TAKS Objective 5
TEK A.9C
Tutorial
(Grades 9, 10, and 11)

…investigate, describe, and predict the effects of changes in "c" on the graph of $y = ax^2+c$.

$y = ax^2 + c$

is the graph of a

parabola.

If $c > 0$, what effect does "c" have on the graph $y = ax^2 + c$?

The vertex is above the x-axis.

The parent function is translated upwards.

Hints

$c > 0$ means that "c" is positive.

Plug positive values in for "c" while keeping the value of "a" the same.

Graph these using the graphing calculator to determine the effect.

If $c < 0$, what effect does "c" have on the graph $y = ax^2 + c$?

The vertex is below the x-axis.
The parent function is translated downwards.

Hints

$c < 0$ means that "c" is negative.
Plug negative values in for "c" while keeping the value of "a" the same.
Graph these using the graphing calculator to determine the effect.

If the y-intercept in $y = 7x^2 + 3$ was switched to -2, what effect would this have on the graph?

Answer

The graph was translated down 5 units.

Hint: Graph the original first and see what the effect is.

Original: $y = 7x^2 + 3$ New: $y = 7x^2 - 2$