Quadratics – let's break it down **6.2-6.3 Part 2**

Look at the table – what kind is it?

Quadratic

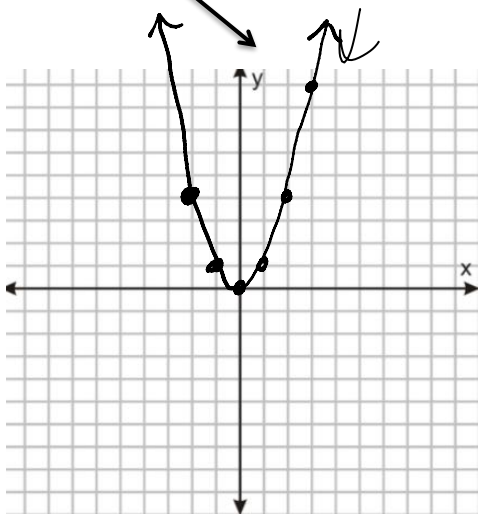
x	-2	-1	0	1	2	3	4
y	4	1	0	1	4	9	16

-3 -1 +1 +3 +5 +7

+2 +2 +2 +2 +2

Double Difference

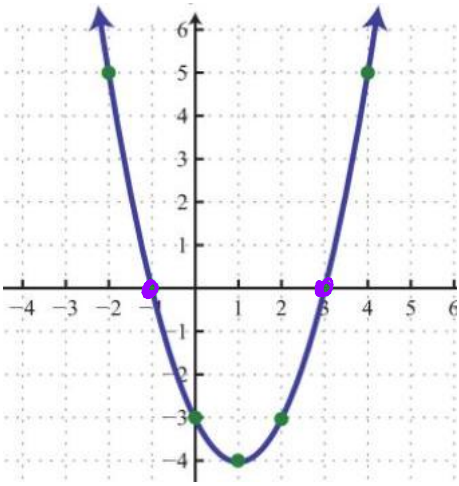
Graph it over here



What shape is this similar to? U

We call these parabolas

Here are what **parabolas have



Vertex: x y (1,-4)

y-intercept: (0,-3)

direction: UP

x-intercepts: (-1,0) (3,0)

maximum or minimum: Min

axis of symmetry: x=1

x Domain: (-∞,∞)

y Range: [-4,∞)

Function? yes

Discrete or cont? Continuous

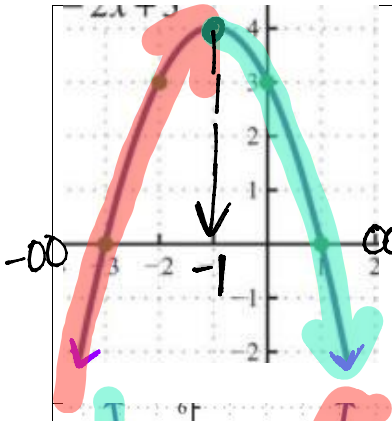
- Quadratics will always have an exponent of 2

If it's a 2 it's a U!

Parabola

$4x^2+3x-6$

Quadratic

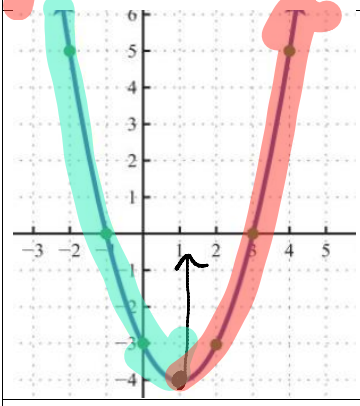


Vertex: (-1,4) | Axis of symmetry: x=-1 | Function? yes

y-intercept: (0,3) | x-intercepts: (-3,0) (1,0) | Domain: (-∞,∞)

Direction: Down | Max or min? Max | Range: (-∞,4] least to great

Increasing: (-∞,-1) | Decreasing: (-1,∞) | Disc/Cont



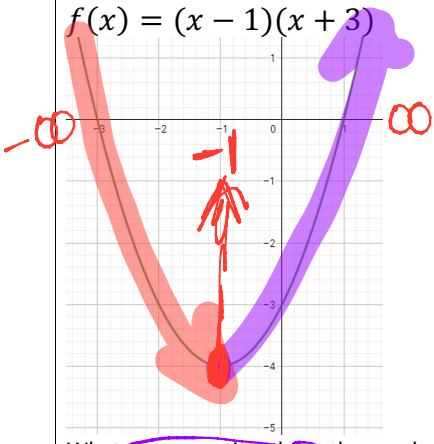
Vertex: (1,-4) | Axis of symmetry: x=1 | Function? yes

y-intercept: (0,-3) | x-intercepts: (-1,0) (3,0) | Domain: (-∞,∞)

Direction: Up | Max or min? Min | Range: [-4,∞)

Increasing: (1,∞) | Decreasing: (-∞,1) | Disc/Cont

$f(x) = (x-1)(x+3)$



Vertex: (-1,-4) | Axis of symmetry: x=-1 | Function? yes

y-intercept: (0,-3) | x-intercepts: (-3,0) (1,0) | Domain: (-∞,∞)

Direction: up | Max or min? Min | Range: [-4,∞)

Increasing: (-1,∞) | Decreasing: (-∞,-1) | Disc/Cont

What do you notice about the graph vs. the function?

(x-1)(x+3) → x-intercepts $x-1=0$ $+1\ +1$ $x=1$ $x+3=0$ $-3\ -3$ $x=-3$

*Intercept form → get 2 x-intercepts

*Quadratics are always Functions and are always continuous