Graph this Absolute Value Function WITHOUT using slope!

$y = 3|x + 1| - 4$

1 Left

4 Down

Vertex $(-1, -4)$

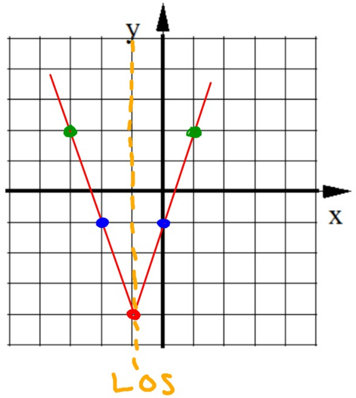
3 Times Taller

1ST GOOD POINT

1 | 1×3 Becomes 1 | 3

2ND GOOD POINT

2 | 2×3 Becomes 2 | 6



Transformed Quadratic Function: $y = ax^2$

The value of a determines which way the Parabola opens.

Opens Up if: $a>0$

Opens Down if: $a<0$

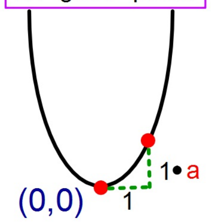
a is also the Vertical Stretch/Shrink Factor.

$|a| > 1$ a is a Vertical Stretch Factor

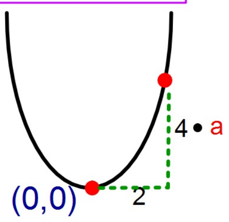
$0 < |a| < 1$ a is a Vertical Shrink Factor

Transformed Quadratic Function: $y = ax^2$

1st "good" point:



2nd "good" point:



Graph the given function using at least five points.

$y = 2x^2$

Since there is no horiz or vert translation the vertex remains (0,0)

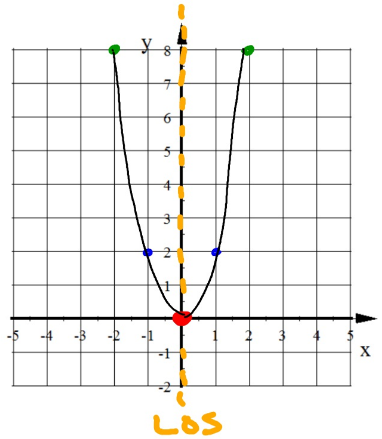
2 is the Vertical Stretch Factor which means this graph is twice as tall as the parent function.

1ST PT

1 | 1×2 becomes 1 | 2

2ND PT

2 | 4×2 becomes 2 | 8

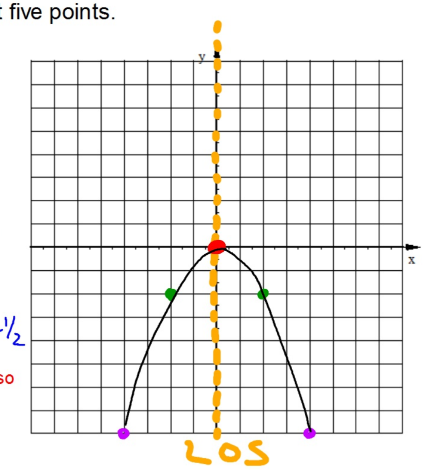


Graph the given function using at least five points.

$y = -\frac{1}{2}x^2$

Since there is no horiz or vert translation the vertex remains (0,0)

$-\frac{1}{2}$ is the vertical shrink factor and x-axis reflection. This means that this graph is half as tall and opens down.



1ST point

$1 \mid 1 \times -\frac{1}{2}$ becomes $1 \mid -\frac{1}{2}$

we only want to use integers when we plot points so we skip this and move on to the next pt.

2ND PT

$2 \mid 4 \times -\frac{1}{2}$ becomes $2 \mid -2$

TRY THE NEXT PT:

3RD PT

$3 \mid 9 \times -\frac{1}{2}$ becomes $3 \mid -4\frac{1}{2}$

SKIP THIS TOO!

move TO THE 4th PT

$4 \mid 16 \times -\frac{1}{2}$ Becomes $4 \mid -8$

Graphs of Quadratic Equations:

Vertex Form: $y = a(x - h)^2 + k$

The graph of this equation is:

- a Parabola
- Vertex at (h,k)
- Opens up if $a > 0$
- Opens down if $a < 0$
- a is the Vertical Stretch/Shrink Factor

There is NO slope for Parabolas!