To work with dynamic arrays used by operators ALLOCATABLE, ALLOCATE, DEALLOCATE /
Formation static arrays executes DIMENSION.
Operator DIMENSION operators established after the revelation of data types, but the operator DATA. This statement does not do data, so it can not perform calculation and arithmetic.
Numbering of array elements in the default Fortran starts at 1 (in other programming systems can start from scratch). The simplest array --column array (vector). The array is indexed.
Example. Form a static one-dimensional arrays (vectors): A - 20 items, PJ - 86 elements C - 4 elements, GAMMA - 12 elements.
DIMENSION A (20), PJ (86), C (4), GAMMA (12)
In parentheses indicates the number of array elements.
Ask value of the array with the operator may DATA, with many of the same elements can be set via repeater.
Example. Ask array elements mentioned previous example. A DATA /20*1.2/, PJ / 86 * 3.3 / S / .2, 2.4, .6, -.2E 3 /, GAMMA / 6 * 1.1 * 6 .6 /
The value of the element can be changed as a result of calculations. The index element can also be calculated, but remember that index - whole (type INTEGER). Thus, the index of the array can be integer constant, such as A (12); a variable type, such as A (J), where J -has type INTEGER; arithmetic expression such as A (12-J + 73).
Example. Calculate the value of the second element of the array A dependency on A2 = 7.6 + PJi, if PJ array element with the symbol (i + 14) does not exceed 3.1.
IF (PJ (i + 14) .LE. 3.1) A (2) = 7.6 + PJ (i)
The amount of memory occupied by the array size is the sum of all its elements.
Example. Find memory size required for placing arrays:
REAL A, C
GAMMA REAL * 8
CHARACTER * 10 NAME
INTEGER J
DIMENSION A (20), J (86), C (4), GAMMA (12), NAME (8)
Elements have the following dimensions according to types:
REAL = 4V, REAL * 8 = 8B, CHARACTER * 10 = 10V, INTEGER = 4V.
For arrays require the following memory size:
$4 \times 20 + 4 \times 86 \times 4 + 4 + 8 + 10 \times 12 \times 8 = 616V$
DO Operator cycle with the cycle type INTEGER is used to working with an array.
Example.
C when using the cycle as the array index
DO I = 1,12
ALPHA = T (I) + SIN (GAMMA)
WRITE (*, *) I, T (I), ALPHA
END DO
If the one-dimensional array - vector-column, the two-dimensional - matrix consisting of columns.
Example. Inquire Mathematics record sets:
DIMENSION A (3), J (3, 2)

Mathematical entry will look like:
In the two-dimensional array of PC memory - a "column the column" three-dimensional - column two-dimensional arrays and so on.
When O panel changes the default first index of the first element of the array. Once the first index reaches the maximum value, per unit varies the second index. Then everything is repeated until the last index will be indexed to the end.
Operator DATA, O operators deploying arrays (which are stored in the memory of the columns) in the period on the same principle of indexing.
Example. Enter values for the elements of two-dimensional array DATA operator and display formatted.
Fragment Source:

```
DIMENSION J (3, 2)
DATA J / 11, 21, 31, 12, 22, 32, 13, 23, 33 /
WRITE (*, 10) J
10 FORMAT (9I3)
```

The work will be the next code string on the console:

```
11 21 31 12 22 32 13 23 33
```