## **FOURIER**

FOURIER returns the value by means of Fourier transformation based on a dataset of Fourier coefficients

### **Syntax**

- 1. FOURIER(Pno%, Ndim%, "ColLab\$\_1",.., "ColLab\$\_Ndim%", Xint\_1,..,Xint\_Ndim%-1)
- 2. FOURIER(@ObjFn(..), Ndim%, @ObjColPar\_1,.., @ObjColPar\_Ndim%, Xint\_1,..,Xint\_Ndim%-1) 3. FOURIER(Telitab\$, Ndim%, "ColLab\$\_1",.., "ColLab\$\_Ndim%", Xint\_1,..,Xint\_Ndim%-1)

#### **Arguments**

- Pno% is the number that refers to the TeLiTab sets in the Data slot. Pno% should be an integer value or a parameter which is assigned an integer value and is the number of the TeLiTab set in the expressions' data slot.
- @ObjFn() refers to the Object from which data will be used.
- TeLiTab\$ refers to the string parameter that contains the TeLiTab.
- Ndim% is the number of dimensions (or columns in a table...).
- "ColLab\$\_1" and @ObjColPar\_1 refer to the column that will be used as the first parameter.
- "ColLab\$\_2" and @ObjColPar\_2 refer to the column that will be used as the second parameter. etc.
- Xint is the parameter used to calculated the value

### Remarks

- 1. See also Telitab access for a generic description on the use of TeLiTab data
- 2. Similar to other Data analysis functions, the FOURIER function is a convenient way to interpolate and evaluate data
- 3. The general format of the Fourier row is:

n

```
C0 + SIGMA(A_i*COS(i*BETA) + B_i*(SIN(i*BETA))
```

So when you add a dataset, it could for instance have a constant value (C) and two vectors (A and B).

# **Examples**

The function

```
ALFA = FOURIER(1, 2, "A", "B", BETA)
```

with in its data slot information on the Fourier coefficients:

```
|FOURIER1|
"C" 1.18754E+02
2 "A" "B"
"1" -.73236E+02 .14666E+01
"2" -.10800E+01 .27847E+01
"3" -.13450E+01 -.66913E+00
"4" .74183E+01 .16449E+00
"5" .61982E+01 -.28837E+01|
```

The fourier coefficients are read from columns marked respectively with "A" and "B".

Please make sure "A", "B" and "C" are available in the knowledge base.

When you ask ALFA, you have to give BETA. For BETA = 1 the result will be ALFA = -34.57.

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