Graph The following Quadratic Function

- Axis of Symmetry

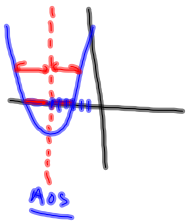
AOS :

To find the AOS

$f(x)=ax^2+bx+c$

$\left(\frac{-b}{2a}\right)=X_{value}$

Xvalue of Vertex



$f(x)=x^2+12x+36$

$f(x)=ax^2+bx+c$

$1x^2+12x+36$

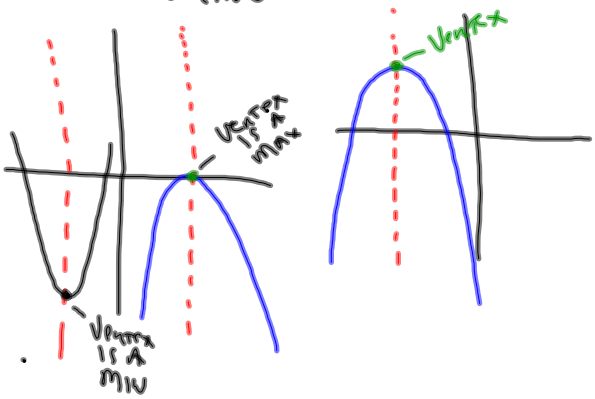
$a=1$

$b=12$

$c=36$

$\frac{-12}{2(1)}=-6$, $X=-6$

Vertex → The max or min of the function



How Do I find The vertex?

1st find AOS

2nd Substitute the Value of the AOS into the 'x' variables of the function Then Solve for 'y'

$f(x)=x^2+12x+36$

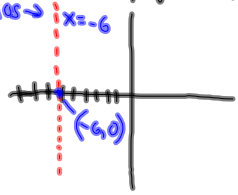
AOS : -6 ($x=-6$)

$f(x)=(-6)^2+12(-6)+36$

$f(x)=36-72+36$

$f(x)=0$

The location of my vertex is $(-6,0)$



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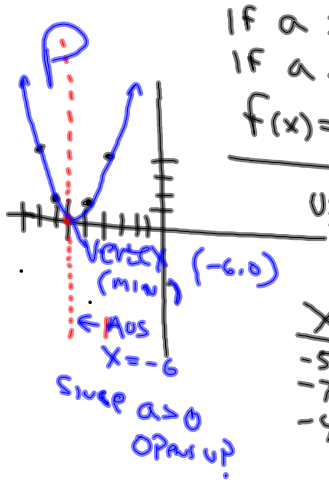
How Do I Tell If The Parabola Opens up or Down.

$f(x) = ax^2 + bx + c$

If $a > 0$ Then it opens up

If $a < 0$ Then it opens Down

$f(x) = x^2 + 12x + 36$



Use A Table of Values To Plot at least 5 Points

X	f(x)
-5	1
-7	1
-4	4

$f(x) = x^2 - 2x - 3$

$AOS = -\frac{(-2)}{2a} = \frac{2}{2} = 1$

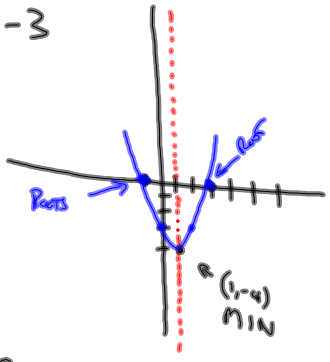
$X = 1$

Vertex:

$f(x) = 1^2 - 2(1) - 3$

$1 - 2 - 3$

$(1, -4)$



Finding The Roots.

(2ways) 1) find The factors Then Solve for x

2) Use Quadratic formula

Factoring.

$x^2 - 2x - 3 = 0$

factors → $(x-3)(x+1)$

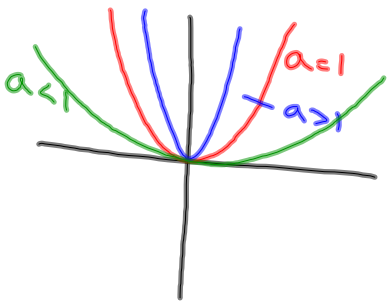
Roots →

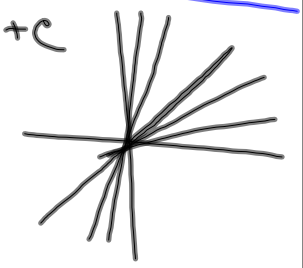
$x - 3 = 0 \rightarrow x = 3$

$x + 1 = 0 \rightarrow x = -1$

The places where The function crosses The X Axis

$f(x) = ax^2 + bx + c$





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