Winplot Introduction

Start by launching *Winplot* and follow **Window→ 2-dim** .

In order to graph follow **Equa→ 1. Explicit. . .**

Needed commands

exp(x)   Gives the natural exponential function.

pi   Gives the constant π .

2$^\wedge$10   Raises 2 to the 10th power.

sqrt(x) ;   Gives $\sqrt{x}$.

x$^\wedge$(1/3)   Graphs only the positive side of $\sqrt[3]{x}$.

root(3,x)   Gives the entire cube root.

sin(pi*x)   The trig function has a period of 2.

arctan(x)   Gives the function $\tan^{-1}(x)$.

abs(x)   Graphs the absolute value $|x|$.

Equa→ Library lists all the built in functions.

Now graph $y = x^2$ using the **Equa→1. Explicit...**

Make the view window $-8 \le x \le 8$, $-2 \le y \le 30$ by following **View→View...**

Click on **set corners** and enter the values.

Next, try adding a grid to your graph. Follow **View→Grid**. Click on **rectangular** and then click on **dotted**.

Calculus Function Forms

Try graphing the following functions. Graph each function separately. You will need to change the view window as necessary to get a good representation of the function graph.

$$f(x) = \ln(x) \quad , \quad g(x) = 2\,e^{-0.3x}\,\sin\left(\frac{\pi}{2}\,x\right) \quad , \quad h(x) = 15 - 9\,e^{-0.5x} \quad , \quad m(x) = \tan^{-1}(x)$$

Parametric Plotting

$$x(t) \;=\; 4\,\cos(t) + 2\,\cos(12\,t)$$

$$y(t) \;=\; 4\,\sin(t) + 2\,\sin(12\,t)$$

Graph the parametric plot by following **Equa→Parametric...**

Use $0 \le t \le 2\,\pi$ for the t interval.

Slope Fields in Winplot

$$\frac{dy}{dx} = \frac{2}{x}\,y + 2\,x^2$$

To plot the slope field of the DE, follow **Equa→Differential→1. dy/dx...**

Enter the right hand side of the DE.