

## IKKI O'ZGARUVCHILI TENGSIZLIKLAR SISTEMASINI TAQQOSLAMALAR USULI BILAN YECHISH.

**Sharipova Madina Po'latovna**

Osiyo Xalqaro Universiteti

“Umumtexnik fanlar” kafedrası o'qituvchisi

saripovamadina807.m@gmail.com

<https://doi.org/10.5281/zenodo.10673102>

### ANNOTATSIYA.

Maqolada tengsizliklar sistemasini yechish, bu o'zgaruvchining-sistemaning har bir tengsizligini qanoatlantiradigan barcha qiymatlari to'plamini topish o'rganilgan.

**Kalit so'zlar:** Tekislik nuqtalari, chiziqli tengsizliklar, to'plam, doira

### ANNOTATION.

Plane points, linear inequalities, set, circle.

Ikki o'zgaruvchili tengsizliklar sistemasini taqqoslash, matematikada juda muhim o'rin tutadi. Bu usul, o'zgaruvchilar funksiyalari, limitlar, integrallar va koordinatalar orqali tengsizliklarini taqqoslashga asoslangan.

Bir o'zgaruvchili ikki yoki undan ortiq chiziqli tengsizliklar to'plamiga bir o'zgaruvchili *chiziqli tengsizliklar sistemasi* deyiladi.

Tengsizliklar sistemasini yechish, bu o'zgaruvchining-sistemaning har bir tengsizligini qanoatlantiradigan barcha qiymatlari to'plamini topish demakdir.

Bir o'zgaruvchili (noma'lumli) ikkita chiziqli tengsizliklar sistemasini

$$\begin{cases} a_1x + b_1 > 0 \\ a_2x + b_2 > 0 \end{cases} \quad (2)$$

qaraymiz. Bu sistemaning har bir tengsizligini alohida-alohida yechganda, quyidagi hollar bo'lishi mumkin.

1. Har bir tengsizlikning yechimida bir xil ma'noli tengsizlik bo'ladi, ya'ni

$$a) \begin{cases} x > m \\ x > n \end{cases}$$

Bunda  $m > n$  bo'lsa, sistemaning yechimlarini topish uchun sonlar o'qini olib, unda birinchi (yuqorida) va ikkinchi (pastda) tengsizliklarning yechimlarini belgilaymiz. Bu tengsizliklar yechimlarining umumiy qismiga mos  $x > m$  qiymatlar sistemaning yechimi bo'ladi. Uni  $(m, +\infty)$  deb yozamiz.

$$b) \begin{cases} x < m \\ x < n \end{cases}$$

Bunda  $m > n$  bo'lsa, sistemaning yechimlari  $x < n$ , ya'ni  $(-\infty, n)$  to'plamdan iborat.

2. Har bir tengsizlikning yechimida qarama-qarshi ma'noli tengsizliklar bo'ladi, ya'ni

$$a) \begin{cases} x > m \\ x < n \end{cases}$$

Bunda  $m < n$  bo'lsa, sistemaning yechimlari  $m < x < n$ , ya'ni  $(m, n)$  to'plamdan iborat bo'ladi.

$$b) \begin{cases} x < m \\ x > n \end{cases}$$

Bunda  $m < n$  bo'lsa, sistemaning tengsizliklari bir-biriga zid yechimlarga ega bo'lib, sistema yechimga ega bo'lmaydi, ya'ni yechimlar to'plami bo'sh to'plam bo'ladi.

(2) sistemada tengsizlik belgilari har xil bo'lishi ham mumkin, masalan, birinchisida ">" ikkinchisida "<", yoki " $\geq$ " va " $\leq$ ", ">" va " $\leq$ " va hokozo. Bunday hollarda ham sistema yuqoridagiga o'xshash yechiladi.

Endi ikki noma'lumli tengsizliklar sistemasini qaraymiz. Bunday sistemalarning umumiy ko'rinishi

$$\begin{cases} f(x, y) > 0 \\ \varphi(x, y) > 0 \end{cases}$$

dan iborat (tengsizlik belgilari har xil bo'lishi mumkin). Bu yerdagi har bir tengsizlik tekislikda qandaydir sohani tasvirlaydi. Berilgan sistemaning yechimlar to'plami shu sohalarning umumiy qismidan iborat bo'ladi (bo'sh to'plam bo'lishi ham mumkin). Masalan, ushbu

$$\begin{cases} y \geq 2 \\ x^2 + y^2 \leq 36 \end{cases}$$

sistemani qaraymiz. U berilgan tengsizliklar kon'yunksiyasidan iborat:  $(y \geq 2) \wedge (x^2 + y^2 \leq 36)$ . Osongina ko'rish mumkinki, bu sistemaning grafigi markazi koordinata boshida va radiusi 6 ga teng bo'lgan doira bilan  $y=2$  to'g'ri chiziqdan yuqorida joylashgan tekislikning umumiy qismidan iborat. Yuqoridagi (3) sistemaning xususiy holi bo'lgan *ikki o'zgaruvchili chiziqli tengsizliklar sistemasini* qaraymiz.

$$\begin{cases} a_1x + b_1y + c_1 < 0 \\ a_2x + b_2y + c_2 > 0 \end{cases}$$

Bu sistemada  $a_1x + b_1y + c_1 = 0$  va  $a_2x + b_2y + c_2 = 0$  to'g'ri chiziqlar o'zaro parallel emas deb olamiz. Faraz qilaylik, bu sistemaning har bir tengsizligini  $y$  ka nisbatan yechib,

$$\begin{cases} y < kx + b \\ y > px + q \end{cases}$$



sistemani hosil qilgan bo'laylik.  $x$  o'zgaruvchining biror qiymatida bu sistema tengsizliklari o'rinli bo'lishi uchun

$px+q < kx+b$  yoki  $(p-k)x < b-q$  bajarilishi zarur va yetarli (tranzitivlik qonuniga binoan).

Demak,  $p > k$  bo'lganda,  $x < \frac{b-q}{p-k}$  va  $p < k$  bo'lganda,  $x > \frac{b-q}{p-k}$  bo'lib

sistemaning umumiy yechimi esa quyidagidan iborat.

$-\infty < x < \frac{b-q}{p-k}$ ,  $px+q < y < kx+b$  agar  $p > k$  bo'lsa va

$\frac{b-q}{p-k} < x < +\infty$ ,  $px+q < y < kx+b$  agar  $p < k$  bo'lsa.

Ravshanki, berilgan sistemaning grafigi tekislikda  $y=px+q$  to'g'ri chiziqdan yuqoridagi va  $y=kx+b$  to'g'ri chiziqdan pastdagi tekislik nuqtalari to'plamidan iborat.

(4) tengsizlikda tengsizlik belgilari turlicha yoki bir xil bo'lishi mumkin. Bundan tashqari, undagi va to'g'ri chiziqlar parallel ham bo'lishi mumkin.

#### **Foydalanilgan adabiyotlar ro'yhati:**

1. Sharipova, M. (2024). IN THE FORM OF AN UNBOUNDED PARALLELEPIPED IN THE FIELD NONLOCAL BORDERLINE CONDITIONAL LINEAR THE REVERSE IS THE CASE. Science and innovation in the education system, 3(1), 105-116.
2. Sharipova, M. (2024). FUNCTIONAL SPACES. IN SHORT REFLECTION PRINCIPLE. Current approaches and new research in modern sciences, 3(1), 131-142.
3. Sharipova, M. (2024). A IS CORRECT OF THE INTEGRAL TO THE ECONOMY APPLICATIONS. Solution of social problems in management and economy, 3(1), 116-125.
4. Sharipova, M. (2024). ASYMMETRY AND KURTOSIS COEFFICIENTS. Theoretical aspects in the formation of pedagogical sciences, 3(1), 216-225.
5. Sharipova, M. (2024). TWO MULTIPLE OF THE INTEGRAL APPLICATIONS. Инновационные исследования в науке, 3(1), 135-140.
6. Sharipova, M. P. L. (2023). CAPUTA MA'NOSIDA KASR TARTIBLI HOSILALAR VA UNI HISOBLASH USULLARI. Educational Research in Universal Sciences, 2(9), 360-365.
7. Sharipova, M. P. (2023). MAXSUS SOHALARDA KARLEMAN MATRITSASI. Educational Research in Universal Sciences, 2(10), 137-141.

8. Madina Polatovna Sharipova. (2023). APPROXIMATION OF FUNCTIONS WITH COEFFICIENTS. American Journal of Public Diplomacy and International Studies (2993-2157), 1(9), 135–138.
9. Madina Polatovna Sharipova. (2023). Applications of the double integral to mechanical problems. International journal of sciearchers, 2(2), 101-103.
10. Sharipova, M. P. L. (2023). FINDING THE MAXIMUM AND MINIMUM VALUE OF A FUNCTION ON A SEGMENT. American Journal of Public Diplomacy and International Studies (2993-2157), 1(9), 245-248.
11. Sharipova, M. P. (2023). FUNKSIYALARNI KOEFFITSIENTLAR ORQALI FUNKSIYALARNI YAKINLASHTIRISH HAQIDA MA'LUMOTLAR. GOLDEN BRAIN, 1(34), 102–110.
12. Sharipova, M. (2023, December). RELATIONSHIPS BETWEEN STRAIGHT LINES AND PLANES IN SPACE. In Международная конференция академических наук (Vol. 2, No. 12, pp. 60-66).
13. Sharipova, M. (2023). FRACTIONAL DERIVATIVES. Академические исследования в современной науке, 2(27), 106-113.
14. Sharipova, M. (2023). CORRECT PLACED AND CORRECT NOT PLACED ISSUES. Models and methods in modern science, 2(13), 115-121.
15. Sharipova, M. (2023). HEAT SPREAD EQUATION. Инновационные исследования в науке, 2(12), 50-56.
16. Madina Polatovna Sharipova. (2023). HIGH MATH SCORE AND INTERVAL ASSESSMENT. American Journal of Public Diplomacy and International Studies (2993-2157), 1(10), 420–424.
17. Madina Polatovna Sharipova. (2023). IN HIGHER MATHEMATICS, THE EXTREMUM OF A MULTIVARIABLE FUNCTION. American Journal of Public Diplomacy and International Studies (2993-2157), 1(10), 425–429.
18. Sharipova, M. P. (2024). ISSIQLIK TARQALISH TENGLAMASI UCHUN KOSHI MASALASI. GOLDEN BRAIN, 2(1), 525–532.
19. Latipova, S. (2024). YUQORI SINF GEOMETRIYA MAVZUSINI O'QITISHDA YANGI PEDAGOGIK TEXNOLOGIYALAR VA METODLAR. SINKVEYN METODI, VENN DIAGRAMMASI METODLARI HAQIDA. Theoretical aspects in the formation of pedagogical sciences, 3(3), 165-173.
20. Latipova, S. (2024, February). SAVOL-JAVOB METODI, BURCHAKLAR METODI, DEBAT (BAHS) METODLARI YORDAMIDA GEOMETRIYANI O'RGANISH. In Международная конференция академических наук (Vol. 3, No. 2, pp. 25-33).

21. Latipova, S., & Sharipova, M. (2024). KESIK PIRAMIDA MAVZUSIDA FOYDALANILADIGAN YANGI PEDAGOGIK TEXNOLOGIYALAR. 6X6X6 METODI, BBB (BILARDIM, BILMOQCHIMAN, BILIB OLDIM) METODLARI HAQIDA. Current approaches and new research in modern sciences, 3(2), 40-48.
22. Latipova, S. (2024). 10-11 SINFLARDA STEREOOMETRIYA OQITISHNING ILMIY VA NAZARIY ASOSLARI. Академические исследования в современной науке, 3(6), 27-35.
23. Latipova, S. (2024). HILFER HOSILASI VA UNI HISOBLASH USULLARI. Центральноазиатский журнал образования и инноваций, 3(2), 122-130.
24. Latipova, S. (2024). HILFER MA'NOSIDA KASR TARTIBLI TENGLAMALAR UCHUN KOSHI MASALASI. Development and innovations in science, 3(2), 58-70.
25. Latipova, S. (2024). KESIK PIRAMIDA TUSHUNCHASI. KESIK PIRAMIDANING YON SIRTINI TOPISH FORMULALARI. Models and methods in modern science, 3(2), 58-71.
26. Shahnoza, L. (2023, March). KASR TARTIBLI TENGLAMALARDA MANBA VA BOSHLANG'ICH FUNKSIYANI ANIQLASH BO'YICHA TESKARI MASALALAR. In " Conference on Universal Science Research 2023" (Vol. 1, No. 3, pp. 8-10).
27. qizi Latipova, S. S. (2024). CAPUTO MA'NOSIDAGI KASR TARTIBLI TENGLAMALARDA MANBA FUNKSIYANI ANIQLASH BO 'YICHA TO 'G 'RI MASALALAR. GOLDEN BRAIN, 2(1), 375-382.
28. Latipova, S. S. (2023). SOLVING THE INVERSE PROBLEM OF FINDING THE SOURCE FUNCTION IN FRACTIONAL ORDER EQUATIONS. Modern Scientific Research International Scientific Journal, 1(10), 13-23.
29. Axmedova, Z. I. (2024). LEARNING MANAGEMENT SYSTEM IMKONIYATLARI. GOLDEN BRAIN, 2(1), 509-516.
30. STRUCTURES OF SMALL DATABASE MANAGEMENT SYSTEMS
31. Z Akhmedova - Solution of social problems in management and ..., 2024
32. Akhmedova, Z. (2024). DATA BY COMBINING MAIL THROUGH TO SEND METHODS. Theoretical aspects in the formation of pedagogical sciences, 3(1), 198-207.
33. Akhmedova, Z., & Rahmatova, N. (2024). LMS (LEARNING MANAGEMENT SYSTEM) LEARNING MANAGEMENT SYSTEM FEATURES. Science and innovation in the education system, 3(1), 85-94.
34. Akhmedova, Z. (2024). CREATION OF A DATABASE FOR THE SYSTEM PLATFORM OF NON-GOVERNMENT EDUCATIONAL CENTERS. Development of pedagogical technologies in modern sciences, 3(1), 106-116.

35. Akhmedova, Z. (2024). IPHONE OPERATIONAL IN THE SYSTEM MOBILE APPLICATIONS TO CREATE INTENDED PROGRAMMING ENVIRONMENTS. Current approaches and new research in modern sciences, 3(1), 111-121.
36. Axmedova, Z. I. (2023). MA'LUMOTLAR BAZASI BOSHQARISH TIZIMLARI. GOLDEN BRAIN, 1(34), 40-49.
37. Akhmedova, Z. (2023). CREATION AND PLACEMENT OF INTERACTIVE ELEMENTS. Solution of social problems in management and economy, 2(13), 120-128.
38. Ikromovna, A. Z. (2023). Programming Environments for Creating Mobile Applications on the Android Operating System. American Journal of Public Diplomacy and International Studies (2993-2157), 1(10), 305-309.
39. Akhmedova, Z. (2023). EDUCATIONAL MANAGEMENT SYSTEMS, ELECTRONIC EDUCATION: TASKS AND OPPORTUNITIES. Theoretical aspects in the formation of pedagogical sciences, 2(21), 171-177.
40. Ikromovna, A. Z. (2023). SQL (STRUCTURED QUERY LANGUAGE) CAPABILITIES OF THE STATISTICAL DATABASE LANGUAGE. Multidisciplinary Journal of Science and Technology, 3(5), 274-280.
41. Ikromovna, A. Z. (2023). SQL (STRUCTURED QUERY LANGUAGE) STATISTICAL PACKAGES OF CAPABILITIES. Best Journal of Innovation in Science, Research and Development, 2(12), 781-787.
42. Akhmedova, Z. (2023). SQL SPECIFICATIONS FOR DATA ANALYSIS. Science and innovation in the education system, 2(13), 113-120.
43. Akhmedova, Z. (2023). DISADVANTAGES OF ELECTRONIC LEARNING. Current approaches and new research in modern sciences, 2(12), 99-109.
44. Axmedova, Z. (2023). MOODLE TIZIMI VA UNING IMKONIYATLARI. Development and innovations in science, 2(11), 29-35.
45. Ikromovna, A. Z. (2023). USING THE USEFUL ASPECTS OF THE MOODLE SYSTEM AND ITS POSSIBILITIES. American Journal of Public Diplomacy and International Studies (2993-2157), 1(9), 201-205.
46. Axmedova, Z. I. (2023). LMS TIZIMIDA INTERAKTIV ELEMENTLARNI YARATISH TEXNOLOGIYASI. Educational Research in Universal Sciences, 2(11), 368-372.
47. Behruz Ulug'bek o'g, Q. li.(2023). Mobil ilovalar yaratish va ularni bajarish jarayoni. International journal of scientific researchers, 2(2).
48. Karimov, F. (2022). ANIQ INTEGRALNI TAQRIBIY HISOBLASH. ЦЕНТР НАУЧНЫХ ПУБЛИКАЦИЙ (buxdu.uz), 14(14).

49. Quvvatov, B. (2024). GLOBAL IN VIRTUAL LEARNING MOBILE APP CREATION INFORMATION SYSTEMS AND TECHNOLOGIES. Science and innovation in the education system, 3(1), 95-104.
50. Quvvatov, B. (2024). SQL DATABASES AND BIG DATA ANALYTICS: NAVIGATING THE DATA MANAGEMENT LANDSCAPE. Development of pedagogical technologies in modern sciences, 3(1), 117-124.
51. Quvvatov, B. (2024). CONSTRUCTION OF SPECIAL MODELS THROUGH DIFFERENTIAL EQUATIONS AND PRACTICAL SOLUTIONS. Solution of social problems in management and economy, 3(1), 108-115.
52. Quvvatov, B. (2024). FINDING SOLUTIONS OF SPECIAL MODELS BY INTEGRATING INTEGRAL EQUATIONS AND MODELS. Current approaches and new research in modern sciences, 3(1), 122-130.
53. Quvvatov, B. (2024). WEB FRONT-END AND BACK-END TECHNOLOGIES IN PROGRAMMING. Theoretical aspects in the formation of pedagogical sciences, 3(1), 208-215.
54. Behruz Ulug'bek o'g, Q. (2023). USE OF ARTIFICIAL NERVOUS SYSTEMS IN MODELING. Multidisciplinary Journal of Science and Technology, 3(5), 269-273.
55. Behruz Ulug'bek og, Q. (2023). TECHNOLOGY AND MEDICINE: A DYNAMIC PARTNERSHIP. International Multidisciplinary Journal for Research & Development, 10(11).
56. Quvvatov, B. (2024). DIFFERENTSIAL TENGLAMALAR VA AMALIY ECHIMLAR ORQALI MAXSUS MODELLARNI QURISH. Menejment va iqtisodiyotda ijtimoiy muammolarni hal qilish , 3 (1), 108-115.
57. Behruz Ulug'bek o'g', Q. (2023). SUN'IY NERV TIZIMLARIDAN MODELLASHDA FOYDALANISH. Fan va texnologiyaning ko'p tarmoqli jurnali , 3 (5), 269-273.
58. Behruz Ulug'bek og', Q. (2023). TEXNOLOGIYA VA TIBBIYOT: DINAMIK HAMKORLIK. Tadqiqot va ishlanmalar bo'yicha xalqaro multidisipliner jurnali , 10 (11).
59. Bobokulova, M. (2024). IN MEDICINE FROM ECHOPHRAPHY USE. Development and innovations in science, 3(1), 94-103.
60. Bobokulova, M. (2024). INTERPRETATION OF QUANTUM THEORY AND ITS ROLE IN NATURE. Models and methods in modern science, 3(1), 94-109.
61. Bobokulova, M. (2024, January). RADIO WAVE SURGERY. In Международная конференция академических наук (Vol. 3, No. 1, pp. 56-66).

62. Bobokulova, M. (2024). UNCERTAINTY IN THE HEISENBERG UNCERTAINTY PRINCIPLE. Академические исследования в современной науке, 3(2), 80-96.
63. Bobokulova, M. (2024). BLOOD ROTATION OF THE SYSTEM PHYSICIST BASICS. Инновационные исследования в науке, 3(1), 64-74.
64. Bobokulova, M. (2024). THE ROLE OF NANOTECHNOLOGY IN MODERN PHYSICS. Development and innovations in science, 3(1), 145-153.
65. Bobokulova, M. X. (2023). STOMATOLOGIK MATERIALLARNING FIZIK-MEXANIK XOSSALARI. Educational Research in Universal Sciences, 2(9), 223-228.
66. Xamroyevna, B. M. (2023). ORGANIZM TO 'QIMALARINING ZICHLIGINI ANIQLASH. GOLDEN BRAIN, 1(34), 50-58.
67. Bobokulova, M. K. (2023). IMPORTANCE OF FIBER OPTIC DEVICES IN MEDICINE. Multidisciplinary Journal of Science and Technology, 3(5), 212-216.
68. Khamroyevna, M. B. (2023). PHYSICO-CHEMICAL PROPERTIES OF BIOLOGICAL MEMBRANES, BIOPHYSICAL MECHANISMS OF MOVEMENT OF SUBSTANCES IN THE MEMBRANE. Multidisciplinary Journal of Science and Technology, 3(5), 217-221.
69. Bobokulova, M. K. (2024). TOLALI OPTIKA ASBOBLARINING TIBBIYOTDAGI AHAMIYATI. GOLDEN BRAIN, 2(1), 517-524.
70. Murodov, O. T. R. (2023). Zamonaviy ta'limda axborot texnologiyalari va ularni qo'llash usul va vositalari. Educational Research in Universal Sciences, 2(11), 481-486.
71. Муродов, О. Т. (2023). РАЗРАБОТКА АВТОМАТИЗИРОВАННОЙ СИСТЕМЫ УПРАВЛЕНИЯ ТЕМПЕРАТУРЫ И ВЛАЖНОСТИ В ПРОИЗВОДСТВЕННЫХ КОМНАТ. GOLDEN BRAIN, 1(26), 91-95.
72. Murodov, O. T. R. (2023). INFORMATIKA DARSLARINI TASHKIL ETISHDA INNOVATION USULLARDAN FOYDALANISH. GOLDEN BRAIN, 1(32), 194-201.
73. Murodov, O. T. R. (2023). INFORMATIKA FANINI O'QITISHDA YANGI INNOVATION USULLARDAN FOYDALANISH METODIKASI. GOLDEN BRAIN, 1(34), 130-139.
74. Turakulovich, M. O. (2023). DEVELOPMENT AND INSTALLATION OF AN AUTOMATIC TEMPERATURE CONTROL SYSTEM IN ROOMS. International Multidisciplinary Journal for Research & Development, 10(12).
75. MURODOV, O. T. (2023). INNOVATIVE INFORMATION TECHNOLOGIES AND NEW METHODS AND TOOLS FOR THEIR APPLICATION IN TODAY'S

EDUCATION. International Multidisciplinary Journal for Research & Development, 10(12).

76. Muradov, O. (2024, January). APPLICATION OF BASIC PRINCIPLES AND RULES OF INNOVATIVE PEDAGOGICAL TECHNOLOGIES TO EDUCATIONAL PROCESSES. In Международная конференция академических наук (Vol. 3, No. 1, pp. 46-55).

77. Muradov, O. (2024). BASIC PRINCIPLES AND RULES OF INNOVATIVE PEDAGOGICAL TECHNOLOGIES IN THE EDUCATIONAL PROCESS. Models and methods in modern science, 3(1), 84-93.

78. Muradov, O. (2024). APPLIED TO THE CURRENT TRAINING PROCESS REQUIREMENTS. Инновационные исследования в науке, 3(1), 54-63.

79. Murodov, O. (2024). DEVELOPMENT OF AN AUTOMATED PARAMETER CONTROL SYSTEM ROOMS AND WORKSHOPS BASED ON CLOUD TECHNOLOGIES. Академические исследования в современной науке, 3(2), 16-27.

80.

81. qizi Latipova, S. S. (2023). KASR TARTIBLI HOSILA TUSHUNCHASI. SCHOLAR, 1(31), 263-269.

82. qizi Latipova, S. S. (2023). HEAT PHYSICAL MEANING AND ORIGIN OF DIFFUSION EQUATIONS. International Multidisciplinary Journal for Research & Development, 10(12).

83. daughter Latipova, S. S. (2023). HEAT PHYSICAL MEANING AND ORIGIN OF DIFFUSION EQUATIONS. World of Scientific news in Science, 1(2), 163-176.

84. qizi Latipova, S. S. (2024). KASR TARTIBLI ODDIY DIFFERENSIAL TENGLAMALAR. GOLDEN BRAIN, 2(1), 383-390.

85. qizi Latipova, S. S. (2023). MITTAG-LIFFLER FUNKSIYASI VA UNI HISOBLASH USULLARI. Educational Research in Universal Sciences, 2(9), 238-244.

86. qizi Latipova, S. S. (2023). RIMAN-LUIVILL KASR TARTIBLI INTEGRALI VA HOSILASIGA OID AYRIM MASALALARNING ISHLANISHI. Educational Research in Universal Sciences, 2(12), 216-220.

87. qizi Latipova, S. S. (2023). BETA FUNKSIYA XOSSALARI VA BU FUNKSIYA YORDAMIDA TURLI MASALALARNI YECHISH. GOLDEN BRAIN, 1(34), 66-76.

88. Latipova, S. S. qizi . (2024). GAMMA FUNKSIYA. GOLDEN BRAIN, 2(1), 391-399.