

End Behaviour of Polynomials

10th Grade

What the graph does at the far left and far right, from two facts.

The degree tells you whether the ends match; the leading coefficient tells you which way the right end goes.

even degree → ends match · odd → ends differ

Even degree, $a > 0$

Like x^2 .

both ends up

Even degree, $a < 0$

Like $-x^2$.

both ends down

Odd degree, $a > 0$

Like x^3 .

down left, up right

Odd degree, $a < 0$

Like $-x^3$.

up left, down right

A degree- n polynomial has at most n roots and at most $n - 1$ turning points.