

VIDYA BHAWAN BALIKA VIDYA PITH

शक्तिउत्थानआश्रमलखीसरायबिहार

Class :- 12(Maths)

Date:- 07.04.2021

3.1 Introduction

In this , students will be introduced to the fundamentals of matrix and matrix algebra. Here, students will learn how matrices are associated with different fields.

3.2 Matrix

3.2.1 Order of a matrix

In this section, it explains clearly with an easy example of how the elements are arranged to form a matrix and how its order can be defined.

3.3 Types of matrices

3.3.1 Equality of matrices

We shall discuss different types of matrices in this section such as column matrix, row matrix, square matrix, diagonal matrix, scalar matrix, identity matrix and zero matrix. Besides, equality of matrices is also explained with examples.

3.4 Operations on Matrices

3.4.1 Addition of matrices

3.4.2 Multiplication of a matrix by a scalar

3.4.3 Properties of matrix addition

3.4.4 Properties of scalar multiplication of a matrix

3.4.5 Multiplication of matrices

3.4.6 Properties of multiplication of matrices

After this section, students will get an idea on certain operations on matrices, namely, the addition of matrices, multiplication of a matrix by a scalar, difference, multiplication of matrices, and respective properties for each of these properties.

3.5 Transpose of a Matrix

3.5.1 Properties of transpose of the matrices

Transpose of a matrix and properties are explained clearly with examples. These examples prove the properties of the transpose of a matrix.

3.6 Symmetric and Skew Symmetric Matrices

In this section, students will learn the definitions of symmetric and skew symmetric matrices, along with the related theorems and examples.

3.7 Elementary Operation (Transformation) of a Matrix

After studying this section, students are able to understand transformations on

a matrix. There are six operations, i.e. transformations on a matrix. Three of which are due to columns and three due to rows, which are known as elementary operations or transformations.

3.8 Invertible Matrices

3.8.1 Inverse of a matrix by elementary operations

Here, students will learn about the necessary conditions for matrices to have the inverse of them. Also, it has been discussed how to get an inverse matrix by performing elementary operations on the elements of a matrix.