

26. **Choose Edit→Clear Cmd Buffer or press Command-K (Macintosh) or Ctrl+K (Windows).**

When a command generates an error, it is left in the command line so you can edit and re-execute it. In this case we just wanted to clear the command line.

## Synthesizing Data

In this section we will make waves and fill them with data using arithmetic expressions.

1. **Choose File→New Experiment.**

This clears any windows and data left over from previous experimentation.

2. **Choose the Data→Make Waves menu item.**

The Make Waves dialog appears.

3. **Type “spiralY” in the first box, press the tab key, and type “spiralX” in the second box.**

4. **Change Rows to 1000.**

5. **Click Do It.**

Two 1000 point waves have been created. They are now part of the experiment but are not visible because we haven’t displayed them in a table or graph.

6. **Choose Data→Change Wave Scaling.**

The Change Wave Scaling dialog appears. We will use it to set the X scaling of the waves.

7. **If a button labeled More Options is showing, click it.**

8. **In the Waves list, click spiralY and then Command-click (Macintosh) or Ctrl-click (Windows) spiralX.**

9. **Choose Start and Right in the SetScale Mode pop-up menu.**

10. **Enter “0” for Start and “50” for Right.**

11. **Click Do It.**

This executes a **SetScale** command specifying the X scaling of the spiralX and spiralY waves. X scaling is a property of a wave that maps a point number to an X value. In this case we are mapping point numbers 0 through 999 to X values 0 through 50.

12. **Type the following on the command line and then press Return or Enter:**

```
spiralY = x*sin(x)
```

This is a waveform assignment statement. It assigns a value to each point of the destination wave (spiralY). The value stored for a given point is the value of the right-hand expression at that point. The meaning of  $x$  in a waveform assignment statement is determined by the X scaling of the destination wave. In this case,  $x$  takes on values from 0 to 50 as Igor evaluates the right-hand expression for points 0 through 999.

13. **Execute this in the command line:**

```
spiralX = x*cos(x)
```

Now both spiralX and spiralY have their data values set.

## Zooming and Panning

1. **Choose the Windows→New Graph menu item.**

2. **If necessary, uncheck the From Target checkbox.**

3. **In the Y Waves list, select “spiralY”.**

4. **In the X Wave list, select “\_calculated\_”.**

5. **Click Do It.**

Igor creates a graph of spiralY’s data values versus its X values.

Note that the X axis goes from 0 to 50. This is because the **SetScale** command we executed earlier set the X scaling property of spiralY which tells Igor how to compute an X value from a point number.