

A parabola- multiple representations for $y = ax^2$

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Select GRAPH mode from the main menu by using the arrow keys to highlight the GRAPH icon or pressing 5.



This worksheet shows how the calculator can be used to draw multiple lines, use it to see the relationship to the change in the co-efficient 'a' in $y = ax^2 + c$.

Introduction

Open the GRAPH-window, and make sure that the V-Window is appropriate to see the graphs that you will be drawing.

SHIFT **F3** Change the settings to the conditions shown here.



Now, the **EXIT** or **EXE** key to go back to the *Graph Func* window.

Using $[A=1,2,3]$ at the end if the equation gives the effect of a 'dynamic graph'.

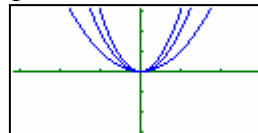
Example 1: Draw the graphs of $y = 1x^2$, $y = 2x^2$, $y = 3x^2$

Answer: Type in $AX^2, [A=1,2,3]$ into the 'Y1 space'



Press **EXE** to store this equation

Press **EXE** or **F6** to draw the graphs. You will see the parabolas being drawn one at a time.



To 'trace' them use the TRACE **SHIFT** **F1**

and the \downarrow or \uparrow or \rightarrow or \leftarrow arrows to trace either of the 3 graphs $y = 1x^2$ or $y = 2x^2$ or $y = 3x^2$.

Example 2: Draw the graphs of $y = -1x^2$, $y = -2x^2$, $y = -3x^2$

Answer: Type in $AX+1, [A=-3,-2,-1]$ into the 'Y1 space' and repeat the steps shown in Example 1 above.

