

WinPlot is a **free** graphing program written by Rick Parris. (Write and thank him at rparris@exeter.edu). It can be downloaded from <http://www.exeter.edu/~rparris/>. The following directions are intended to help the first time user get started with the basics of the program. Some examples of what can be done with the program are on the last page.

Getting Started

- Double click on the **WinPlot** icon.
- Click on the **Window** menu, and select **2-dim**. A new window called “noname01.pl2” containing a coordinate plane will appear.
- Click on the **Equa** menu on the new window, then select **y=f(x)**. A new window called “inventory noname01.pl2” will appear with the default equation $y = x \sin x$ already typed in. Hit okay, to see the graph of $y = x \sin x$.
- To see another equation click on the **Equa** menu again, select **y=f(x)** and type in your own equation. x^2 can be typed in as xx or as x^2 .

Description of Buttons in the “inventory noname01.pl2” window

- To delete one of the graphs, click on its equation in the “inventory noname01.pl2” window and then hit the **del** button.
- To keep an equation in the list without viewing it on the graph, click on the equation and then click on the **hide** button. To graph a hidden equation, just click on the **hide** button again.
- To see the equation of a graph on the coordinate plane, select an equation in the “inventory noname01.pl2” window and then hit the **equa** button. Hitting it once will show the equation on the graph, hitting it again will hide the equation.
- To edit an equation, select the equation you want to edit, then click on the **edit** button. In the edit window, you can retype the equation you want to graph and can also set the domain of the function by entering a **lo x** and a **hi x** and then checking the **lock interval** box. In the edit window you can choose a different color for the graph, change the thickness & density of the line drawn and shade above or below the graph.

Changing the Coordinate Plane View

- To change the range of the x - and y -axes, select the **Set corners** option from the **View** menu and type in the horizontal and vertical highs and lows of the window you want to see. (Note: You can type in “pi” for π .)
- To change the markings on the coordinate plane select the **Markings** option from the **View** menu. Many options exist here, you can choose between a rectangular or polar coordinate grid or have no grid at all. You can choose to have the axes labeled, ticked, and/or arrowed. You can choose the tick interval and labeling of ticks on the axis. For example, if you want to mark the x -axis in units of $\pi/4$

but only label the axis at intervals of π , type “ $\pi/4$ ” in the *tick interval* box, and put a 4 in the *number every* box. Note; if you don’t want the axes to show up at all, click on the *axes* option in the *view* menu.

More advanced equation graphing

- To graph equations other than lines and parabolas, click on the *equa* menu in the “noname01.pl2” window, the $r=f(t)$ can be used to graph polar equations, the $x=f(t)$ can be used to graph parametric equations, and the $\theta=f(x, y)$ can be used to graph circles, $0 = x^2 + y^2 - 25$, or left or right opening parabolas $0 = x - y^2$. The default equations each option gives should give you a good start. The *library* option under the *equa* menu contains more advanced information on functions the program recognizes (*sin*, *cos* etc.) and other option such as how to join functions.
- To graph a point on the coordinate plane, select the *Point* option from the *View* menu and enter the coordinates. You can choose the color of the point, the size of the point and whether to it should be closed or open.

The *one* menu

- To: trace a graph, find the zeros of a graph, find the extremes of the graph, view the integral or derivative of a graph, or revolve a graph select the appropriate option from the *one* menu.

To Revolve an Equation about an Axis

- To revolve an equation about an axis, select the *revolve* option from the *one* menu. You can choose which curve to rotate about either axis, or can rotate it around a line such as $x = 4$. When the new window opens with the picture of the figure in it, press F8 and F9 to rotate it around CTRL F8 or CTRL F9 to rotate it back.

To Build Solids with a Certain Cross Section Area

- Once you have a function graphed, choose the *section* option in the *two* menu. Solids with cross section areas of squares, semicircles, or equilateral triangles can be built.

To Copy Graphs to Word

- To copy graphs to Word97, select *copy to clipboard* from the *file* menu. Then open Word97 and paste the graph into the document. The picture can be moved wherever you want it by clicking and dragging, and can be resized by putting your cursor over the corner of the selected graph, clicking and dragging. If you want to have text next to the graph or not have text going through the graph, right click on the graph, select *format picture* from the menu, click on the *wrapping* tab and select *square*.

Miscellaneous Other Options

- With WinPlot you can shade the area between two graphs by choosing the *shade* option in the *two* menu. You can also type text onto graphs. To do so, first select the *put text* option in the *Btms* menu. Then right click on the graph and enter the text you want into the box that opens up. You can move the text around by dragging.

