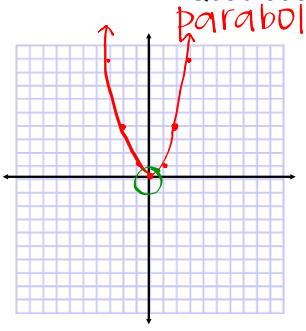
6.2 Introduction to Quadratics & Cubics

Quadratic

parabola



$f(x) = x^2$

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

Key points
Center: Vertex
From vertex
Side 1 up 1 (2 pts)
Side 2 up 4 (2 pts)

Vertex: (0,0)

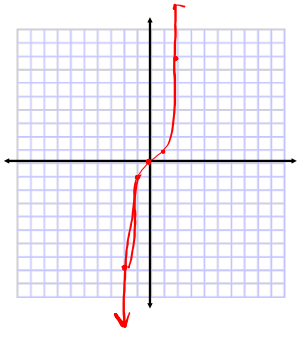
Ends: both up

How many times does a quadratic cross the x-axis?

2 times
or 1 time
or none

y-axis? 1 time

Cubic



$f(x) = x^3$

x	y
-2	-8
-1	-1
0	0
1	1
2	8
3	27

Key points
Inflection pt. center
right 1, up 1 (1 pt)
left 1, down 1 (1 pt)
right 2, up 8 (1 pt)
left 2, down 8 (1 pt)

Inflection point: (0,0)

Ends: one up one down

How many times does a Cubic cross the x-axis?

1 time

y-axis? 1 time

Quadratic (cont.)

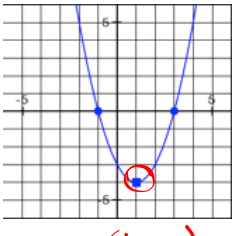
Graphing Form: $f(x) = a(x-h)^n + k$

(h, k) Quadratic: Vertex
Cubic: inflection point

What do you notice about the signs of (h,k)?

x's lie!

What is the vertex of the following quadratic?



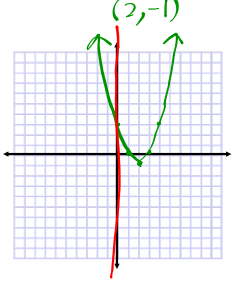
$f(x) = (x-2)^2 - 1$

Vertex: (2, -1)

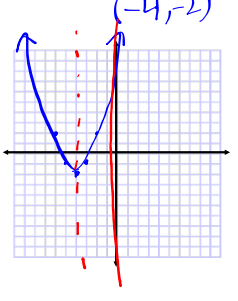
Vertex: (1, -4)

Find the vertex and graph.

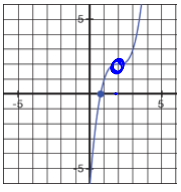
$f(x) = (x-2)^2 - 1$ (2, -1)



$g(x) = (x+4)^2 - 2$ (-4, -2)



What is the inflection point of the following cubic?



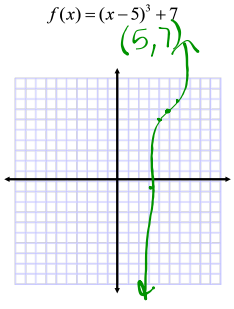
$f(x)=(x-5)^3+7$

Inflection Point: (5,7)

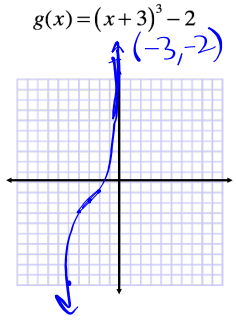
Inflection Point: (2,2)

Find the inflection point and graph:

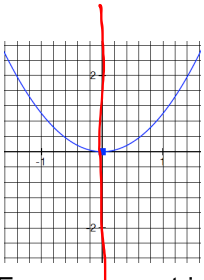
$f(x)=(x-5)^3+7$



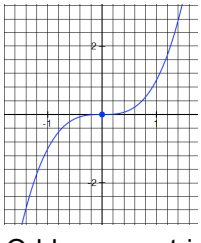
$g(x)=(x+3)^3-2$



Symmetry

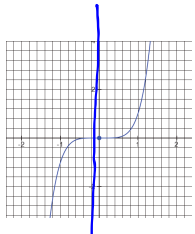


Even: symmetric about y-axis

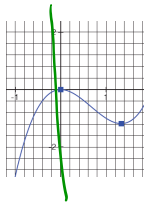


Odd: symmetric about origin

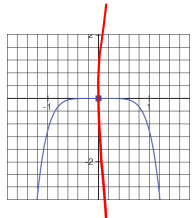
Even, Odd, or Neither?

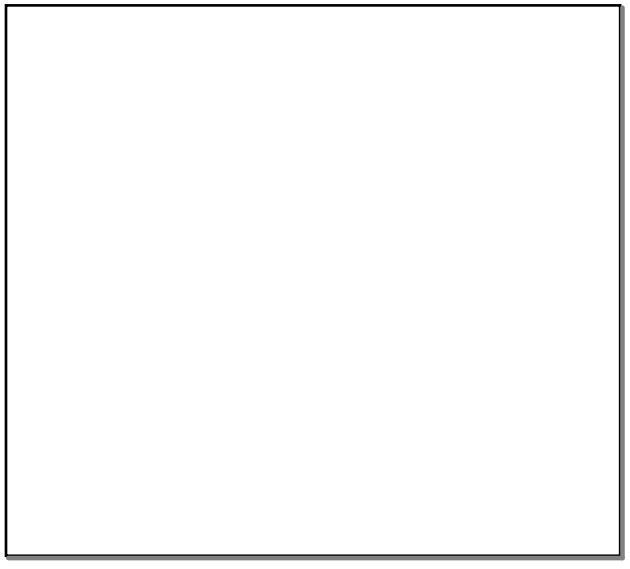


odd



Neither



even

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