**deconv**

*Function of dividing polynomials.*

**Syntax:**

*С* = **deconv**(*A, B, D*);

**Arguments:**

*A, B* – input arrays comprising coefficients a0, a1, …a2n, b0, b1, …bn of polynomial types:

f(t) = a0+a1t+a2t2+…+a2nt2n

g(t) = b0+b1t+b2t2+…+bntn

*D* – output array comprising coefficients of polynomial of a remainder of division.

**Description:**

*deconv(A, B, D)* – function returns an array of coefficients of polynomial obtained as a result of dividing polynomial assigned by the array of coefficients *А* by a polynomial assigned by the array of coefficients *B*. An array of coefficients of polynomial of a remainder of division returns to variable *D*.

Input arrays *A, B* can be assigned:

* as variables of array type determined earlier:

*С* = **deconv**(*A, B, D*);

* as arrays consisting of variables determined earlier:

*С* = **deconv***(*[*a1,a2,a3,a4*],[*b1,b2,b3,b4*], *D*);

* as constant arrays:

*С* = **deconv**([-1, -6, -4, -2],[-4, 7, 5, -3], *D*);

**Result:**

*С* – output array comprising coefficients of polynomial obtained as a result of dividing polynomial assigned by the array of coefficients *А* by a polynomial assigned by the array of coefficients *B*:

q(t) = f(t)/g(t) = c0+c1t+c2t2+…+cntn

**Example 1:**

|  |  |
| --- | --- |
|  | **var** D:array;  **const** A = [1, 2, -1,0, 1, 2];  **const** B = [-1, -1, 2, 1];  C = **deconv**(A, B, D); |

As a result, the elements of array C will be assigned values [8, -3, 1], which are the coefficients of polynomial q(t) = 8 - 3t + 2t2 obtained as a result of dividing polynomial f(t) = 1 + 2t - t2 + t4 + 2t5 by polynomial g(t) = -1 – t + 2t2 + t3. The polynomials f(t) and g(t) have been determined by arrays *A* and *B*. The elements of array *D* will assigned values [9, 7, -18], which are the coefficients of polynomial of a remainder of division r(t) = 9 + 7t - 18t2.