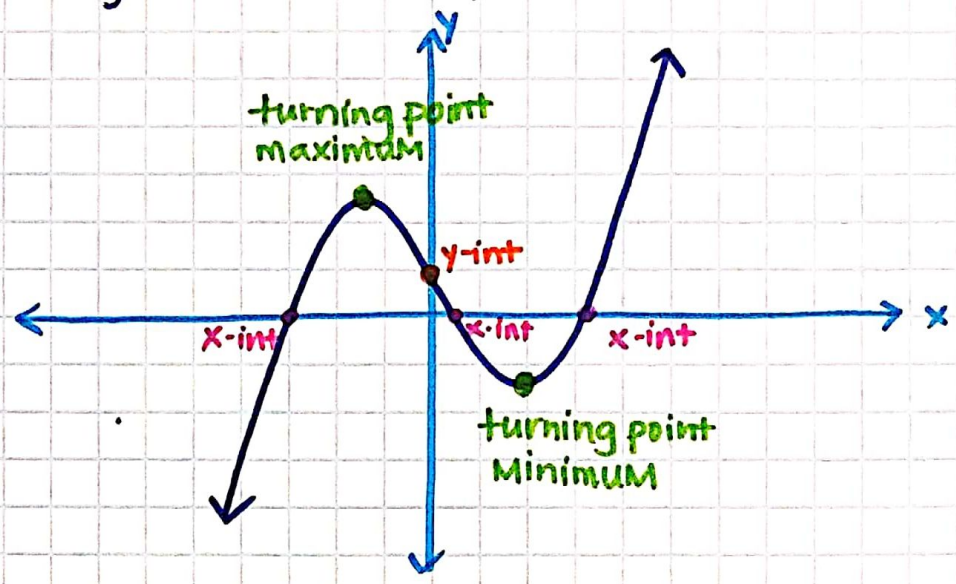
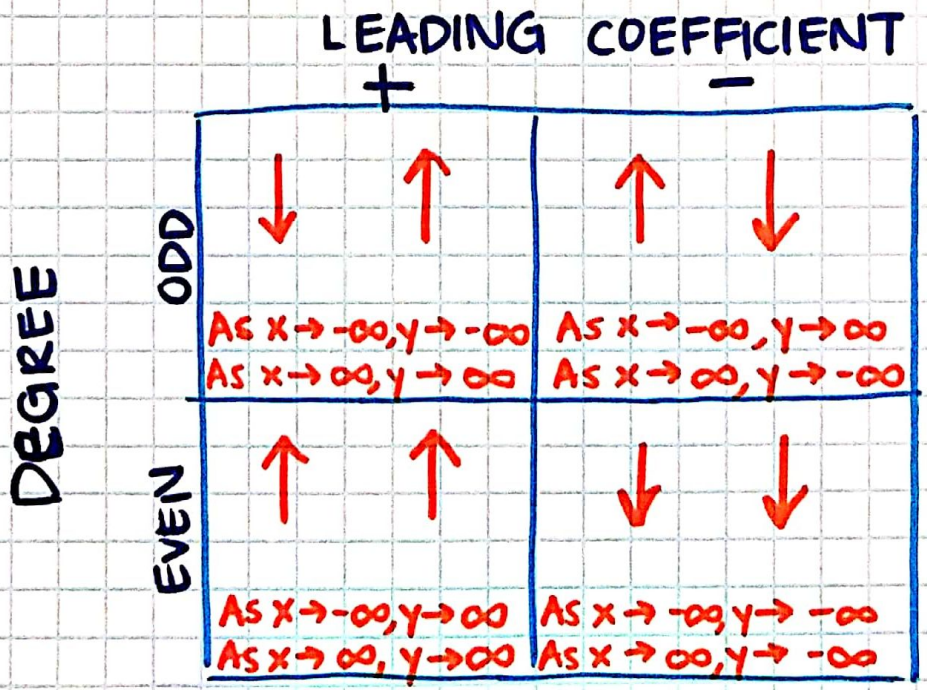
6.4 The Graphs of Polynomial Functions

In general an n^{th} degree polynomial has:

- up to n x-intercepts.
- up to $n-1$ turning points (maxima & minima)
- a continuous ~~smooth~~ graph
- a y-intercept equal to the constant.



* the rational/irrational roots will correspond to the x-intercepts on the graph.



Finding zeros/x-ints.

① use PlySmlt2 app or ② use graphing intersections

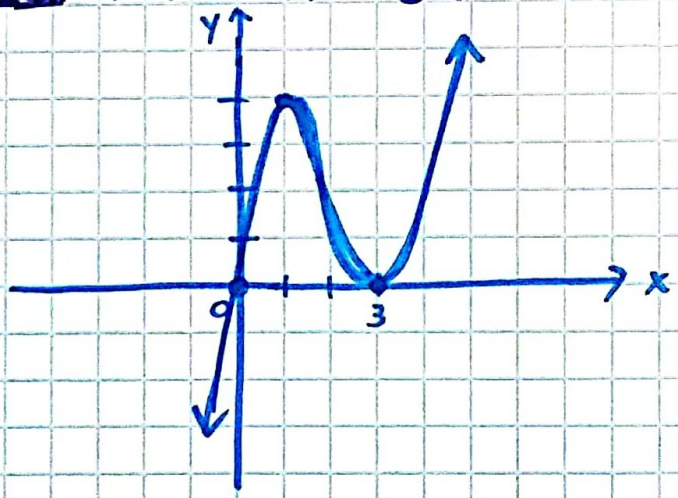
only use the rational & irrational solutions

Y_1 = polynomial
$Y_2 = 0$
GRAPH
2ND TRACE 5:intersect
ENTER (3 times)

Finding maximums & minimums

Follow directions on reference sheet.

Ex Sketch $x^3 - 6x^2 + 9x$.



- List the zeros. 3, 0
- State the turning points. ↓ minimum (3,0) max (1,4)
- state the end behavior.

As $x \to -\infty, y \to -\infty$
As $x \to \infty, y \to \infty$