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

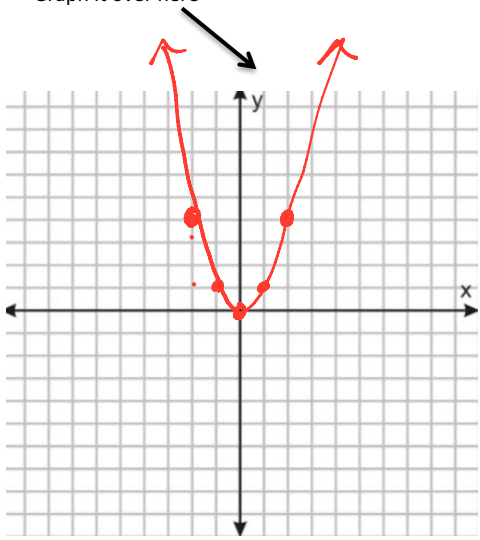
+2 +2 +2 +2 +2

Double Diff

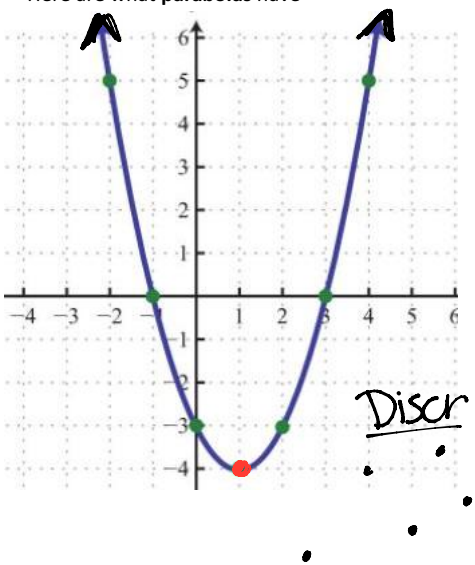
What shape is this similar to?

We call these parabola

Graph it over here



Here are what **parabolas have



Discr

Vertex: (1,-4)

y-intercept: (0,-3)

direction: UP

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

maximum or minimum: Min

axis of symmetry: x=1

Domain: (-∞, ∞)

Range: [-4, ∞)

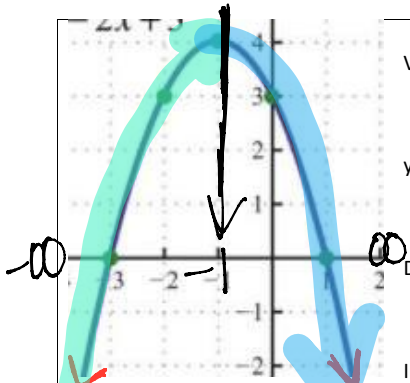
Function? Yes

Discrete or cont? Continuous

- Quadratics will always have an exponent of 2

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

$3x^2 + 4x - 42$ Quadratic



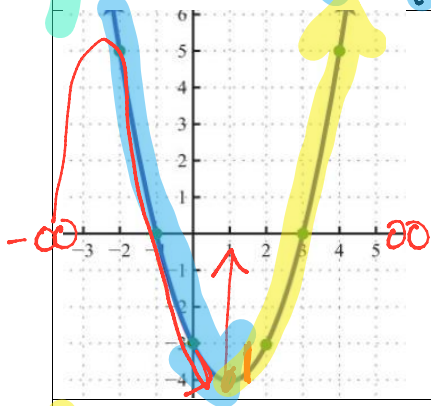
Vertex: (-1,4) | Axis of symmetry: X=-1 | Function? yes

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

Direction: down | Max or min? max | Range: bot → top (-∞,4]

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

Read like a book L-R



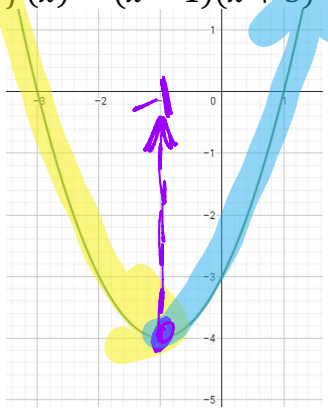
Vertex: (1,-4) | Axis of symmetry: X=1 | Function? yes

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

½ way bt 1 & -3

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

(x-1)(x+3) Intercept Form

x-1=0 +1 +1 → X=1 x-int

x+3=0 -3 -3 → X=-3 x int

*Vertex ½ way bt x-intercepts

*Quadratics are always Functions and are always Continuous

Find Vertex

① $(x-4)(x+6)$ ② $(x-3)(x+7)$ ③ $(x-1)(x-7)$