\bar{c}(5;3;1)$; $\bar{d}(6;5;-3)$	0	$r=3$	$r=2$	$r=1$	$r=4$
21	Iqtisodchilar uchun matematika	(1;2;3) vektor $A=\begin{pmatrix}1&2&3\\0&0&1\\2&0&1\end{pmatrix}$ chiziqli operator yordamidagiaksini toping.		(14;3;5);	(7;2;6);	(3;4;2);	(3;2;5).
22	Iqtisodchilar uchun matematika	(3;2;0) vektor $A=\begin{pmatrix}1&1&3\\-1&0&1\\2&-1&1\end{pmatrix}$ chiziqli operator yordamidagiaksini toping.		(5;-3;4);	(7;2;6);	(3;4;2);	(3;2;5).
23	Iqtisodchilar uchun matematika	$\begin{pmatrix}2&4\\-1&-3\end{pmatrix}$matrisaningxosqiymatlarinitoping.	0	-2 va 1	-2 va-1	2 va-1	3va -2
24	Iqtisodchilar uchun matematika	$\begin{pmatrix}5&4\\8&9\end{pmatrix}$matrisaningxosqiymatlarinitoping.	0	1 va 13	1va4	-1va-13	-4va 13
25	Iqtisodchilar uchun matematika	$\begin{pmatrix}6&7\\4&9\end{pmatrix}$matrisaningxosqiymatlarinitoping.	0	2 va 13	-2va13	2va-13	-2va -13
26	Iqtisodchilar uchun matematika	$\begin{pmatrix}7&5\\3&5\end{pmatrix}$matrisaningxosqiymatlarinitoping.	0	2 va 10	1va5	3va5	-2va -10
27	Iqtisodchilar uchun matematika	$\begin{pmatrix}9&12\\12&16\end{pmatrix}$matrisaningxosqiymatlarinitoping.	0	0 va 25	1va 29	0 va 20	5 va 25
28	Iqtisodchilar uchun matematika	$\vec{e_1},\vec{e_2}$ bazisda A operator $A=\begin{pmatrix}10&6\\6&1\end{pmatrix}$	0	$\begin{pmatrix}-5&0\\0&13\end{pmatrix}$	$\begin{pmatrix}5&0\\0&-13\end{pmatrix}$	$\begin{pmatrix}13&0\\0&5\end{pmatrix}$	$\begin{pmatrix}0&13\\5&0\end{pmatrix}$

		matritsagaega. $\begin{cases}\overrightarrow{e_1'}=\overrightarrow{e_1}-2\overrightarrow{e_2}\\ \overrightarrow{e_2'}=2\overrightarrow{e_1}+\overrightarrow{e_2}\end{cases}$ bazisda A operatorningmatritsasini toping.					
29	Iqtisodchilar uchun matematika	$\overrightarrow{e_1},\overrightarrow{e_2}$ bazisda A operator $A=\begin{pmatrix}14 & 6\\ 6 & 5\end{pmatrix}$ matritsagaega. $\begin{cases}\overrightarrow{e_1'}=\overrightarrow{e_1}-2\overrightarrow{e_2}\\ \overrightarrow{e_2'}=2\overrightarrow{e_1}+\overrightarrow{e_2}\end{cases}$ bazisda A operatorningmatritsasini toping.	0	$\begin{pmatrix}2 & 0\\ 0 & 17\end{pmatrix}$	$\begin{pmatrix}17 & 0\\ 0 & 2\end{pmatrix}$	$\begin{pmatrix}3 & 0\\ 0 & 18\end{pmatrix}$	$\begin{pmatrix}18 & 0\\ 0 & 3\end{pmatrix}$
30	Iqtisodchilar uchun matematika	$\overrightarrow{e_1},\overrightarrow{e_2}$ bazisda A operator $A=\begin{pmatrix}13 & 6\\ 6 & 4\end{pmatrix}$ matritsagaega. $\begin{cases}\overrightarrow{e_1'}=\overrightarrow{e_1}-2\overrightarrow{e_2}\\ \overrightarrow{e_2'}=2\overrightarrow{e_1}+\overrightarrow{e_2}\end{cases}$ bazisda A operatorningmatritsasini toping.	0	$\begin{pmatrix}1 & 0\\ 0 & 16\end{pmatrix}$	$\begin{pmatrix}16 & 0\\ 0 & 1\end{pmatrix}$	$\begin{pmatrix}13 & 0\\ 0 & 4\end{pmatrix}$	$\begin{pmatrix}4 & 0\\ 0 & 13\end{pmatrix}$
31	Iqtisodchilar uchun matematika	$f(x_1;x_2)=2x_1^2+4x_1x_2-3x_2^2$ kvadratik forma berilgan. $\begin{cases}x_1=2y_1-3y_2\\ x_2=y_1+y_2\end{cases}$ chiziqlialmashtirishorqalihosilbo‘lgan $f(y_1;y_2)$ kvadratikformani toping.	0	$A'=\begin{pmatrix}13 & -17\\ -17 & 3\end{pmatrix}$	$A'=\begin{pmatrix}13 & -17\\ -17 & -3\end{pmatrix}$	$A'=\begin{pmatrix}12 & -17\\ -17 & 3\end{pmatrix}$	$A'=\begin{pmatrix}10 & -17\\ -17 & 3\end{pmatrix}$
32	Iqtisodchilar uchun matematika	$3x_1^2+2x_2^2+4x_1x_2$ kvadratikshaklmatritsasini toping.	0	$\begin{pmatrix}3 & 2\\ 2 & 2\end{pmatrix}$	$\begin{pmatrix}3 & 0\\ 4 & 2\end{pmatrix}$	$\begin{pmatrix}3 & -2\\ -2 & 2\end{pmatrix}$	$\begin{pmatrix}3 & 4\\ 0 & 2\end{pmatrix}$
33	Iqtisodchilar uchun matematika	$-3x_1^2+2x_2^2-4x_1x_2$ kvadratikshaklmatritsasini toping.	0	$\begin{pmatrix}-3 & -2\\ -2 & 2\end{pmatrix}$	$\begin{pmatrix}3 & -2\\ -2 & 2\end{pmatrix}$	$\begin{pmatrix}3 & -4\\ 0 & 2\end{pmatrix}$	$\begin{pmatrix}3 & 2\\ 2 & 2\end{pmatrix}$
34	Iqtisodchilar uchun matematika	$2x_1^2+3x_2^2-6x_1x_2$ kvadratikshaklmatritsasini toping.	0	$\begin{pmatrix}2 & -3\\ -3 & 3\end{pmatrix}$	$\begin{pmatrix}3 & -3\\ -3 & 2\end{pmatrix}$	$\begin{pmatrix}3 & 2\\ 2 & 2\end{pmatrix}$	$\begin{pmatrix}-3 & -2\\ -2 & 2\end{pmatrix}$

35	Iqtisodchilar uchun matematika	$2x_2^2 - 2x_1x_2 - 2x_2x_3 + 4x_1x_3$ kvadratikshaklmatritsasini toping.	0	$\begin{pmatrix} 0 & -1 & 2 \\ -1 & 2 & -1 \\ 2 & -1 & 0 \end{pmatrix}$	$\begin{pmatrix} -1 & 1 & 1 \\ 1 & -1 & 1 \\ 1 & 1 & -1 \end{pmatrix}$	$\begin{pmatrix} 1 & 1 & -1 \\ 1 & -1 & 1 \\ -1 & 1 & 1 \end{pmatrix}$	$\begin{pmatrix} 1 & 0 & -1 \\ 0 & -1 & 0 \\ -1 & 0 & 1 \end{pmatrix}$
36	Iqtisodchilar uchun matematika	$2x_1^2 - 6x_1x_2 + 4x_2^2$ kvadratikshaklqandayaniqlangan?	0	yarimaniqlangan;	Ishorasianiqlangan;	Ishorasianiqlanmagan	aniqlabbo'lmaydi
37	Iqtisodchilar uchun matematika	$4x_1^2 + 2x_1x_2$ kvadratikshaklqandayaniqlangan?	0	Ishorasianiqlangan;	Ishorasianiqlanmagan	Ishorasiyarimaniqlangan	aniqlabbo'lmaydi
38	Iqtisodchilar uchun matematika	$2x_1^2 - 2x_1x_2 - 2x_2x_3 + 2x_1x_3$ kvadratikshaklmatritsasini toping.	0	$\begin{pmatrix} 2 & -1 & 1 \\ -1 & 0 & -1 \\ 1 & -1 & 0 \end{pmatrix}$	$\begin{pmatrix} -1 & 1 & 1 \\ 1 & -1 & 1 \\ 1 & 1 & -1 \end{pmatrix}$	$\begin{pmatrix} 1 & 1 & -1 \\ 1 & -1 & 1 \\ -1 & 1 & 1 \end{pmatrix}$	$\begin{pmatrix} 1 & 0 & -1 \\ 0 & -1 & 0 \\ -1 & 0 & 1 \end{pmatrix}$
39	Iqtisodchilar uchun matematika	$3x_1^2 + x_2^2 - x_3^2 + 6x_1x_2 - 6x_2x_3 + 2x_1x_3$ kvadratikshaklmatritsasini toping	0	$\begin{pmatrix} 3 & 3 & 1 \\ 3 & 1 & -3 \\ 1 & -3 & -1 \end{pmatrix}$	$\begin{pmatrix} 4 & 1.5 & \\ 1.5 & 6 & - \\ 1 & -0.5 & \end{pmatrix}$	$\begin{pmatrix} 3 & 2 & 1 \\ 2 & 6 & 2 \\ 1 & 2 & 4 \end{pmatrix}$	$\begin{pmatrix} 3 & 2 & 3 \\ 2 & 2 & 1 \\ 3 & 2 & -1 \end{pmatrix}$
40	Iqtisodchilar uchun matematika	$3x_1^2 + 2x_2^2 - x_3^2 + 4x_1x_2 + 6x_2x_3 + 2x_1x_3$ kvadratikshaklmatritsasini toping	0	$\begin{pmatrix} 3 & 2 & 1 \\ 2 & 2 & 3 \\ 1 & 3 & -1 \end{pmatrix}$	$\begin{pmatrix} 4 & 1.5 & \\ 1.5 & 6 & - \\ 1 & -0.5 & \end{pmatrix}$	$\begin{pmatrix} 3 & 2 & 1 \\ 2 & 6 & 2 \\ 1 & 2 & 4 \end{pmatrix}$	$\begin{pmatrix} 3 & 2 & 3 \\ 2 & 2 & 1 \\ 3 & 2 & -1 \end{pmatrix}$
41	Iqtisodchilar uchun matematika	Fokuslariorasidagimasofa $\rho(F_1, F_2) = 10$ vakichikyarimo`qi $b = 5$ bo`lsaellipstenglamasinituzing.		$\frac{x^2}{50} + \frac{y^2}{25} = 1$	$\frac{x^2}{50} + \frac{y^2}{10} = 1$	$\frac{x^2}{25} + \frac{y^2}{50} = 1$	$\frac{x^2}{10} + \frac{y^2}{5} = 1$
42	Iqtisodchilar uchun matematika	Markazi $C(0,1)$ da radiusi $r = 3$ gatengbo`lganaylanatenglamasinituzing.	0	$x^2 + (y-1)^2 = 9$	$x^2 + (y+1)^2 = 9$	$(x-1)^2 + (y-1)^2 =$	$x^2 + y^2 = 9$
43	Iqtisodchilar uchun matematika	$(x-2)^2 + (y+4)^2 = 16$ aylananingmarkazivaradiusinianiqlang.	0	S(2;-4), R=4	S(-2;-4), R=4	S(2;4), R=16	S(2;-4), R =8
44	Iqtisodchilar uchun matematika	$16x^2 - 4y^2 = 400$ giperbolatenglamasiberilgan.	0	5; 10	5; 5	10; 10	16; 4

		Uningo‘qlariuzunligini toping.					
45	Iqtisodchilar uchun matematika	$\frac{x^2}{25}+\frac{y^2}{9}=1$ ellipsning fokuslarikoordinatalari topilsin.	0	(-4;0);(4;0)	(-5;0); (5;0)	(-3;0); (3;0)	(-4;1); (4;1)
46	Iqtisodchilar uchun matematika	Parallel to‘g‘richiziqlarningburchakkoeffitsientlariqanday munosabatdabo‘ladi?	0	$k_1 = k_2;$	$k_1 \neq k_2;$	$k_1 \cdot k_2 = 1;$	$k_1 \cdot k_2 = -1$
47	Iqtisodchilar uchun matematika	Quyidagi tekisliklarning qaysi birlari parallel? 1) $4x+2y-4z+5=0;$ 2) $2x+y-2z-1=0;$ 3) $x-3y+5z-7=0;$ 4) $2x-3y+5z-7=0.$	0	1va 2	1va 3	2 va 3	3 va 4
48	Iqtisodchilar uchun matematika	Tekislikning umumiy tenglamasini ko‘rsating	0	$Ax+By+Cz+$	$x\cos\alpha +$ $y\sin\alpha - p =$	$x = x_0 + tm;$ $y = y_0 + tn;$ $z = z_0 + tl;$	$\frac{x}{a}+\frac{y}{b}+\frac{z}{c}=1;$
49	Iqtisodchilar uchun matematika	Berilgan $A(4;-2;3)$ $B(5;-4;2)$ nuqtalardano’tuvchito’g’ri chiziq tenglamasini tuzing.	0	$x-4=\frac{y+2}{-2}=\frac{z}{}$	$\frac{x-5}{-4}=\frac{y+4}{2}=\frac{z}{}$	$x-4=\frac{y+2}{-5}=\frac{z-}{2}$	$\frac{x-4}{2}=\frac{y+2}{3}=$
50	Iqtisodchilar uchun matematika	$M(5;2;0)$ nuqtadano’tuvchiva $3x+2y-4z+7=0$ tekislikkapermendikulyarto’g’richiziqtenglamasin ituzing.	0	$\frac{x-5}{3}=\frac{y-2}{2}=\frac{z}{-}$	$\frac{x-3}{1}=\frac{y-2}{-2}=\frac{z}{-}$	$\frac{x-1}{4}=\frac{y-2}{-2}=\frac{z-3}{3}$	$\frac{x-3}{5}=\frac{y-2}{2}=$
51	Iqtisodchilar uchun matematika	$A(1;0;1)$, $B(-4;1;1)$, $C(1;5;2)$ nuqtalarorqali o’tuvchi tekislik tenglamasini tuzing.	0	$x+5y-25z+24=$	$25x-y+5z-30$	$x-5y+25z-26=$	$5x-25y+z-6$
52	Iqtisodchilar uchun matematika	A ningqandayqiymatida $\frac{x+3}{2}=\frac{y}{A}=\frac{z-1}{7}$ to’g’richiziq $Ax+5y+3z-6=0$ tekislikkaparallelbo’ladi.	0	-3	1	-7	2
53	Iqtisodchilar uchun matematika	$M_1(1,3,1)$ $M_2(0,2,4)$, $M_3(0,0,1)$ nuqtalardano’tgantekisliktenglamasini toping?	0	$9x-3y+2z-2=$	$9x+3y-2z-4$	$9x-3y-2z+2=$	$3x+9y-2z-4$
5	Iqtisodchilar uchun	$M_1(3,-2,-7)$ nuqtadano’tib, $2x-3z+5=0$	0	$2x-3z-27=0$	$2x-3y+7z-4=$	$6y-5z+3=0$	$4x-y+5z-7=$

4	matematika	tekislikka parallel tekislik tenglamasini aniqlang.					
55	Iqtisodchilar uchun matematika	$M(-1,4,5)$ nuqtadano`tuvchi $\frac{x-1}{2}=\frac{y+1}{-3}=\frac{z-6}{-4}$ to'g'ri chiziqqaperpendikulyarrekisliktenglamasinituzing.	0	$2x-3y-4z+34=0$	$x-4y-5z-34=0$	$2x+3y+5z-17=0$	$x+4y+5z+34=0$
56	Iqtisodchilar uchun matematika	$A(2;-3;5)$ va $B(0;4;-7)$ nuqtalardan o'tuvchi to'g'ri chiziq tenglamasini aniqlang	0	$\begin{cases}x=-2t+2,\\y=7t-3,\\z=-12t+5\end{cases}$	$\begin{cases}x=t-1,\\y=3t+7,\\z=12t+5\end{cases}$	$\begin{cases}x=2t-2,\\y=-7t+1,\\z=6t-1\end{cases}$	$\begin{cases}x=2t-2,\\y=-3t+7,\\z=5t-12\end{cases}$
57	Iqtisodchilar uchun matematika	$M(2;4;-5)$ nuqtadano`tuvchi $\frac{x-1}{3}=\frac{y}{1}=\frac{z+2}{-4}$ to'g'ri chiziqqa parallelto'g'ri chiziqtenglamasinituzing.	0	$\begin{cases}x=3t+2,\\y=t+4,\\z=-4t-5\end{cases}$	$\begin{cases}x=-3t+2,\\y=-t-4,\\z=4t-5\end{cases}$	$\begin{cases}x=2t+3,\\y=4t+1,\\z=-5t-4\end{cases}$	$\begin{cases}x=-2t-1,\\y=4t-2,\\z=-4t+5\end{cases}$
58	Iqtisodchilar uchun matematika	α ningqandayqiymatlarida $\frac{x}{\alpha}=\frac{y-1}{5}=\frac{z+5}{3}$, $\frac{x-1}{4}=\frac{y+2}{-2}=\frac{z-1}{2}$ to'g'ri chiziqlar perpendikulyar.	0	1	-1	2	3
59	Iqtisodchilar uchun matematika	α va β ningqandayqiymatlarida $\frac{x-2}{3}=\frac{y+4}{-5}=\frac{z+1}{\alpha}$ va $\frac{x+1}{6}=\frac{y-3}{\beta}=\frac{z+5}{2}$ to'g'richiziqlarperpendikulyar.	0	$\alpha=1,\ \beta=4$	$\alpha=2,\ \beta=4$	$\alpha=1,\ \beta=2$	$\alpha=2,\ \beta=3$
60	Iqtisodchilar uchun matematika	$M(2,0,-3)$ nuqtadano'tib $\frac{x-1}{5}=\frac{y+2}{2}=\frac{z+1}{-1}$ to'g'richiziqqaparallelbo'lganto'g'richiziqtenglamasinianiqlang.	0	$\frac{x-2}{5}=\frac{y}{2}=\frac{z+3}{-1}$	$\frac{x-3}{2}=\frac{y-1}{3}=\frac{z}{}$	$\frac{x}{5}=\frac{y+3}{-2}=\frac{z-1}{4}$	$\frac{x-5}{2}=\frac{y+2}{-4}=\frac{z}{8}$

“Iqtisodchilar uchun matematika” fanidan test topshiriqlari

№	Savol	Javob turi	1-javob	2-javob	3-javob	4-javob
1	Chiziqli algebraik tenglamalar sistemasiningildizini toping: $\begin{cases}5x-4y-z=3\\5x+y+z=11\\x-y+4z=-4\end{cases}$	0	$(2;2;-1)$	$(-1;2;2)$	$(1;1;-2)$	$(-2;-2;-5)$
2	Chiziqli algebraik tenglamalar sistemasiningildizini toping: $\begin{cases}x-y+2z=3\\3x+2y-z=12\\x+4y-3z=8\end{cases}$	0	$(3;2;1)$	$(0;-3;0)$	$(1;0;1)$	$(2;-2;1)$
3	Chiziqli algebraik tenglamalar sistemasiningildizini toping: $\begin{cases}x+y-z=1\\2x-y+3z=3\\x-2y+z=5\end{cases}$	0	$(2;-2;-1)$	$(-1;1;-1)$	$(3;-2;0)$	$(2;0;1)$
4	Birjinslichiziqli tenglamalar sistemasining fundamental yechimlari tizimini	0	$\left(\frac{1}{7},\frac{3}{7},1\right)$	$\left(-\frac{1}{7},-\frac{3}{7},1\right)$	$\left(7,\frac{7}{3},1\right)$	$\left(\frac{1}{14},\frac{3}{7},1\right)$

	toping: $\begin{cases} x_1 + 2x_2 - x_3 = 0 \\ 2x_1 - 3x_2 + x_3 = 0. \end{cases}$					
5	Birjinslichiziqli tenglamalar sistemasining fundamental yechimlari tizimini toping: $\begin{cases} x_1 + 2x_2 - x_3 + x_4 = 0 \\ 2x_1 - 3x_2 + x_3 - 2x_4 = 0. \end{cases}$	0	$\left(\frac{1}{7},\frac{3}{7},1,0\right), \left(\frac{1}{7},-\frac{4}{7},0,1\right)$	$\left(-\frac{1}{7},\frac{1}{7},1,0\right),$ $\left(\frac{1}{14},-\frac{4}{7},0,1\right)$	$\left(-\frac{1}{7},-\frac{1}{7},-1,0\right),$ $\left(\frac{1}{7},\frac{4}{7},0,1\right)$	$\left(\frac{3}{7},\frac{3}{7},1,0\right),$ $\left(-\frac{1}{7},\frac{4}{7},0,1\right).$
6	m ningqandayqiymatlarida $\begin{cases} 6x - 3y = 12 \\ 3x + my = 6 \end{cases}$ tenglamalarsistemasicheksizko'pyechimgaega	0	$m = -\frac{3}{2}$	$m \neq -\frac{3}{2}$	$m = -\frac{2}{3}$	$m = 1$
7	$\begin{cases} x_1 - 3x_2 - x_3 = 2 \\ x_1 + 2x_2 + 4x_3 = 4 \end{cases}$ chiziqlitenglamalarsistemasibirgalikdayokibirgalikdaemasliginianiqlang.	0	Birgalikda $r(A) = r(A/B) < 3$	Birgalikda $r(A) = r(A/B) = 3$	Birgalikda emas $r(A) < r(A/B)$	Birgalikda emas $r(A) = r(A/B) = 2$

8	$\begin{cases} x+y-z=-2 \\ 2x+3z=8 \\ 3x-2y=5 \end{cases}$ tenglamalar sistemasi berilgan Δ, Δ_z, z ni toping	0	$(19,38,2)$	$(19,-38,-2)$	$(19,-19,-1)$	$(19,19,1)$
9	Quyidagiformulalarni ngqaysibiri Kramer formulasiekanliginiani qlang	0	$x=\frac{\Delta_1}{\Delta}, y=\frac{\Delta_2}{\Delta}, z=\frac{\Delta_3}{\Delta}$	$x=\frac{\Delta}{\Delta_1}, y=\frac{\Delta}{\Delta_2}, z=\frac{\Delta}{\Delta_3}$	$x=\frac{\Delta}{\Delta_1}, y=\frac{\Delta_2}{\Delta}, z=$	$x=\frac{\Delta}{\Delta_3}, y=\frac{\Delta_1}{\Delta_3}, z=\frac{\Delta}{\Delta}$
10	$A\cdot X=B$ sistemaningmatritsako ‘rinishidagiyechimi	0	$X=A^{-1}\cdot B;$	$X=B\cdot A^{-1};$	$X=B^{-1}\cdot A^{-1};$	$X=A\cdot B.$
11	$\begin{cases} x+2y=3 \\ 4x-3y=1 \end{cases}$ chiziqli algebraik tenglamalar sistemasiningildizini toping.	0	$x=1; y=1.$	$x=-1; y=1.$	$x=1; y=-1;$	$x=-1; y=-1.$
12	$\begin{cases} x-y+3z=6 \\ 3x=3 \\ x+y-z=0 \end{cases}$ chiziqli algebraik tenglamalar sistemasiningildizini toping.	0	$x=1, y=1, z=2$	$x=1, y=-1, z=2$	$x=1, y=1, z=-2$	$x=1, y=-1, z=-2$

13	$\begin{cases} a_1x+a_2y+a_3z=a_4, \\ b_1x+b_2y+b_3z=b_4, \\ c_1x+c_2y+c_3z=c_4 \end{cases}$ chiziqli algebraik tenglamalar sistemasi qachon bitta yechimga ega bo‘ladi?	0	$\Delta \neq 0$ bo‘lsa	$\Delta_1 \neq 0$ bo‘lsa	$\Delta_2 \neq 0$ bo‘lsa	$\Delta_3 \neq 0$ bo‘lsa
14	$\begin{cases} x+2y=-1 \\ 3x-2y=5 \end{cases}$ chiziqli algebraik tenglamalar sistemasiningildizini toping.	0	$x=1; y=-1;$	$x=-1; y=1;$	$x=1; y=1;$	$x=-1; y=-1.$
15	$\begin{cases} x+y+3z=6 \\ 3x=3 \\ x-y-z=0 \end{cases}$ chiziqli algebraik tenglamalar sistemasiningildizini toping:	0	$x=1, y=-1, z=2$	$x=1, y=1, z=2$	$x=1, y=-1, z=-2$	$x=1, y=1, z=-2$
16	$\begin{cases} x+y+3z=5 \\ 2x-y+3z=4 \\ 3x-2y+z=2 \end{cases}$ chiziqli algebraik tenglamalar sistemasiningildizini toping.	0	$(1;\ 1;\ 1)$	$(-1;\ 1;\ -1)$	$(1;\ -1;\ -1)$	$(-1;\ -1;\ 1)$

17	$\begin{cases} x_1+3x_2-5x_3=-1 \\ 2x_1-x_2+3x_3=4 \\ 3x_1+2x_2-5x_3=0 \end{cases}$ chiziqli algebraik tenglamalar sistemasiningildizini toping:	0	$X=(1,1,1).$	Sistemabirgalikdaemas	$(1;\ -1;\ -1)$	$(19,38,2)$
18	$\begin{cases} x_1+2x_2+x_3=8 \\ -2x_1+3x_2-3x_3=-5 \\ 3x_1-4x_2+5x_3=10 \end{cases}$ chiziqli algebraik tenglamalar sistemasiningildizini toping:	0	$X=(1,2,3).$	$(1;\ -1;\ -1)$	Sistemabirgalikdaemas	$(-1;\ -1;\ 1)$
19	$\begin{cases} 3x_1+x_2=9 \\ x_1-2x_2-x_3=5 \\ 3x_1+44x_2-2x_3=13 \end{cases}$ chiziqli algebraik tenglamalar sistemasiningildizini toping:	0	$X=(3,0,-2).$	$(19,38,2)$	$(-1;\ -1;\ 1)$	Sistemabirgalikdaemas
20	$\begin{cases} x_1+3x_2+2x_3=6, \\ x_1-5x_2+2x_3=-2, \\ x_1-5x_2+3x_3=-1. \end{cases}$ chiziqli algebraik tenglamalar sistemasiningildizini toping:	0	$X=(1,1,1)$	Sistemabirgalikdaemas	$(19,38,2)$	$(1;\ -1;\ -1)$

21	$\begin{cases} 2x_1 + x_2 = 5, \\ x_1 + 3x_3 = 16, \\ 5x_2 - x_3 = 10. \end{cases}$ chiziqli algebraik tenglamalar sistemasiningildizini toping:	0	$X = (1,3,5)$	$(-1;\ -1;\ 1)$	Sistemabirgalikdaemas	$(19,38,2)$
22	$\begin{cases} x_1 + x_2 - 2x_3 = 6 \\ 2x_1 + 3x_2 - 7x_3 = 16 \\ 5x_1 + 2x_2 + x_3 = 16 \end{cases}$ chiziqli algebraik tenglamalar sistemasiningildizini toping:	0	$X = (3,1,-1).$	$(19,38,2)$	$(-1;\ -1;\ 1)$	Sistemabirgalikdaemas
23	$\begin{cases} 5x_1 + 8x_2 + x_3 = 2 \\ 3x_1 - 2x_2 + 6x_3 = -7 \\ 2x_1 + x_2 - x_3 = -5 \end{cases}$ chiziqli algebraik tenglamalar sistemasiningildizini toping.	0	$X = (-3,2,1).$	Sistemabirgalikdaemas	$(19,38,2)$	$X = (3,1,-1).$
24	$\begin{cases} x_1 + 2x_2 + 3x_3 = 5 \\ 4x_1 + 5x_2 + 6x_3 = 8 \\ 7x_1 + 8x_2 = 2. \end{cases}$ chiziqli algebraik tenglamalar sistemasiningildizini toping:	0	$X = (-2,2,1).$	$X = (3,1,-1).$	Sisemabirgalikdaemas	$(19,38,2)$

25	$\begin{cases} 2x_1 - 3x_2 + x_3 = -7 \\ x_1 + 2x_2 - 3x_3 = 14 \\ -x_1 - x_2 + 5x_3 = -18 \end{cases}$ chiziqli algebraik tenglamalar sistemasiningildizini toping:	0	$X = (1;2,-3).$	$X = (-2,2,1).$	$X = (3,1,-1).$	Sistemabirgalik daemas
26	$\begin{cases} 2x_1 + 3x_2 + 2x_3 = 7, \\ 3x_1 - 5x_2 + 2x_3 = 0, \\ x_1 - 5x_2 + 3x_3 = -1. \end{cases}$ chiziqli algebraik tenglamalar sistemasiningildizini toping.	0	$X = (1;1,1)$	Sistemabirgalikdaem as	$X = (-2,2,1).$	$X = (3,1,-1).$
27	$\begin{cases} x_1 + 2x_2 + 3x_3 = 3 \\ 2x_1 + 6x_2 + 4x_3 = 12 \\ 3x_1 + 10x_2 + 8x_3 = 21 \end{cases}$ chiziqli algebraik tenglamalar sistemasiningildizini toping.	0	$X = (-3;3,0)$	$X = (3,1,-1).$	Sistemabirgalikd aemas	$X = (-2,2,1).$
28	$\begin{cases} x_1 + 2x_2 + 3x_3 = 10 \\ 4x_1 + 5x_2 + 6x_3 = 19 \\ 7x_1 + 8x_2 = 1 \end{cases}$ chiziqli algebraik tenglamalar sistemasiningildizini toping.	0	$X = (-1;1,3)$	$X = (-2,2,1).$	$X = (-3;3,0)$	Sistemabirgalik daemas

29	$\begin{cases} x_1 + 2x_2 + 3x_3 = 2 \\ 2x_1 + 6x_2 + 4x_3 = -6 \\ 3x_1 + 10x_2 + 8x_3 = -8 \end{cases}$ chiziqli algebraik tenglamalar sistemasiningildizini toping:	0	$X = (2;-3,2)$	Sistemabirgalikdaemas	$X = (-2,2,1).$	$X = (-3;3,0)$
30	$\begin{cases} 3x_1 - 2x_2 + x_3 = -10, \\ 2x_1 + 3x_2 - 4x_3 = 16, \\ x_1 - 4x_2 + 3x_3 = -18. \end{cases}$ chiziqli algebraik tenglamalar sistemasiningildizini toping:	0	$X = (-1;2,-3)$	$X = (-3;3,0)$	Sistemabirgalikdaemas	$X = (-2,2,1).$
31	$\begin{cases} 3x_1 + 2x_2 + x_3 = -8 \\ 2x_1 + 3x_2 + x_3 = -3 \\ 2x_1 + x_2 + 3x_3 = -1 \end{cases}$ chiziqli algebraik tenglamalar sistemasiningildizini toping:	0	$X = (-4;1,2)$	$X = (2;-3,2)$	$X = (-3;3,0)$	Sistemabirgalikdaemas
32	$\begin{cases} 2x_1 - 3x_2 - x_3 = -6 \\ 3x_1 + 4x_2 + 3x_3 = -5 \\ x_1 + x_2 + x_3 = -2 \end{cases}$ chiziqli algebraik tenglamalar sistemasiningildizini toping:	0	$X = (-2;1;-1)$	Sistemabirgalikdaemas	$X = (-3;3,0)$	$X = (2;-3,2)$

33	$\begin{cases} 2x_1 + 2x_2 - x_3 = 4 \\ 3x_2 + 4x_3 = -5 \\ x_1 + x_3 = -2 \end{cases}$ chiziqli algebraik tenglamalar sistemasiningildizini toping:	0	$X = (0;1;-2)$	$X = (2;-3,2)$	Sistemabirgalikdaemas	$X = (-3;3,0)$
34	$\begin{cases} x_1 + 2x_2 + 3x_3 = 6, \\ 2x_1 + 3x_2 - x_3 = 4, \\ 3x_1 + x_2 - 4x_3 = 0. \end{cases}$ chiziqli algebraik tenglamalar sistemasiningildizini toping.	0	$X = (1;1,1)$	$X = (-4;1,2)$	$X = (2;-3,2)$	Sistemabirgalikdaemas
35	$\begin{cases} 2x_1 + 2x_2 - x_3 = 5, \\ 4x_1 + 3x_2 - x_3 = 8, \\ 8x_1 + 5x_2 - 3x_3 = 16. \end{cases}$ chiziqli algebraik tenglamalar sistemasiningildizini toping:	0	$X = (1;1;-1).$	Sistemabirgalikdaemas	$X = (-4;1,2)$	$X = (2;-3,2)$
36	$\begin{cases} 2x_1 - x_2 + 3x_3 = 3, \\ 3x_1 + 3x_2 - x_3 = 8, \\ 8x_1 + 5x_2 + x_3 = 16. \end{cases}$ chiziqlitenglamalarsistemasibirgalikdayokibirgalikdaemasliginianiqlang.	0	Sistemabirgalikdaemas	Sistemabirgalikdavaaniqsistema	Sistemabirgalikdavaaniqmassistema	Sistemabirgalikdaemasvaaniqsistema

37	$\begin{cases} 2x_1 + x_2 + x_3 = 4, \\ x_1 - x_2 + x_3 = 0, \\ 3x_1 + x_2 + 2x_3 = 5. \end{cases}$ chiziqli algebraik tenglamalar sistemasiningildizini toping.	0	$X = (2;1;-1).$	$X = (-4;1,2)$	$X = (0;1;-2)$	$X = (1;1,1)$
38	$\begin{cases} 4x_1 - 3x_2 + 2x_3 = 9 \\ 2x_1 + 5x_2 - 3x_3 = 4 \\ 5x_1 + 6x_2 - 2x_3 = 18 \end{cases}$ chiziqli algebraik tenglamalar sistemasiningildizini toping.	0	$(2;3;5).$	$X = (1;1,1)$	$X = (1;1;-1).$	$X = (0;1;-2)$
39	$\begin{cases} x_1 + 2x_2 + 3x_3 = 0, \\ 2x_1 + 4x_2 + 5x_3 = -1, \\ 3x_1 + 5x_2 + 6x_3 = 1. \end{cases}$ chiziqli algebraik tenglamalar sistemasiningildizini toping.	0	$X = (5;-4;1)$	$X = (0;1;-2)$	$X = (1;1,1)$	Sistemabirgalik daemas
40	$\begin{cases} 3x_1 - x_2 + 2x_3 = 0 \\ 4x_1 - 3x_2 + 3x_3 = 0 \\ x_1 + 3x_2 = 0 \end{cases}$ birjinslichiziqlialgebraiktenglamalarsistemasiningumumiyvabittaxususiyyechiminitopin	0	Umumiy yechim $(-3t;t;5t)$; xususiy yechim $(0;0;0;).$	Xususiy yechim $X = (5;-4;1)$	Sistema birgalikda yemas	Xususiy yechim $X = (1;1,1)$

	g.					
41	$\begin{cases} x_1 + x_2 - x_3 = 0 \\ 8x_1 + 3x_2 - 6x_3 = 0 \\ 4x_1 - x_2 + 3x_3 = 0 \end{cases}$ bir jinsli chiziqli algebraik tenglamalar sistemasining umumiy va bitta xususiy yechimini toping.	0	Chiziqli tenglamalar sistemasi aniq va $(0;0;0)$ yechimga ega.	Sistemabirgalikdaemas.	Xususiyyechim $X = (0;1;-2)$	Xususiyyechim $X = (5;-4;1)$
42	$\begin{cases} x_1 + x_2 + x_3 = 3, \\ 2x_1 - x_2 + x_3 = 2, \\ x_1 + 4x_2 + 2x_3 = 5. \end{cases}$ chiziqli tenglamalar sistemasining birgalikda yoki birgalikda emasligini tekshiring.	0	Sistemabirgalikdaemas	Sistemabirgalikdavaaniqsistema	Sistemabirgalikdaemasvaaniqmassistema	Sistemabirgalikdaemasvaaniqsistema
43	$\begin{cases} x_1 + x_2 - x_3 = -4, \\ x_1 + 2x_2 - 3x_3 = 0, \\ -2x_1 - 2x_3 = 3. \end{cases}$ bir jinsli bo‘lmaganchiziqli algebraik tenglamalar sistemasining birgalikda yoki birgalikda emasligini tekshiring.	0	Sistemabirgalikdaemas	Sistemabirgalikdavaaniqsistema	Sistemabirgalikdavaaniqmassistema	Sistemabirgalikdaemasvaaniqsistema

44	$\begin{cases} x_1+2x_2-4x_3=1, \\ 2x_1+x_2-5x_3=-1, \\ x_1-x_2-x_3=-2. \end{cases}$ bir jinsli bo‘lmaganchiziqli algebraik tenglamalar sistemasining umumiy yechimini toping.	0	Umumiy yechim $X=(2t-1;t+1;t);\ t\in R$	Sistema birgalikda emas	Xususiy yechim $(2;3;5)$.	Xususiy yechim $(-1;\ 1;\ -1)$
45	$\begin{cases} 2x_1-x_2-x_3=0 \\ 3x_1+4x_2-2x_3=0 \\ 3x_1-2x_2+4x_3=0 \end{cases}$ bir jinsli chiziqli algebraik tenglamalar sistemasining umumiy va bitta xususiy yechimini toping.	0	Chiziqlitenglamalarsistemasianiqva $(0;0;0)$ yechimgaega.	Umumiy yechim $X=(2t-1;t+1;t);\ t\in R$	Sistema birgalikda emas	Xususiy yechim $(2;3;5)$.