**vectorize**

*Function of calculating values of scalar function*

**Syntax:**

*Y* = **vectorize**(*t, expr, X*);

**Arguments:**

*expr* – string comprising digits and symbols ^, \*, +, -, / determining polynomial of

f(t) = a0+a1t+a2t2+…+antn type

*X* – input array comprising values of arguments for calculating polynomial value,

*t* – output variable, wherefrom polynomial is determined. Variable is assigned a value of the last element of array *X*.

**Description:**

*vectorize(t, expr, X)* – function returns array of scalar functionvalues specified by string *expr* calculated from a set of values of arguments specified by an array of coefficients *X*. Expression *expr* is being recorded by means of digits, letters of argument and symbols ^, \*, +, -, / and determines function from *t*, where ^ – raising argument to power.

Input array *X* can be assigned:

* as variable of array type determined earlier:

*Y* = **vectorize**(*t, expr, X*);

* as array consisting of variables determined earlier:

*Y* = **vectorize**(*t, expr,* [*x1,x2,x3,x4*]);

* as constant array:

*Y* = **vectorize**(*t, expr,* [-1, -6, -4, -2]);

**Result:**

*Y* – output array comprising values of scalar functioncalculated from a set of values of arguments specified by an array of coefficients *X* .

**Example:**

|  |  |
| --- | --- |
|  | t = 0;  X = [5, 7, 9];  Y = **vectorize**(t, 3\*t^2+2\*t+1, X); |

As a result, variable *Y* will be assigned values of array [86, 162, 262] being the values of scalar function c(t) = 1 + 2t + 3t2 calculated from arguments 5, 7 and 9, accordingly. Variable *t* will be assigned value 9.