

Expand and find the pattern:

$$(x + 3)^2$$

$$(3x - 2)^2$$

2-2 Graphing Cubics & Quadratics

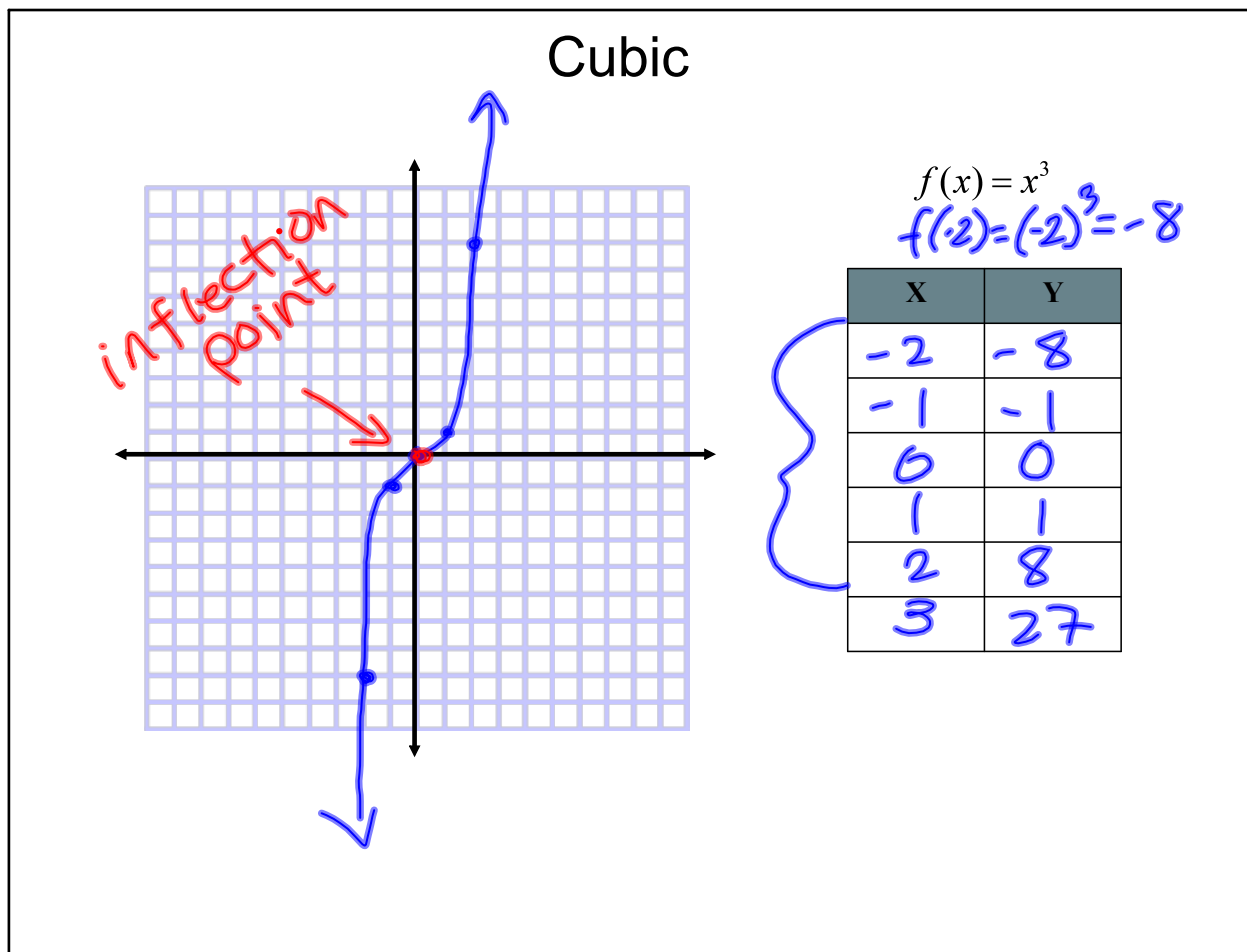
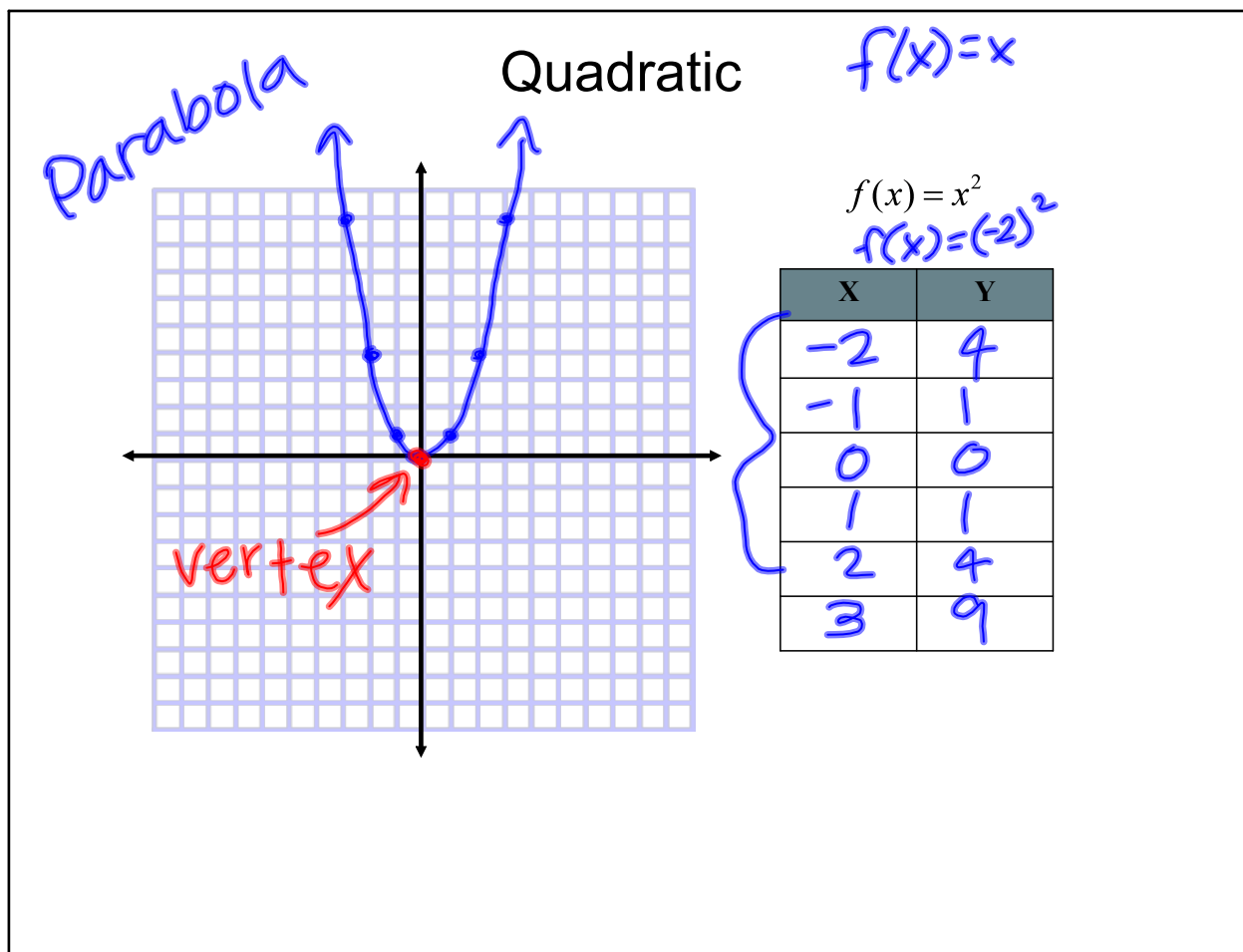
Objective: I can determine from a graph whether a function is a quadratic, a cubic, or neither.

Objective: I can find the vertex of a quadratic function.

Objective: I can find the inflection point of a cubic function.

Objective: I can graph quadratic and cubic functions.

Objective: I can determine whether a graph is even, odd, or neither.



Graphing Task



Quadratic (cont.)

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

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

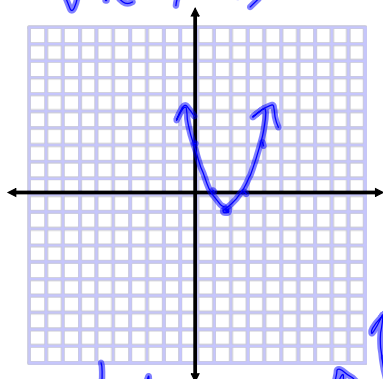
What do you notice about the signs of (h, k) ?

x's lie!

Find the vertex and graph.

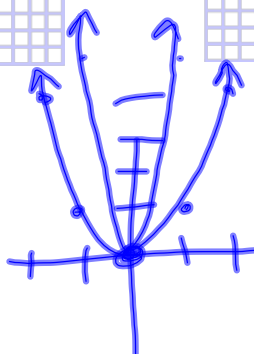
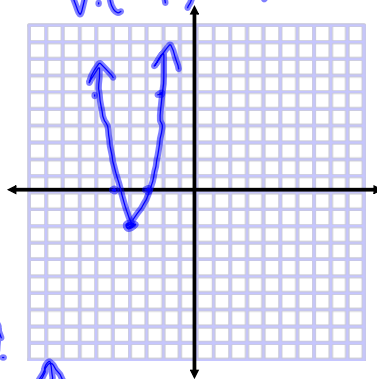
$$f(x) = (x-2)^2 - 1$$

$$V: (2, -1)$$



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

$$V: (-4, -2)$$



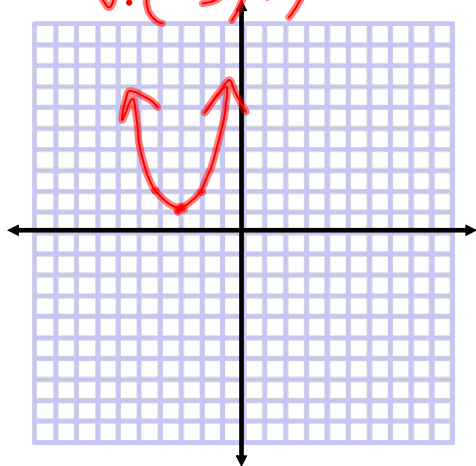
$$5(x+4)^2$$

You Try

Find the vertex and graph.

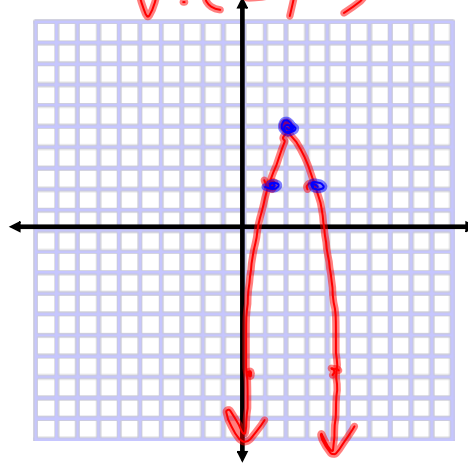
$$f(x) = (x+3)^2 + 1$$

$$V: (-3, 1)$$



$$f(x) = -3(x-2)^2 + 5$$

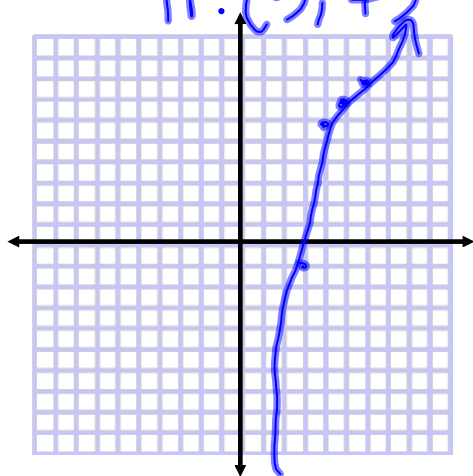
$$V: (2, 5)$$



Find the inflection point and graph:

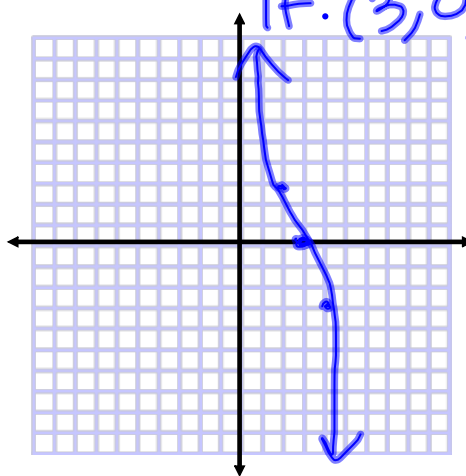
$$f(x) = (x - 5)^3 + 7$$

IF: (5, 7)



$$h(x) = -3(x - 3)^3 + 0$$

IF: (3, 0)

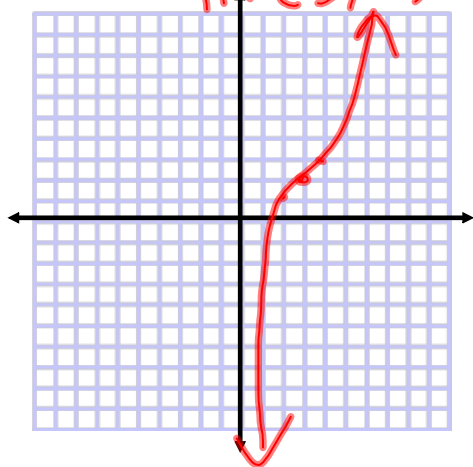


You Try

Find the inflection point and graph:

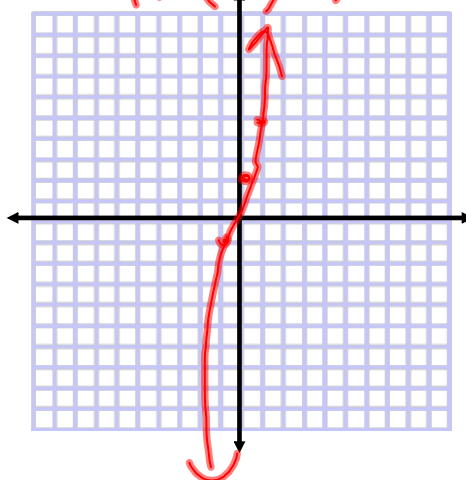
$$f(x) = (x - 3)^3 - 2$$

IF: (3, -2)

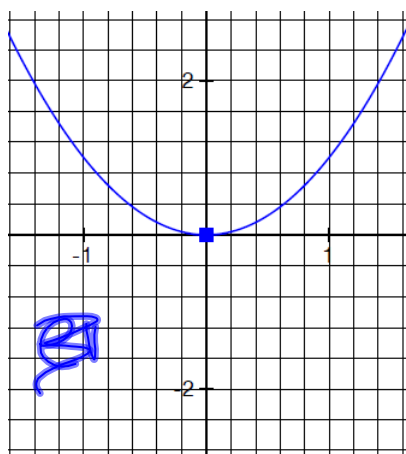


$$f(x) = 3x^3 + 2$$

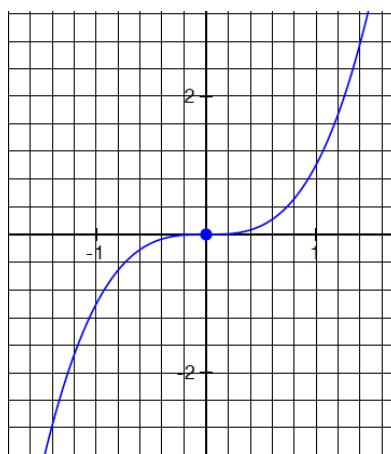
IF: (0, 2)



Symmetry

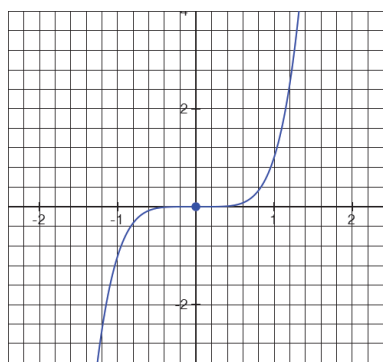


Even: symmetric
about y-axis

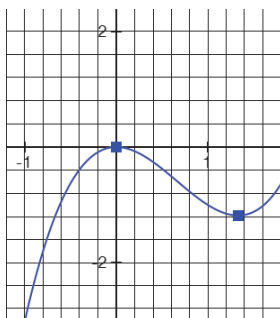


Odd: symmetric
about origin

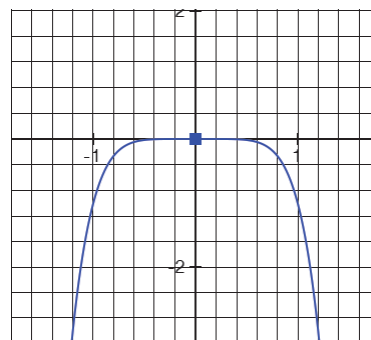
Even, Odd, or Neither?



odd



neither



even