

## Graphing Calculators and Computers

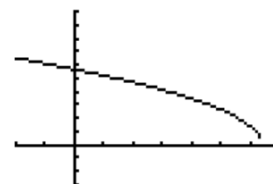
The viewing rectangle used when graphing is important because we would like to be able to see all important features of the graph, such as local minima and maxima, end behavior, and intercepts.

When we did the StatPlot, we used a ZoomStat feature that set up an appropriate window for us. We could have accomplished a similar window by studying the lowest and highest values for both  $x$  and  $y$ , then adjusting the  $x_{\min}$ ,  $x_{\max}$ ,  $y_{\min}$ , and  $y_{\max}$  accordingly.

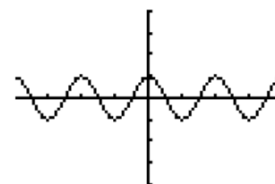
By convention, we will indicate the viewing rectangle as follows:  $[x_{\min}, x_{\max}]$  by  $[y_{\min}, y_{\max}]$ .

One of the best windows when first viewing a new function is ZoomDecimal, which is set so that shapes appear in a non-distorted way and moving the cursor around changes by 0.1. Try ZoomStandard and watch the cursor move by some "weird" value.

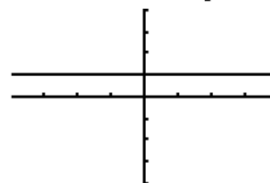
Sometimes we will be able to set the viewing rectangle by observing the domain and range. For example,  $y = (32 - x)^{\frac{1}{2}}$  has what domain and range? Set a viewing rectangle to see this curve.



Graph  $y = \cos(94x)$  in a ZoomTrig window. Is this what you expected?



Graph  $y = \cos(96x)$  in a ZoomTrig window. Is this what you expected?



Hidden behavior can sometimes go undetected because the user of the technology is unaware of what to expect. You should have a good idea of what you will see before you use graphing technology.

Find all solutions of the equation  $x^3 = 4x - 1$ , correct to 3 decimal places.

$$x \approx -2.115, 0.254, \\ 1.861$$

