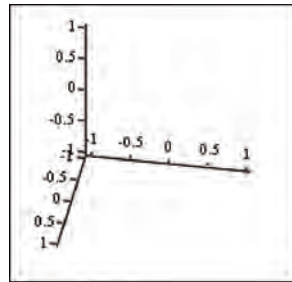


3D PLOTS

3D plots need one of the following defined:

- A function of two variables.
- A matrix of z-coordinates.
- Three vectors specifying the x-, y-, and z-coordinates.

To create a 3D plot, click on the appropriate icon from the graphing toolbar (see Appendix C) and then type the function you want to graph in the lower left hand placeholder. Click outside the region to see the plot. All of the following examples are plotted using the same equation.

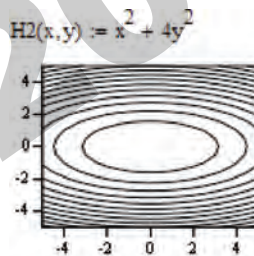


Function placeholder

TIP:

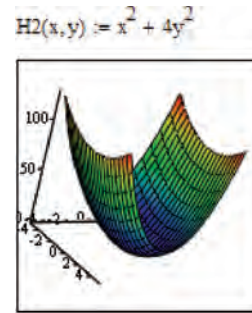
All 3D plots can be formatted in a variety of ways. You can dynamically rotate 3D plots or annotate them by just double clicking the plot. For additional information see "Formatting 3D Plots" on page 11.

A **contour plot** is a graphical technique for representing a 3D surface by plotting constant z slices, called contours, on a 2D format.



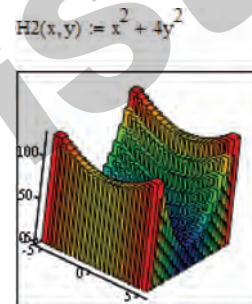
H2
Contour Plot

A **surface plot** generates a 3D surface by associating a dependent variable value with each point on a grid with constant spacing in each independent variable direction.



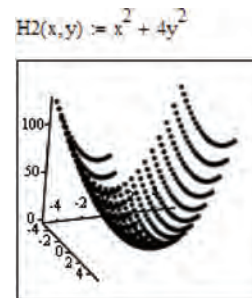
H2
Surface Plot

A **3D bar plot** draws a bar of height z at each of a given curve's (x, y) points. The points are constrained to lie on a rectangular grid with constant spacing in the x and y directions.



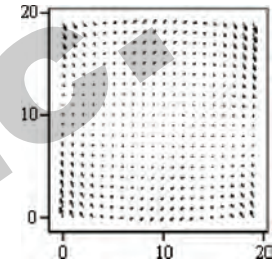
H2
3D Bar Plot

A **3D scatter plot** draws a symbol at each of a set of points in 3D space. The points may be defined in a Cartesian, polar, or cylindrical coordinate system.



H2
3D Scatter Plot

A **vector field plot** is made up of points (x, y) and arrows. The length and direction of the arrow emerging from each point correspond to the magnitude and direction of the vector associated with the point.



Vector Field Plot

ROTATING, SPINNING, OR ZOOMING A 3D PLOT

To rotate a 3D plot using the mouse:

1. Click in the plot and hold down the mouse button.
2. Drag the mouse across the plot region in the direction you wish to rotate the image.
3. Release the mouse button when the plot is in the desired position.

To zoom in on a 3D plot using the mouse:

1. Click in the plot and hold the Ctrl key and mouse button down.
2. Drag the mouse up or to the left to zoom out. Drag the mouse down or to the right to zoom in.
3. Release the mouse when the plot is at the desired resolution.

To rotate or zoom a 3D plot by a specific amount:

1. Double-click on the plot.
2. Click on the General tab in the dialog box.
3. Enter appropriate numbers in rotation, tilt, twist, or zoom, then click Apply to preview.

To put a 3D plot into continuous motion:

1. Click in the plot and hold the Shift key and mouse button down.
2. Drag the mouse in the direction you want the plot to spin.
3. Release the mouse.
4. The plot spins continuously until you click again inside the plot.