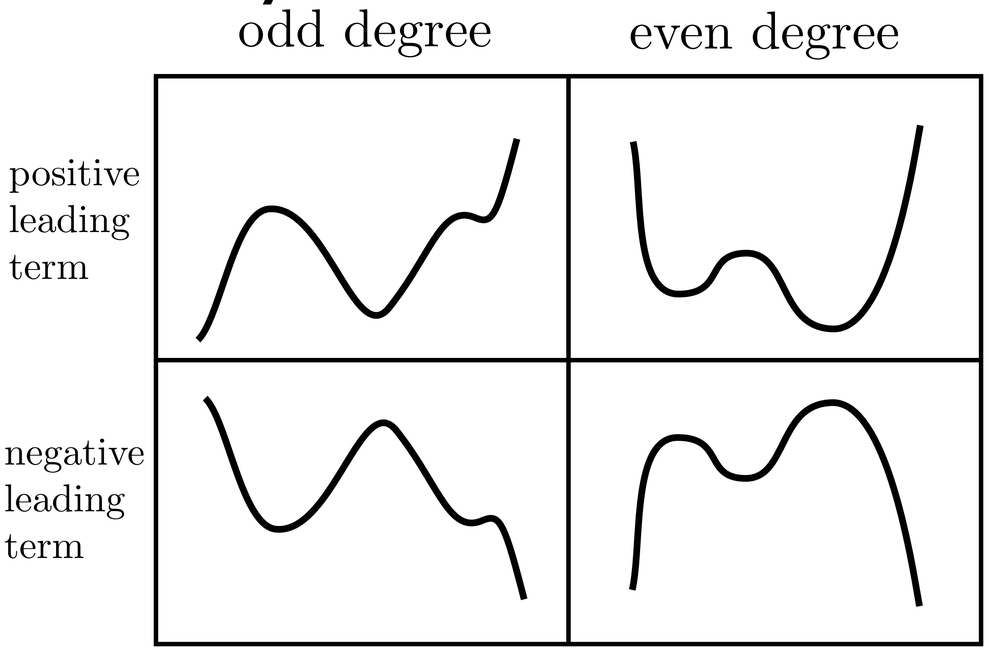
Summary of Analysis

Polynomial End Behavior



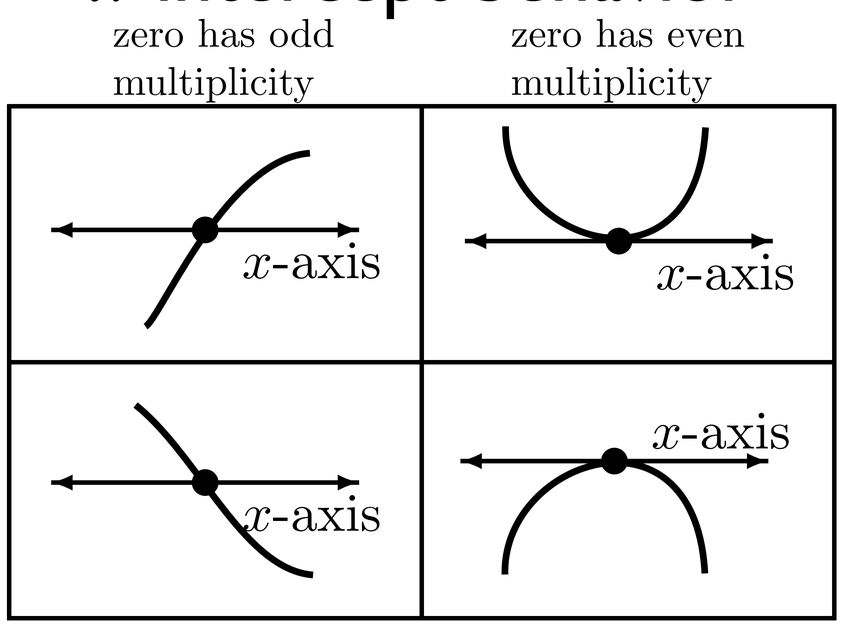
Rational End Behavior

$$R(x) = \frac{p(x)}{q(x)} = \frac{a_n x^n + a_{n-1}x^{n-1} + \cdots + a_1 x + a_0}{b_m x^m + b_{m-1}x^{m-1} + \cdots + b_1 x + b_0}$$

n = degree of top polynomial
m = degree of bottom polynomial

case	as $x \to \pm\infty$
$n < m$	$f(x) \to y = 0$
$n = m$	$f(x) \to y = \frac{a_n}{b_m}$
$n > m$	$f(x) \to q(x) \mid \overline{p(x)}$ (divide, ignore remainder)

x-intercept behavior



3 zeros of Rational Functions

$R(0)$	y intercept
All real x that make top $p(x) = 0$	x intercepts
All real x that make bottom $q(x) = 0$	vertical asymptotes

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