

Name

9.2

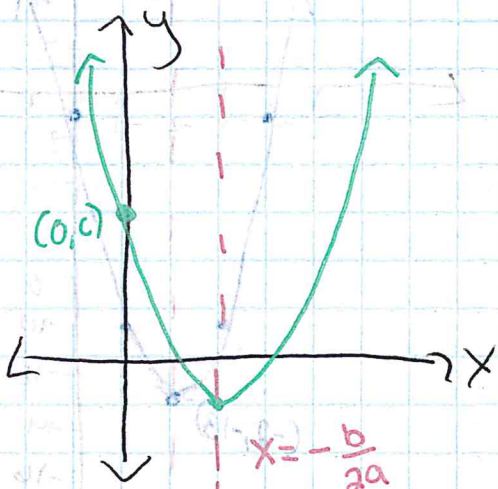
Alg I

Graph $y = ax^2 + bx + c$

I can Graph general quadratic functions.

Ch. 9 Quiz

Properties of Graphs of Quadratic Functions



$$y = ax^2 + bx + c$$

- opens up if $a > 0$ + down if $a < 0$
- Narrower if $|a| > 1$ + wider if $|a| < 1$
- axis of symmetry: $x = -\frac{b}{2a}$
- Vertex with x-coordinate of $-\frac{b}{2a}$
- y-intercept of c
(0, c) is on the graph

Example 1:

1) $y = x^2 - 2x - 3$

$a = 1$ $b = -2$

Axis of Symmetry: $x = -\frac{b}{2a} = -\frac{-2}{2(1)} = -\frac{-2}{2} = -1 = \textcircled{1}$

Vertex: $y = 1^2 - 2(1) - 3$
 $y = 1 - 2 - 3 = -4$ $(1, -4)$

Example 2:

2) $y = 3x^2 + 12x - 1$ $a = 3$ $b = 12$

#1 $a > 0$: opens up
#2 AOS: $x = -\frac{b}{2a} = -\frac{12}{2(3)} = -\frac{12}{6} = \textcircled{-2}$

#3 Vertex: $y = 3(-2)^2 + 12(-2) - 1$
 $y = 3(4) - 24 - 1$
 $y = 12 - 24 - 1 = -13$ $(-2, -13)$

Name

god

Alg I

Graph $y = ax^2 + bx + c$

I can graph general quadratic functions.

Ch. 9 Quiz

* Complete Skills Practice, pg. 580, #

x	-1	0
y	-10	-1

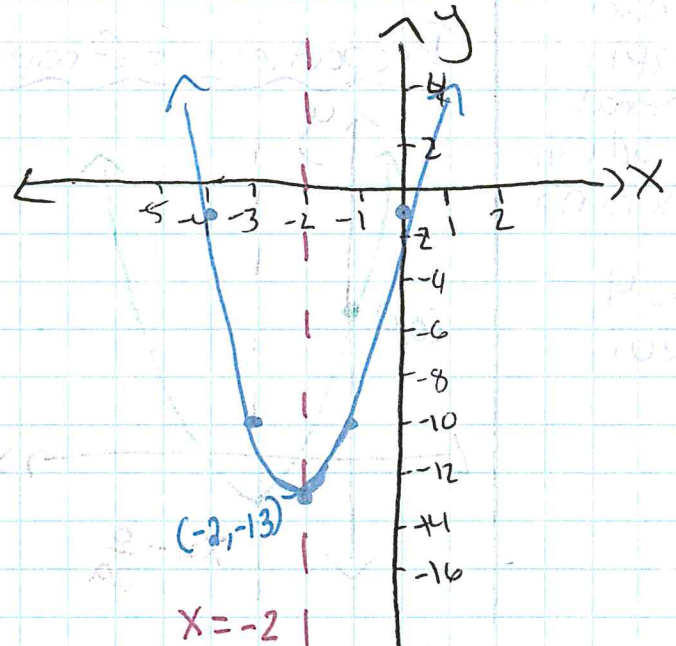
$$y = 3(0)^2 + 12(0) - 1$$

$$y = -1$$

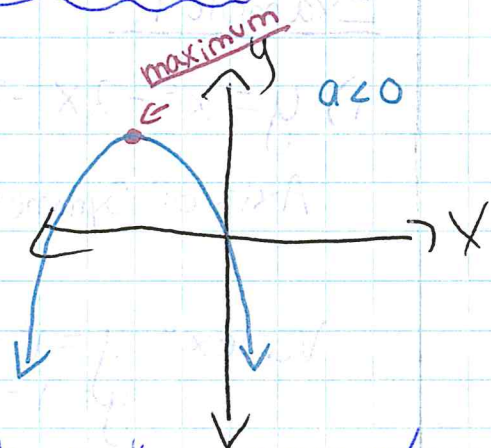
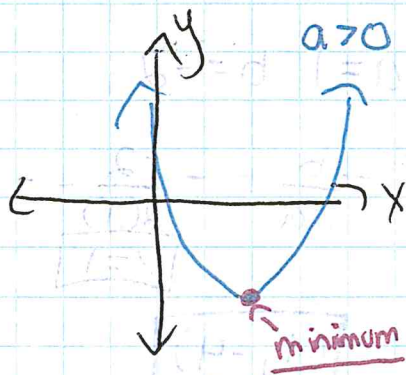
$$y = 3(-1)^2 + 12(-1) - 1$$

$$y = 3(1) - 12 - 1$$

$$y = 3 - 12 - 1 = -10$$



Minimum + Maximum Values:



* The y-coordinate tells you the minimum/maximum

Example 3:

3) $f(x) = 6x^2 + 18x + 13$ $a = 6$ $6 > 0$: Minimum

$$x = \frac{-b}{2a} = \frac{-18}{2(6)} = \frac{-18}{12} = \boxed{-1\frac{1}{2}}$$