

“Oliy matematika” fanidan yakuniy nazorat savollari

1. To'plamlar va ular ustida amallar. Sonli to'plamlar, haqiqiy sonlar to'plami, haqiqiy sonning moduli, xossalari va geometrik talqini. Eyler-Venn diagrammalari.
2. Graflar nazariyasi asoslari.
3. Matematik mantiqning asosiy tushunchalari. Mantiqiy amallar va formulalar. Mulohazalar hisobi.
4. Matritsa haqida tushuncha. Matritsalar ustida amallar.
5. Determinantlar va ularning xossalari.
6. Chiziqli tenglamalar sistemasi va ularni yechish usullari. Kramer formulalari.
7. Vektorlar va ular ustida amallar.
8. Tekislik va fazodagi Dekart koordinatalar sistemasi. Tekislik va fazodagi ikki nuqta orasidagi masofa.
9. Kesmani berilgan nisbatda bo'lish.
10. To'g'ri chiziqning turli tenglamalari. Ikki to'g'ri chiziq orasidagi burchak.
11. Ikkita to'g'ri chiziqning parallelligi va perpendikulyarligi shartlari. Nuqtadan to'g'ri chiziqqacha bo'lgan masofa.
12. Tekislikning turli tenglamalari. Ikki tekislik orasidagi burchak.
13. Ikkita tekislikning parallelligi va perpendikulyarligi shartlari. Nuqtadan tekislikkacha bo'lgan masofa.
14. Tekislikda ikkinshi tartibli egri chiziqlar. Ikkinshi tartibli egri chiziqning tarifi. Aylana. Aylananing markazi va radiusi.
15. Ellips va uning fokuslari, direktrisasi.
16. Giperbola tarifi. Giperbola asimptotalari va uni yaratish.
17. Parabola va uning tenglamasi. Parabolani yaratish.
18. Ikkinchi tartibli sirtning tarifi. Sfera.
19. Ellipsoid.
20. Giperboloid.
21. Paraboloid.

22. Ikki nuqta orasidagi masofani toping: $A=A(-3;1)$, $B=B(5;3)$. $AB=?$

23. Matritsalarini ko'paytiring: $A=\begin{pmatrix} 2 & 3 \\ -6 & 8 \end{pmatrix}$, $B=\begin{pmatrix} -3 & 4 \\ -6 & 7 \end{pmatrix}$

24. $A=\{1,2,3,4,5,6\}$ va $B=\{5,3,4,7,9\}$ to'plamlari berilgan. $A\cup B$, $A\cap B$, $A\setminus B$, $B\setminus A$, $A\times B$ larni toping.

25. $A=A(-2;1)$ $B=B(3;6)$. AB kesmani $AN:NB=3:2$ nisbatda bo'lin'.

26. $A=\{3,5,6,3,9\}$; $B=\{5,3,4\}$ to'plamlari berilgan. $A\cup B$, $A\cap B$, $A\setminus B$, $B\setminus A$, $A\times B$ larni toping.

27. $\vec{a}=(1, -2, 3)$, $\vec{b}=(5, 9, 7)$ bolsa, $2\vec{a}+4\vec{b}$ ni toping.

28. $A=\{6,7,8,9,10\}$ va $B=\{2,3,5,6,9,10\}$ to'plamlarining kesishmasini toping.

29. $\vec{a}=(1, -2, 3)$, $\vec{b}=(5, 9, 7)$ bolsa, $3\vec{b}-\vec{a}$ ni toping.

30.
$$\begin{cases} 3x-y+z-2=0 \\ x+5y+z+5=0 \\ 2x+y-3z+4=0 \end{cases}$$
 tenglamalar sistemasini Kramer usuli bilan eching.

31. $A=\{2;3;5;7;9;10\}$ $B=\{3;5;7;8\}$ $C=\{4;7;11\}$ to'plamlari berilgan bo'lsa, $B\cap(A\cup C)$ to'plamining elementini ko'rsating.

32. $\vec{a}(2;\sqrt{2})$, $\vec{b}(4;2\sqrt{2})$ vektorlar berilgan. $|\vec{a}|, |\vec{b}|$ larni toping.

33. $A=\begin{pmatrix} 0 & 1 & 0 \\ -4 & 4 & 0 \\ -2 & 1 & 2 \end{pmatrix}$ $B=\begin{pmatrix} -1 & 3 & -2 \\ -4 & 1 & 2 \\ 3 & -4 & 4 \end{pmatrix}$ $A+B$ ni toping.

34. $A=\{5,6,8,10,11\}$ va $B=\{3,4,5,6,8\}$ to'plamlari berilgan. $A\setminus B$ ni toping.

35. $\vec{a}(2;\sqrt{2})$, $\vec{b}(4;2\sqrt{2})$ vektorlar berilgan. $(\vec{a}\wedge\vec{b})$ ni toping.

36. Matritsalarini ko'paytiring: $\begin{pmatrix} 2 & 3 \\ -6 & 8 \end{pmatrix}$ va $\begin{pmatrix} -3 & 4 \\ -6 & 7 \end{pmatrix}$

37. Rostlik jadvalini tuzing; $(A\Rightarrow B)\wedge\bar{C}$

38. $A=\{2,-2,3,7,9\}$; $B=\{5,3,4\}$ to'plamlari berilgan. $A\cup B$, $A\cap B$, $A\setminus B$, $B\setminus A$, $A\times B$ larni toping.

39. $\vec{a}(4;3;1), \vec{b}(-1;4;2)$; vektorlari berilgan bo'lsa, $\vec{a} \cdot \vec{b}, \vec{a} \wedge \vec{b}$ larni toping.

40. $A=\{1,2,3,5,7,8\}$ va $B=\{2,3,4,5,9\}$ to'plamlarining kesishmasini toping.

41. $\begin{cases} 3x+2y=5 \\ 4x-5y=-24 \end{cases}$ tenglamalar sistemasini Kramer usuli bilan eching.

42. $A = \begin{pmatrix} 2 & 19 & 30 \\ 0 & -5 & -12 \\ 0 & 2 & 5 \end{pmatrix}, \quad B = \begin{pmatrix} 4 & 3 & 5 \\ 6 & 7 & 1 \\ 9 & 1 & 8 \end{pmatrix}, \quad A+B$ ni toping.

43. $A = \{2;3;5;7;9;10\}, \quad B = \{3;5;7;8\}, \quad C = \{4;7;11\}$ to'plamlari berilgan bo'lsa, $A \cap (B \cup C)$ to'plamining elementini ko'rsating.

44. $A = \begin{pmatrix} 0 & 1 & 0 \\ -4 & 4 & 0 \\ -2 & 1 & 2 \end{pmatrix}, \quad B = \begin{pmatrix} -1 & 3 & -2 \\ -4 & 1 & 2 \\ 3 & -4 & 4 \end{pmatrix}, \quad A+B$ ni toping.

45. $\vec{a}(2;5), \vec{b}(-7;-3)$ vektorlar orasidagi burchakni toping.

46. $A=\{3,5,6,12\}$ va $B=\{1,2,3,5\}$ to'plamlari berilgan. $A \setminus B$ ni toping.

47. Ikki nuqta orasidagi masofani toping. $A=A(-3;1), B=B(5;3)$. $AB=?$

48. $\begin{vmatrix} 2 & -1 & 0 \\ 3 & 1 & 2 \\ -3 & 4 & 5 \end{vmatrix}$ determinantni hisoblang.

49. Rostlik jadvalini tuzing; $(A \vee B) \Rightarrow (B \vee C)$

50. $A=\{2,3,4,8\}; B=\{6,3,4\}$ to'plamlari berilgan. $A \cup B, A \cap B, A \setminus B, B \setminus A, A \times B$ larni toping.

51. $A = A(-2;1) \quad B = B(3;6)$. AB kesmani $AN:NB = 3:2$ nisbatda bo'ling.

52. $A=\{5,6,8,10,11\}$ va $B=\{3,4,5,6,8\}$ to'plamlarining kesishmasini toping.

53. $\begin{vmatrix} 5 & -1 & 0 \\ 6 & 1 & 2 \\ -3 & 3 & 5 \end{vmatrix}$ determinantni hisoblang.

54. $3x+4y=12$ tenglama bilan berilgan to'g'ri chiziqni chizing.

55. $A = \{2;3;5;7;9;10\}, \quad B = \{3;5;7;8\}, \quad C = \{4;7;11\}$ to'plamlari berilgan bo'lsa, $A \cup (B \cap C)$ to'plamining elementini ko'rsating.

56. $3x-4y=6$ tenglama bilan berilgan to'g'ri chiziqni chizing.

57.
$$\begin{cases} 3x-y+z-2=0 \\ x+5y+z+5=0 \\ 2x+y-3z+4=0 \end{cases}$$
 tenglamalar sistemasini eching.

58. $A=\{1,2,3,5,7,8\}$ va $B=\{2,3,4,5,9\}$ to'plamlari berilgan. $A \setminus B$ ni toping.

59.
$$\begin{cases} 2x-y+z-2=0 \\ x+6y+z+5=0 \\ 3x+y-3z-4=0 \end{cases}$$
 tenglamalar sistemasini eching.

60. $2x-3y=6$ tenglama bilan berilgan to'g'ri chiziqni chizing.

61. Rostlik jadvalini tuzing; $A \Rightarrow (B \Rightarrow \bar{C})$

62. $A=\{6,10,2,3\}$; $B=\{5,3,4\}$ to'plamlari berilgan. $A \cup B$, $A \cap B$, $A \setminus B$, $B \setminus A$, $A \times B$ larni toping.

63.
$$\begin{vmatrix} 2 & 0 & 4 \\ 8 & 1 & 2 \\ -4 & 3 & 5 \end{vmatrix}$$
 determinantni hisoblang.

64. $A=\{3,5,6,12\}$ va $B=\{1,2,3,5\}$ to'plamlarining kesishmasini toping.

65.
$$\begin{vmatrix} 1 & 2 & 4 \\ 6 & 5 & 2 \\ -3 & 3 & 0 \end{vmatrix}$$
 determinantni hisoblang.

66. Matritsalarining ko'paytmasini toping: $\begin{pmatrix} 2 & -3 \\ -6 & -8 \end{pmatrix}$ va $\begin{pmatrix} 2 & 4 \\ -6 & 7 \end{pmatrix}$

67. $A = \begin{pmatrix} 1 & -3 & 4 \\ 4 & -7 & 8 \\ 6 & -7 & 7 \end{pmatrix}$, $B = \begin{pmatrix} 4 & 3 & 1 \\ 3 & 2 & 1 \\ 1 & -2 & 1 \end{pmatrix}$ matritsalar berilgan. $A \cdot B$ va $B \cdot A$ ni toping.

68.
$$\begin{vmatrix} 3 & 2 & 0 \\ -6 & 6 & 4 \\ -3 & 3 & 1 \end{vmatrix}$$
 determinantni hisoblang.

69.
$$\begin{cases} 3x+2y=5 \\ 4x-5y=-24 \end{cases}$$
 tenglamalar sistemasini eching.

70. $A = \{2;3;5;7;9;10\}$ $B = \{3;5;7;8\}$ $C = \{4;7;11\}$ to'plamlari berilgan bo'lsa, $A \cap (B \cap C)$ to'plamining elementini ko'rsating.

71. $\begin{vmatrix} 5 & 0 & 4 \\ 7 & -1 & 2 \\ -3 & 1 & 5 \end{vmatrix}$ determinantni hisoblang.

72. Ikki nuqta orasidagi masofani toping. $A=A(2;1)$, $B=B(3;4)$. $AB=?$

73. $A=\{6,7,8,9,10\}$ va $B=\{2,3,5,6,9,10\}$ to'plamlari berilgan $A \setminus B$ ni toping.

74. $\begin{cases} 2x - y + 2z - 2 = 0 \\ 3x + 4y + z - 6 = 0 \\ x + y - 3z - 4 = 0 \end{cases}$ tenglamalar sistemasini eching.

75. $A = A(2;1)$ $B = B(3;4)$. AB kesmani $AN:NB=3:2$ nisbatda bo'ling.

76. Rostlik jadvalini tuzing; $\overline{A} \vee \overline{B} \Rightarrow \overline{C}$

77. Determinantni hisoblang: $\begin{vmatrix} 1 & 2 & 3 \\ 3 & 2 & 4 \\ 1 & 1 & 2 \end{vmatrix}$

78. $A = A(-2;-1)$ $B = B(3;5)$. AB kesmani $AN:NB=3:2$ nisbatda bo'ling.

79. Ushlari $A(1;2), B(3;3), C(3;-2)$ nuqtalarda bo'lgan uchburshakning tomonlarini toping.

80. $\begin{vmatrix} 2 & 1 & 4 \\ 8 & 5 & 2 \\ 4 & 3 & 5 \end{vmatrix}$ determinantni hisoblang.

81. $A=\{5,6,8,10,11\}$ va $B=\{3,4,5,6,8\}$ to'plamlarining kesichmasini toping.

82. $A=\{6,7,8,9,10\}$ xəM $B=\{2,3,5,6,9,10\}$ to'plamlarining kesishmasini toping.

83. $A = \begin{pmatrix} 1 & 3 & 4 \\ 4 & 7 & 8 \\ 6 & 1 & 4 \end{pmatrix}$, $B = \begin{pmatrix} 4 & 3 & 1 \\ 3 & 2 & 1 \\ 1 & 1 & 2 \end{pmatrix}$ matritsalar berilgan. $A \cdot B$ va $B \cdot A$ ni toping.

84. $2x - 6y + 12 = 0$ to'g'ri chiziqni chizing.

85. $A = \{2;3;5;7;9;10\}$ $B = \{3;5;7;8\}$ $C = \{4;7;11\}$ to'plamlari berilgan bo'lsa, $B \cap (A \cup C)$ to'plamining elementini ko'rsating.

86. $\begin{vmatrix} 5 & 1 & 4 \\ 7 & -1 & 2 \\ -3 & 0 & 4 \end{vmatrix}$ determinantni hisoblang.

87. $2x - y = 2$ tenglama bilan berilgan to'g'ri chiziqni chizing.

88. $A = \{5, 6, 8, 10, 11\}$ va $B = \{3, 4, 5, 6, 8\}$ to'plamlari berilgan. $A \setminus B$ ni toping.

89. Rostlik jadvalini tuzing: $(A \Rightarrow B) \vee \bar{C}$

90. $\begin{cases} x_1 + 3x_2 - 3x_3 = 13 \\ 2x_1 - 3x_2 + 3x_3 = -10 \\ x_1 + x_3 = 0 \end{cases}$ tenglamalar sistemasini Kramer formulasi bilan eching.

91. Rostlik jadvalini tuzing: $(A \Rightarrow B) \vee C$

92. Uchlari $A(2, 3)$, $B(-1, 2)$ nuqtalarda bo'lgan AB kesmani $\lambda = \frac{1}{2}$ nisbatda bo'luvshi nuqtaning koordinatalarini toping.

93. Tenglamalar sistemasini Kramer formulasi bilan eching: $\begin{cases} 2x + y = 0 \\ y = 3x - 4 \end{cases}$

94. $A = \begin{pmatrix} 1 & 3 & 4 \\ 4 & 7 & 8 \\ 6 & 7 & 7 \end{pmatrix}$, $B = \begin{pmatrix} 4 & 3 & 1 \\ 3 & 2 & 1 \\ 1 & 2 & 2 \end{pmatrix}$ matritsalar berilgan. $A \cdot B$ va $B \cdot A$ ni toping.

95. $A(3;3)$ va $B(3;-5)$ nuqtalari belgilansin va AB kesmani teng ikkiga bo'luvchi $N(x; y)$ nuqta topilsin.

96. $A = \{1, 2, 3, 5, 7, 8\}$ va $B = \{2, 3, 4, 5, 9\}$ to'plamlarining birlashmasini toping.

97. $\begin{cases} 2x_1 + x_2 - x_3 = 0 \\ x_1 - x_2 - 3x_3 = 13 \\ 3x_1 - 2x_2 + 4x_3 = -15 \end{cases}$ tenglamalar sistemasini Kramer formulasi bilan eching.

98. $A(-2;4)$ va $B(2;-4)$ nuqtalari belgilansin va AB kesmani $AN : NB = 3 : 2$ nisbatda bo'luvshi $N(x; y)$ nuqta topilsin.

99. $A = \{6, 7, 8, 9, 10\}$ va $B = \{2, 3, 5, 6, 9, 10\}$ to'plamlari berilgan $A \setminus B$ ni toping.

100. $y = 3x + 1$ va $y = 2x - 3$ to'g'ri chiziqlarning keshilish nuqtasini toping.