Calculator Appendix E

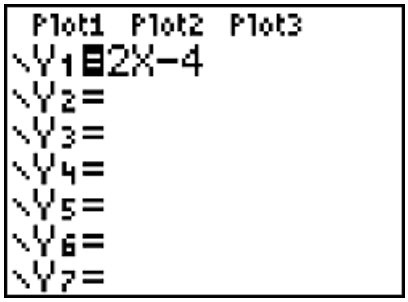
Comparing linear graphs

In this document we are going to demonstrate how to graph two linear functions at the same time so that the effect of changing attributes (slope and/or y-intercept) can be observed.

The two function to be graphed are:

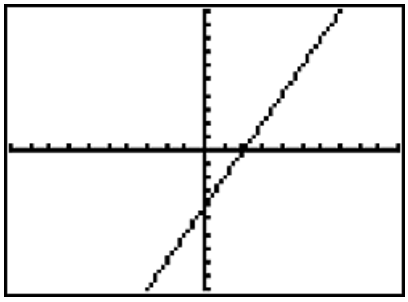
$y = 2x - 4$ and $y = 2x + 6$

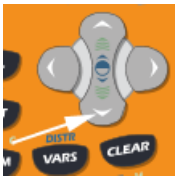
Begin by pressing the **Y=** button.
Beside **Y1** =, enter 2x – 4.



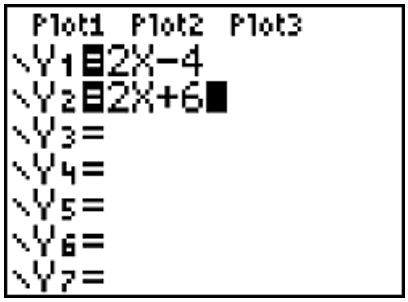
Then press the **GRAPH** button.

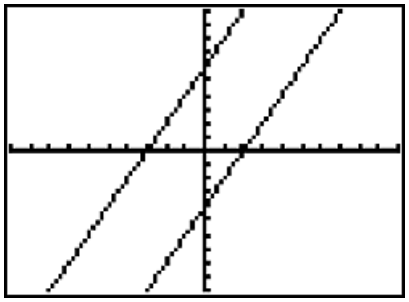
The **Y1** graph is now displayed.





Next, press **Y=** again and then press the **Down Arrow** to move down to **Y2 =** where the second function, 2x + 6, is entered.





Press the **GRAPH** button again and observe that both functions are graphed.

Comparing the two lines, we observe that the two lines are **parallel** since they both have the **same slope** value of 2. The lower line corresponding to **Y1** passes through the y-axis at -4 as predicted by the -4 in $y = 2x - 4$.

Likewise, the top line corresponding to **Y2** correctly passes through its predicted y-intercept value of 6.

Further comparisons can be made, for example, by modifying the slopes of the two functions. The line with a slope of largest absolute value will be observed to be steeper.

Make one slope positive and the other negative and observe that one lines goes up and the other down. Even more lines could be displayed by entering functions for **Y3**, **Y4**, etc.