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OPERATIONS ON MATRICES

Annotation: in this article, the origin of Matrices and the actions performed on them are briefly mentioned in the article, murajaa was made to the articles published in recent years in this process.

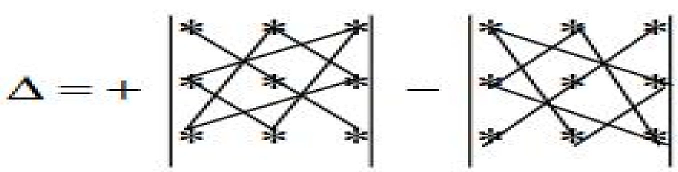
Keywords:matrix, row matrix, column matrix, row-vector, column-vector, vector component, zero matrix, equal matrix, chained matrices, head diagonal of a square matrix, diagonal matrix, scalar matrix, unit matrix.

Matrices are originally found in ancient Chinese inscriptions. They called matrices “city squares". They used matrices in solving a linear equation. After determinants developed the theory in the late 17th century, in the 18th century Gabriel Kramer set about creating his own theory, creating the “Kramer rule”in 1751. Around this time, the “Gaussian method” emerged. In the work of williamgamilton (1805-1865) and Arthur Kelly (1821-1895), matrix theory was formulated as an imperfect theory. A matrix-m is said to be a table of quadrilateral numbers containing parentheses with a row and n columns. Matrices are denoted by the initials of the Latin alphabet.

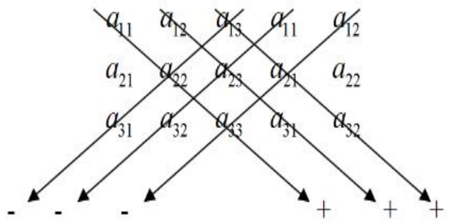
In the mathematical modeling of economic issues, i.e., in the mathematical expressions-assisted expression of an economic problem, matrices are widely used. One important concept in this is the concept of a technological matrix. This matrix plays a fundamental role in important economic issues, such as planning (programming) the production of several types of products from several types of resources, modeling of inter-sectoral balance. Suppose that for the production of n different products from the studied economic process, m different production factors (resources) are necessary. I - for the production of one unit of the product, let the amount of the resource of the type a_{ij} matrix A with dimension n*m constructed from aij elements is called a technological matrix

The division of matrix algebra in mathematics is considered important in the field of programming, for economists and other specialists in the field, and the mathematical model of economic processes and objects is expressed in the form of simple and compact matrices. If the number of row and column paths of a matrix is equal to each other , such a matrix is called a square matrix. The number of paths of a square matrix indicates its order.

The triangular method of calculating the third-order determinant is done schematically as follows:



The Sarrus rule for calculating a third-order determinant is implemented as follows. The first and second columns on the left are transcribed next to the right of the Determinant columns. In the resulting expanded table, the elements located in the direction of the diagonal of the head are formed by multiplying the elements in the direction of the diagonal with a positive sign, and the elements in the direction of the secondary diagonal are formed by multiplying and taking the sum with a negative sign. This summation consists of the value of a third-order determinant. This can be described in schema terms as follows:



The determinant of a square matrix formed from deleting several rows or columns of an arbitrary-dimensional matrix is called a sub-matrix minor. This square matrix order is called the order of the sub-matrix minor. If a given matrix is Square in shape, its largest ordered minor is equal to.

If some row of the matrix is linearly represented through its other rows, then as a result of these substitutions, all elements of such rows become zeros (i.e., such rows are zeros). If we call a non-zero row a non-zero row, then the color of the matrix formed after the above substitutions is equal to the number of non-zero rows, since such rows denote linear free rows.

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