

Graphing Quadratics in Standard Form

Vocabulary:

Quadratic Function: A FUNCTION WITH A DEGREE OF 2

Standard form of a Quadratic function: $f(x) = ax^2 + bx + c$

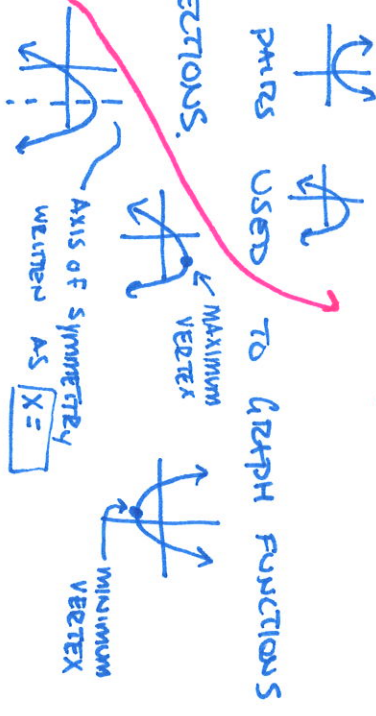
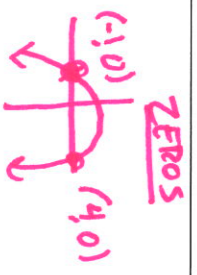
Parabola: THE NAME OF THE U SHAPE OR A QUADRATIC GRAPH

t-chart: A CHART OF X AND Y VALUES THAT PRODUCE ORDERED PAIRS USED TO GRAPH FUNCTIONS

Vertex: THE POINT ON A PARABOLA THAT THE GRAPH CHANGES DIRECTIONS.

Axis of symmetry: THE VERTICAL LINE THAT CUTS THE PARABOLA IN HALF

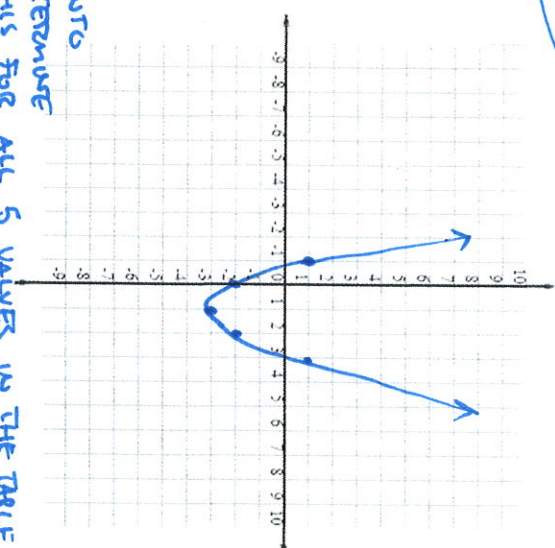
Zeros: THE COORDINATE POINT(S) WHERE THE PARABOLA CROSSES THE X-AXIS



Use a t-chart to graph the following quadratic function

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

x	y
-1	1
0	-2
1	-3
2	-2
3	1

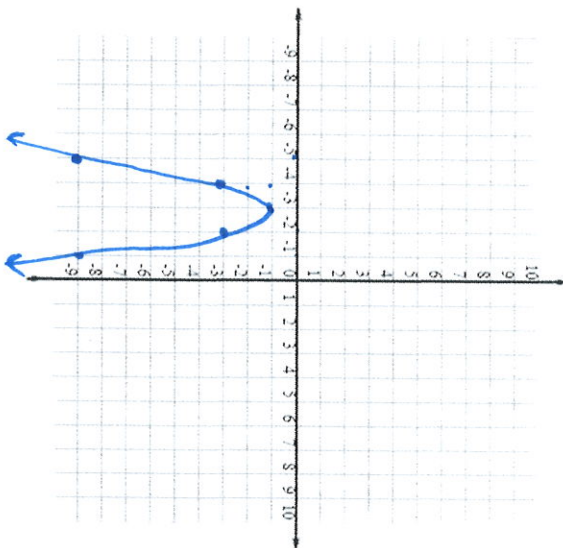


Plug each x-value into the equation to determine the y value. Do this for all 5 values in the table.
 $(-1)^2 - 2(-1) - 2 = 1$
 $(0)^2 - 2(0) - 2 = -2$...

Use a t-chart to graph the following quadratic function

$$f(x) = -2x^2 - 12x - 19$$

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



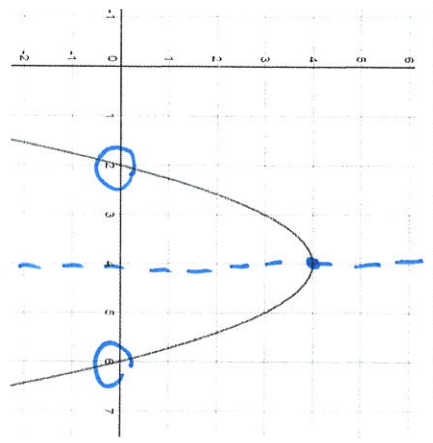
USE AXIS OF SYMMETRY TO DETERMINE X-VALUES!

Given the graph of a quadratic function, determine the following:

a) Vertex $(4, 4)$

b) Axis of Symmetry: $x=4$

b) Zeros: $(2, 0)$ $(6, 0)$



The function of the graph provided is $f(x) = -x^2 + 8x - 12$
 How can you find the axis of symmetry from JUST the function?
 $a = -1$ $b = 8$

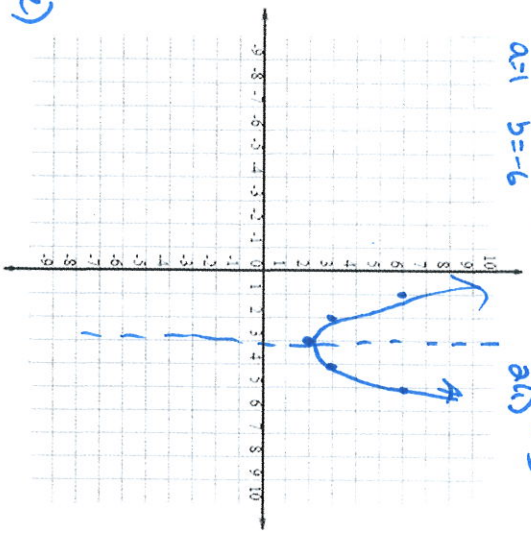
$$\frac{-b}{2a} = \frac{-8}{2(-1)} = \frac{-8}{-2} = 4$$

Use a t-chart to graph the following quadratic function

$$f(x) = x^2 - 6x + 11$$

$a=1$ $b=-6$ $\frac{+b}{2a} = 3$

x	y
1	6
2	3
3	2
4	3
5	6



What is the vertex? $(3, 2)$

What are the zeros? THERE ARE NONE :)

Use a t-chart to graph the following quadratic function

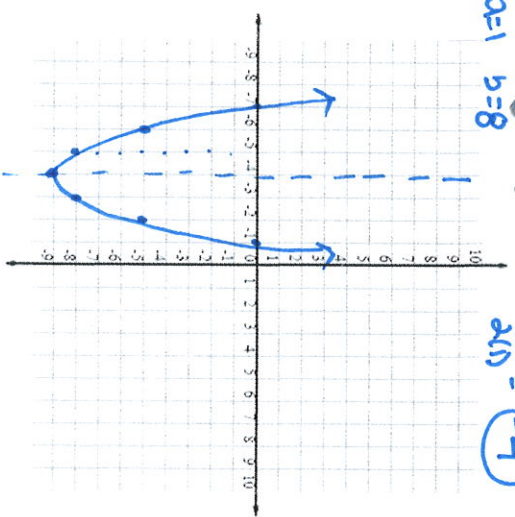
$$f(x) = x^2 + 8x + 7$$

$a=1$ $b=8$

$$\frac{-b}{2a} = \frac{-8}{2(1)} = -4$$

USE THIS AS YOUR MIDDLE

x	y
-6	-5
-5	-8
-4	-9
-3	-8
-2	-5



What is the Axis of Symmetry? $x = -4$

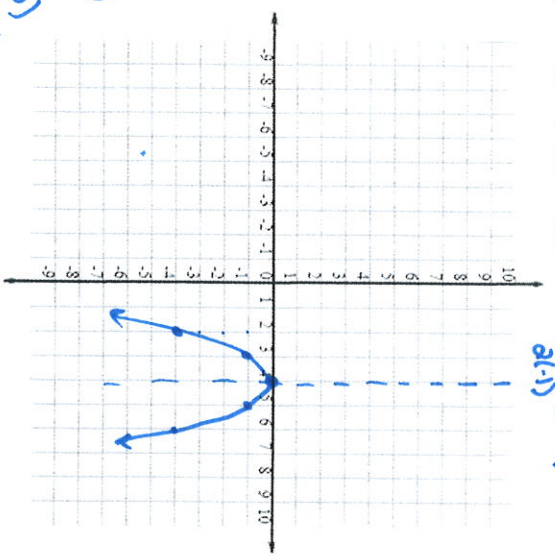
What are the zeros? IS THE VERTEX? $(-4, -9)$

Use a t-chart to graph the following quadratic function

$$f(x) = -x^2 + 8x - 16$$

$\frac{-b}{2a} = 4$

x	y
2	-4
3	-1
4	0
5	-1
6	-4



What is the vertex? $(4, 0)$

What are the zeros? $(4, 0)$
 ONLY 1 ZERO!