

```

SetDrawLayer UserBack
SetDrawEnv xcoord= bottom,ycoord= left,save
SetDrawEnv linethick= 3,linefgc= (48059,48059,48059)
DrawBezier wx[0],wy[0],1,1,wx,wy
SetDrawLayer UserFront
EndMacro

```

See Also

DrawBezier, DrawPoly, Drawing Polygons and Bezier Curves on page III-69

BinarySearch

BinarySearch(*waveName*, *val*)

The BinarySearch function performs a binary search of the one-dimensional *waveName* for the value *val*. BinarySearch returns an integer point number *p* such that *waveName*[*p*] and *waveName*[*p*+1] bracket *val*. If *val* is in *waveName*, then *waveName*[*p*]==*val*.

Details

BinarySearch is useful for finding the point in an XY pair that corresponds to a particular X coordinate.

WaveName must contain monotonically increasing or decreasing values.

BinarySearch returns -1 if *val* is not within the range of values in the wave, but would numerically be placed before the first value in the wave.

BinarySearch returns -2 if *val* is not within the range of values in the wave, but would fall after the last value in the wave.

BinarySearch returns -3 if the wave has zero points.

Examples

```

Make/O data = {1, 2, 3.3, 4.9}          // Monotonic increasing
Print BinarySearch(data,3)              // Prints 1
// BinarySearch returns 1 because data[1] <= 3 < data[2].

Make/O data = {9, 4, 3, -6}            // Monotonic decreasing
Print BinarySearch(data,2.5)            // Prints 2
// BinarySearch returns 2 because data[2] >= 2.5 > data[3].
Print BinarySearch(data,10)             // Prints -1, precedes first value
Print BinarySearch(data,-99)            // Prints -2, beyond last value

```

See Also

The **BinarySearchInterp** and **FindLevel** operations. See **Indexing and Subranges** on page II-76.

BinarySearchInterp

BinarySearchInterp(*waveName*, *val*)

The BinarySearchInterp function performs a binary interpolated search of the named wave for the value *val*. The returned value, *pt*, is a floating-point point index into the named wave such that *waveName*[*pt*] == *val*.

Details

BinarySearchInterp is useful for finding the point in an XY pair that corresponds to a particular X coordinate.

WaveName must contain monotonically increasing or decreasing values.

When the named wave does not actually contain the value *val*, BinarySearchInterp locates a value below *val* and a value above *val* and uses reverse linear interpolation to figure out where *val* would fall if a straight line were drawn between them. It includes that fractional amount in the resulting point index.

BinarySearchInterp returns NaN if *val* is not within the range of values in the wave.

Examples

```

Make/O data = {1, 2, 3.3, 4.9}          // Monotonic increasing
Print BinarySearchInterp(data,3)        // Prints 1.76923
Print data[1.76923]                    // Prints 3

Make/O data = {9, 4, 3, 1}              // Monotonic decreasing
Print BinarySearchInterp(data,2.5)      // Prints 2.25
Print data[2.25]                        // Prints 2.5

```