

Feb. 15, 2017

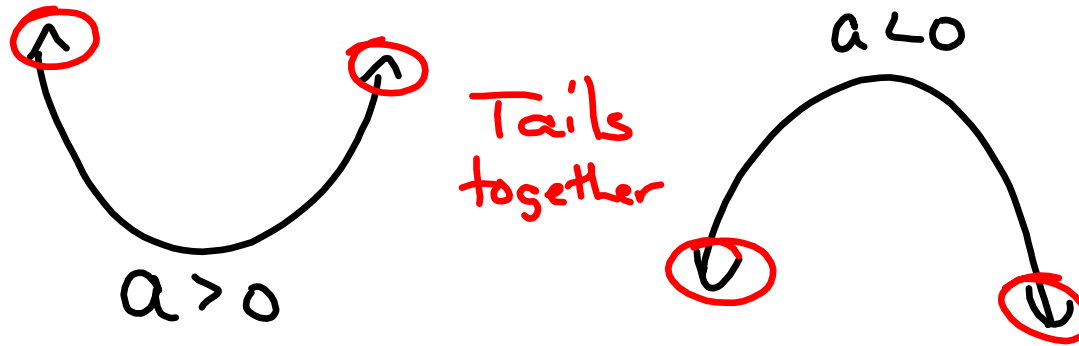
Sect. 3-5

Higher-order polynomials

End behavior (Tails)

Zeros (x-ints)

For $ax^2 + bx + c$



If $a > 0$, $f(x) \xrightarrow{\text{go up}} \infty$ as $x \xrightarrow{\text{Both tails}} \pm \infty$

$a < 0$, $f(x) \xrightarrow{\text{go down}} -\infty$ as $x \xrightarrow{\text{Both tails}} \pm \infty$

For $ax^3 + bx^2 + cx + d$



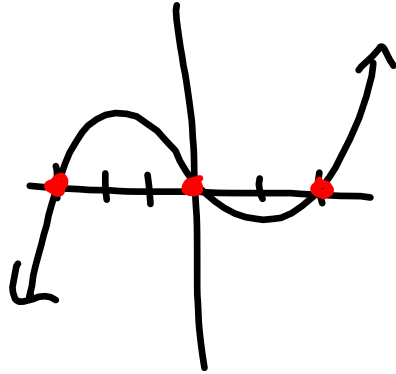
If $a > 0$ $f(x) \rightarrow \infty$ as $x \rightarrow \infty$ Right tail goes up
 $f(x) \rightarrow -\infty$ as $x \rightarrow -\infty$ Left tail goes down

If $a < 0$ $f(x) \rightarrow \infty$ as $x \rightarrow -\infty$ Left tail goes up
 $f(x) \rightarrow -\infty$ as $x \rightarrow \infty$ Right tail goes down

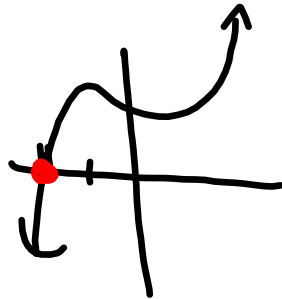
The even pattern holds for all evens
 x^2, x^4, x^6, \dots

The odd pattern holds for all odds
 x, x^3, x^5, x^7, \dots

Roots (Zeros) x -ints.



Zeros: $-3, 0, 2$



Zero: -2

others are
imaginary