**eig**

*Function of calculating eigen values of real matrix.*

**Syntax:**

*X* = **eig**(*M*);

**Arguments:**

*M* – input matrix.

**Description:**

*eig(M)* – function returns an array of eigen values of matrix. Matrix *M* shall be square and feature real elements. The vector of eigen values of matrix of order n comprises n numbers, a part of which can be identical. It corresponds to an expression *polyroots(poly(M))*.

Input matrix *М* can be assigned:

* as variable of matrix type determined earlier:

*X* = **eig**(*M*);

* as matrix consisting of variables determined earlier:

*X* = **eig**([[*x1,x2*],[*x3,x4*],[*x5,x6*]]);

* as constant matrix:

*X* = **eig**([[1,2],[3,4],[5,6]]);

**Result:**

*X* – array of real eigen values of matrix *M.*

**Example:**

|  |  |
| --- | --- |
|  | **сonst**M = [[1, -3, 4], [4, -7, 8], [6, -7, 7]];  X = **eig**(M); //[-1, -1, 3] |

As a result, elements of array *X* will be assigned values [-1, -1, 3], which are eigen values of matrix *M*.