See Also

MatrixOp, **MatrixMultiply** and **MatrixMultiplyAdd** for additional efficient matrix operations.

MultiThread

faverage

faverage(*waveName* [, *x1*, *x2*])

The faverage function returns the trapezoidal average value of the named wave from x=*x1* to x=*x2*.

If your data are in the form of an XY pair of waves, see **faverageXY**.

Details

If *x1* and *x2* are not specified, they default to -∞ and +∞, respectively.

If *x1* or *x2* are not within the X range of *waveName*, faverage limits them to the nearest X range limit of *waveName*.

faverage returns the area divided by (*x2*-*x1*). In other words, the X scaling of *waveName* is eliminated when computing the average.

If any Y values in the specified X range are NaN, faverage returns NaN.

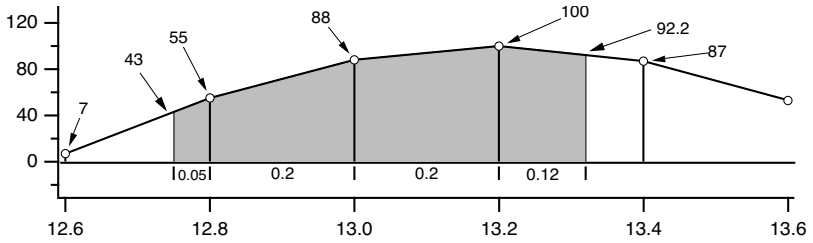
Unlike the **area** function, reversing the order of *x1* and *x2* does *not* change the sign of the returned value.

The faverage function is not multidimensional aware. See **Analysis on Multidimensional Waves** on page II-95 for details.

The faverage function returns a complex result for a complex inpt wave. The real part of the result is the average of the real components in the input wave and the imaginary part of the result is the average of the imaginary components.

Examples

Comparison of area, faverage and mean functions over interval (12.75,13.32)



area(wave,12.75,13.32)	= 0.05 · (43+55) / 2	// first trapezoid
	+ 0.20 · (55+88) / 2	// second trapezoid
	+ 0.20 · (88+100) / 2	// third trapezoid
	+ 0.12 · (100+92.2) / 2	// fourth trapezoid
	= 47.082	
faverage(wave,12.75,13.32)	= area(wave,12.75,13.32) / (13.32-12.75)	
	= 47.082/0.57 = 82.6	
mean(wave,12.75,13.32)	= (55+88+100+87)/4 = 82.5	

See Also

Integrate, **area**, **areaXY**, **faverageXY** and **Poly2D Example 3**

faverageXY

faverageXY(*XWaveName*, *YWaveName* [, *x1*, *x2*])

The faverageXY function returns the trapezoidal average value of *YWaveName* from x=*x1* to x=*x2*, using X values from *XWaveName*.

This function operates identically to faverage, except that it uses an XY pair of waves for X and Y values and it does not work with complex waves.

Details

If *x1* and *x2* are not specified, they default to -∞ and +∞, respectively.