# Variance

**Variance(*inWave* [, *x1*, *x2* ] )**

Returns the variance of the real-valued *inWave*. The function ignores NaN and INF values in *inWave*.

### Parameters

*inWave* is expected to be a real-valued numeric wave. If *inWave* is a complex or text wave, Variance returns NaN.

*x1* and *x2* specify a range in *inWave* over which the variance is to be calculated. They are used only to locate the points nearest to x=*x1* and x=*x2* . The variance is then calculated over that range of points. The order of *x1* and *x2* is immaterial.

If omitted, *x1* and *x2* default to -∞ and +∞ respectively and the variance is calculated for the entire wave.

### Details
The variance is defined by

$$\mathrm{var} = \frac{\sum_{i=1}^{n}\left(x_i - \bar{x}\right)^2}{n-1}$$

where

$$\bar{x} = \frac{\sum_{i=1}^{n} X_i}{n}.$$

### Examples
```
Make/O/N=5 test = p
SetScale/P x, 0, .1, test

// Print variance of entire wave
Print Variance(test)

// Print variance from x=0 to x=.2
Print Variance(test, 0, .2)

// Print variance for points 1 through 3
Variable x1=pnt2x(test, 1)
Variable x2=pnt2x(test, 3)
Print Variance(test, x1, x2)
```

### See Also
**mean**, **median**, **WaveStats**, **APMath**

# VariableList

**VariableList(*matchStr*, *separatorStr*, *variableTypeCode* [, *dfr* ])**

The VariableList function returns a string containing a list of the names of global variables selected based on the *matchStr* and *variableTypeCode* parameters. The variables listed are all in the current data folder or the data folder specified by *dfr*.

### Details

For a variable name to appear in the output string, it must match *matchStr* and also must fit the requirements of *variableTypeCode*. *separatorStr* is appended to each variable name as the output string is generated.

The name of each variable is compared to *matchStr*, which is some combination of normal characters and the asterisk wildcard character that matches anything. For example:

    "*"           Matches all variable names.