Math 2 Name: _____
Module 0, Day 7 Date: _____ Period: ____

Graphing Calculator Investigation Part II

Use a graphing calculator to answer the following.

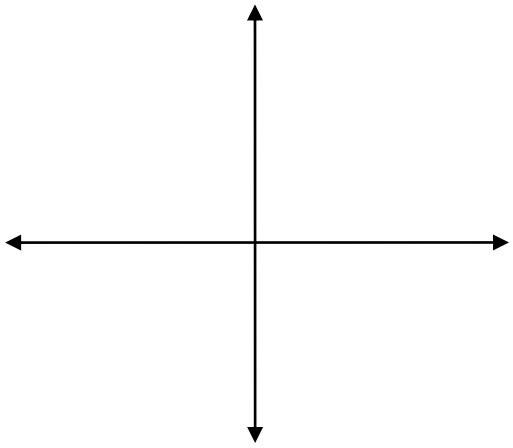
1. Window Settings for Graphs

Enter $y_1 = 3x + 2$ and $y_2 = 2^x$ into the calculator. Make sure the viewing window is in Standard form.

The calculator only shows one of two intersections, and the other intersection is off the screen vertically. The y-values of our window need to increase.

To change the window settings, select the keys: _____

Window Setting
XMin: _____
XMax: _____
XScale: ____
YMin: _____
YMax: _____
YScale: ____



Select the key _____ to view the graph.
Sketch the graph on the axes provided on the right.

2. Trace

Select the key(s) _____ and the ARROW keys to find approximate coordinates along each curve. Approximate the points of intersections: _____ and _____

3. Point of Intersection

To find the exact or best approximations of the points of intersections, select the keys:

_____

Identify the points of intersection: *Quadrant 1*: _____ and *Quadrant 2*: _____

4. Tables

Any functions in the calculator can be viewed using a table.

Select the key(s): _____

You can set the start of the table and set how the x-values should go by (ones, tenths, even #s, etc).

Table Setup
Table Start (TblStart): ____
Table Step (ΔTbl): _____
Independent: Auto or Ask
Dependent: Auto or Ask

X	Y_1	Y_2

Fill in the table on the left.

Show how your table confirms the two intersections are between –1 and 0 and between 3 and 4.

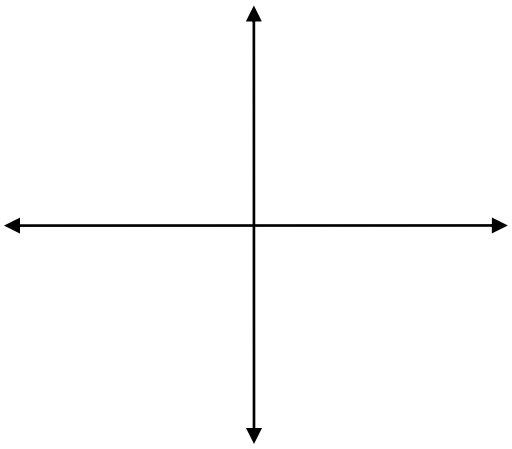
5. Relative Maximum or Minimum

Delete the previous equations, then enter $y_1 = 2x^3 - x^2 - 12x$ and set the viewing window to Standard.

The relative maximum should be on screen; however, the relative minimum is not. Adjust the window following the previous steps at the beginning of this lesson.

Window Setting
XMin: _____
XMax: _____
XScale: ____
YMin: _____
YMax: _____
YScale: ____

Sketch the graph on the axes below.



Use the graph to *approximate* the relative maximum and minimum:

Maximum: _____ minimum: _____

To find *EXACT* min/max, select the keys: _____

You need to give the calculator an **interval** in which to search for a relative maximum and minimum. While viewing the graph, you first need to select a **LEFT BOUND** then a **RIGHT BOUND** around the min/max.

What are the exact coordinates of the relative maximum? _____

What are the exact coordinates of the relative minimum? _____

6. X–Intercepts

There appears to be 3 x–intercepts for $y_1 = 2x^3 - x^2 - 12x$. They appear to be:

_____ _____ _____

The graphing calculator identifies the x–intercepts of a function as **ZEROS**. (Why is that?)

To find *EXACT* x–intercepts, select the keys: _____

Again, you need to give the calculator an **interval**. While viewing the graph, you first need to select a **LEFT BOUND** then a **RIGHT BOUND** around an x–intercept (or "zero").

List the *exact* coordinates of the 3 zeros: _____ _____ _____

Repeating the steps to view a table, fill in the table on the right. Include all 3 x–intercepts (or "zeros").

X	Y_1	Y_2

7. Clear/Reset the Calculator: Select the keys:

_____