```
   Variable i
   Variable numPeaks = floor((numpnts(w)-1)/3)
   Variable cfi

   for (i = 0; i < numPeaks; i += 1)
      cfi = 3*i+1
      returnValue += w[cfi]*exp(-((x-w[cfi+1])/w[cfi+2])^2)
   endfor
   return returnValue
End
```

Each peak takes three coefficients: amplitude, x position and width.

Calculate index of amplitude for this peak.

Expression of a single Gaussian peak.

Loop over the peaks, calculating them one at a time.

Each peak is added to the result.

Format of a Multivariate Fitting Function

A multivariate fitting function has the same form as a univariate function, but has more than one independent variable:

```
Function F(w, x1, x2, ...) : FitFunc
   WAVE w;
   Variable x1
   Variable x2
   Variable ...

   <body of function>
   <return statement>
End
```

A function to fit a planar trend to a data set could look like this:

```
Function Plane(w, x1, x2) : FitFunc
   WAVE w
   Variable x1, x2

   return w[0] + w[1]*x1 + w[2]*x2
End
```

There is no limit on the number of independent variables, with the exception that the entire Function declaration line must fit within a single command line of 2500 bytes.

The New Fit Function dialog will add the same comments to a multivariate fit function as it does to a basic fit function. The `Plane()` function above might look like this (we have truncated the first two special comment lines to make them fit):

```
Function Plane(w,x1,x2) : FitFunc
   WAVE w
   Variable x1
   Variable x2

   //CurveFitDialog/ These comments were created by the Curve...
   //CurveFitDialog/ make the function less convenient to work...
   //CurveFitDialog/ Equation:
   //CurveFitDialog/ f(x1,x2) = A + B*x1 + C*x2
   //CurveFitDialog/ End of Equation
   //CurveFitDialog/ Independent Variables 2
   //CurveFitDialog/ x1
   //CurveFitDialog/ x2
   //CurveFitDialog/ Coefficients 3
   //CurveFitDialog/ w[0] = A
   //CurveFitDialog/ w[1] = B
   //CurveFitDialog/ w[2] = C

   return w[0] + w[1]*x1 + w[2]*x2
End
```