

Do Now

Find the axis of Symmetry & the vertex of the quadratic function

$$x^2 + 2x - 8 = f(x)$$

$$\text{AOS } x = \frac{-b}{2a}$$

$$(-1)^2 + 2(-1) - 8 = f(x)$$

$$1 - 2 - 8 = f(x)$$

$$-1 - 8 = f(x)$$

$$-9 = f(x)$$

$$\text{Vertex } (-1, -9)$$

$$x = \frac{-(2)}{2(1)}$$

$$x = -1 \text{ AOS}$$

Mar 30-9:25 AM

Homework Answers

1) Vertex (0, -2)

AOS $x = 0$

Zeros None

Maximum

$y = -2$

Domain $(-\infty, \infty)$

Range $(-\infty, 2]$

2) Vertex (3,0)

AOS $x = 3$

Zeros $x = 3$

Minimum

$y = 0$

Domain $(-\infty, \infty)$

Range $[0, \infty)$

3) AOS $x = -1$

Vertex (-1,4)

4) AOS $x = -2$

Vertex (-2, 4)

$$y = 2x^2 + 4x + 6$$

$$y = 2(-1)^2 + 4(-1) + 6$$

$$y = 2 - 4 + 6$$

$$y = -2 + 6$$

$$y = 4$$

Apr 18-7:03 AM

Steps to Graphing a Quadratic

- 1) Make sure the quadratic is in standard form
 $f(x) = ax^2 + bx + c$ OR $y = ax^2 + bx + c$
- 2) Find the AOS and Vertex Algebraically
- 3) Create a Table of Values with x-values on "Both Sides" of the vertex
- 4) Graph your ordered pairs
- 5) Connect your ordered pairs with a smooth curve. Add arrows
- 6) LABEL your graph

Apr 5-11:26 AM

- 1) Graph $y = -x^2 - 4x + 5$ for $-6 \leq x \leq 2$. Find the vertex, axis of symmetry and the zeros of the function. Is the vertex a maximum or a minimum?

x	y
-4	5
-3	8
-2	9
-1	8
0	5

Zeros
 $x = 1$ & -5

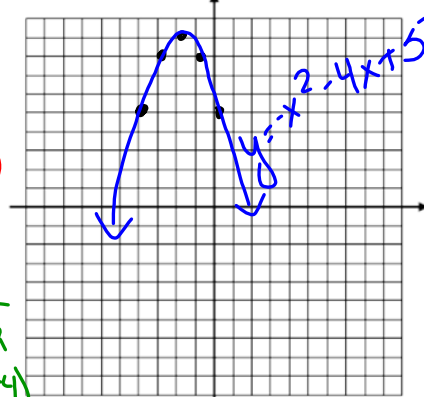
Vertex
 $(-2, 9)$

AOS

$$x = -\frac{b}{2a}$$

$$x = -\frac{(-4)}{2(-1)}$$

$$x = -2$$



$$y = -x^2 - 4x + 5$$

$$y = -(-2)^2 - 4(-2) + 5$$

$$y = -4 + 8 + 5$$

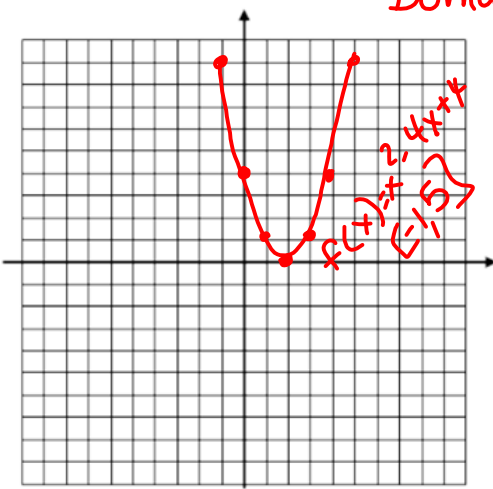
$$y = 9$$

Mar 20-6:22 AM

2) Graph: $f(x) = x^2 - 4x + 4$ for $-1 \leq x \leq 5$. Find the axis of symmetry, vertex and zeros of the function. Is the vertex a maximum or a minimum? *→ Restricted Domain*

x	y
-1	9
0	4
1	1
2	0
3	1
4	4
5	9

Vertex (2,0)
Axis of Symmetry (AOS) $x=2$
Minimum
Zeros $x=2$



Apr 15-8:09 AM