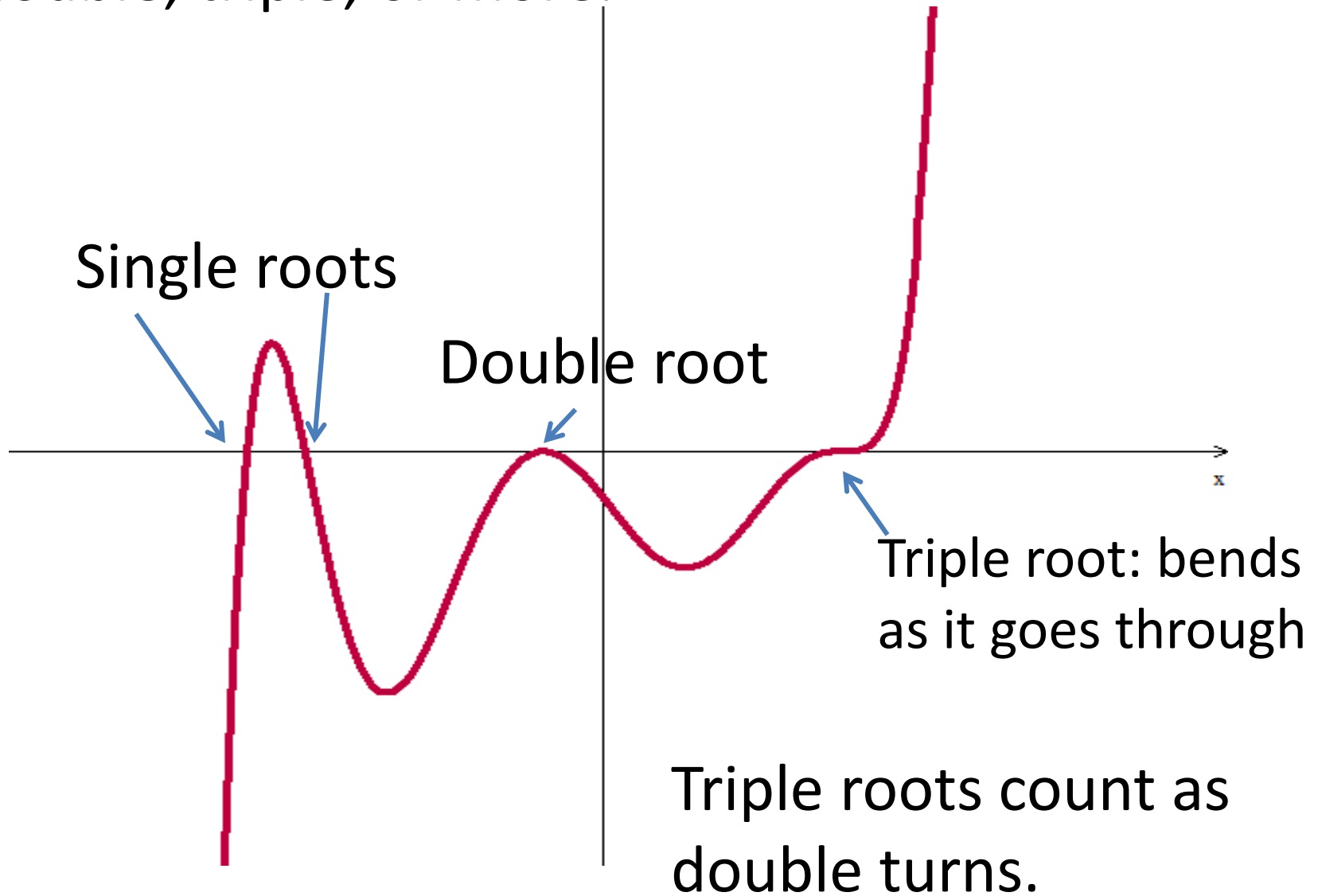# Multiplicity of Roots

The number of zeros (roots, solutions) of a polynomial is the same as its degree.

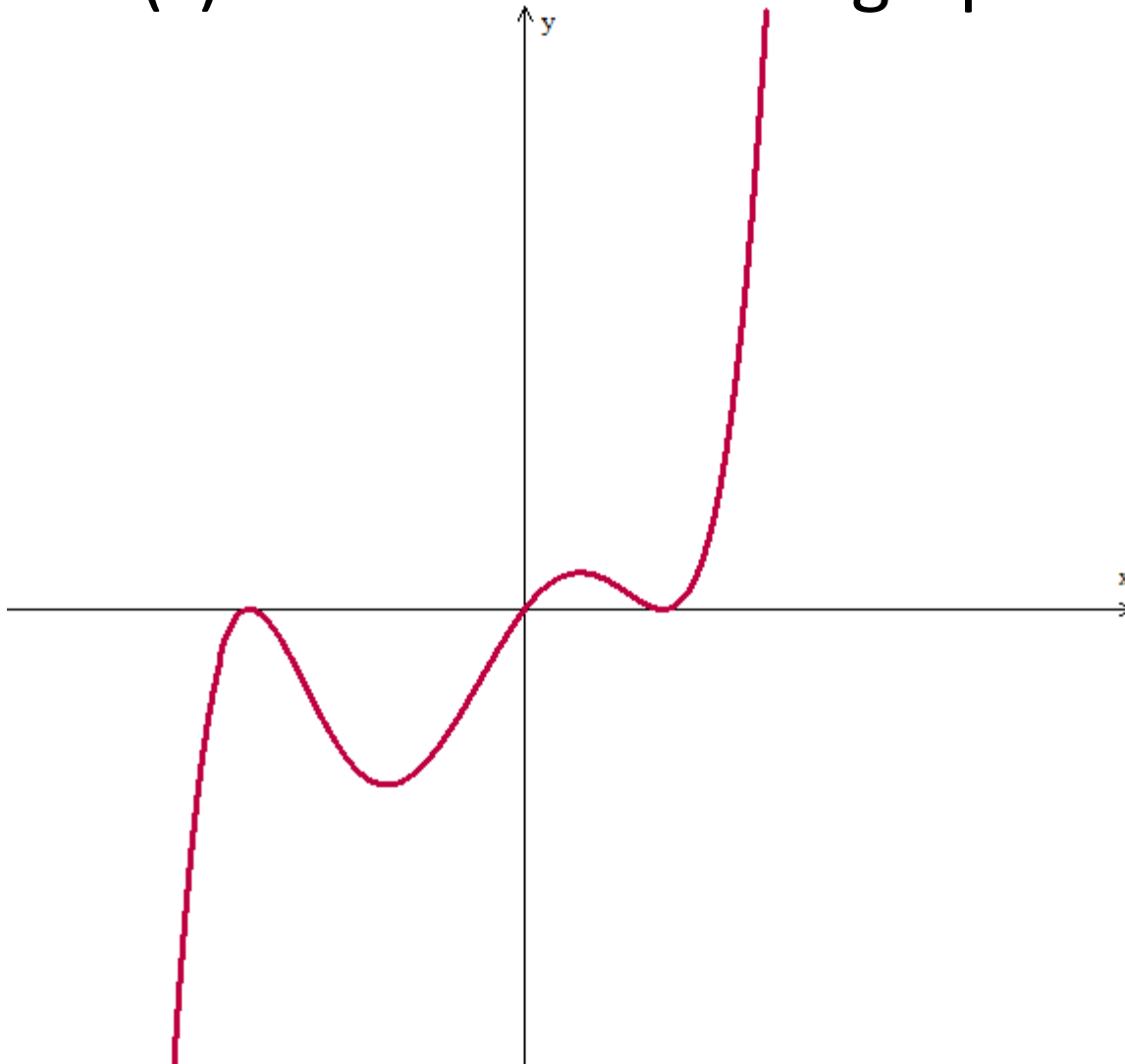A 4th degree polynomial will have 4 zeros.

The number of turns (relative mins/maxs) is one less than the degree of the polynomial.

A 4th degree polynomial will have 3 turns.

Some roots have a **<u>multiplicity</u>** meaning they count as double, triple, or more.

Single roots

Double root

Triple root: bends as it goes through

Triple roots count as double turns.

What kind(s) of roots does this graph have?

This graph has 2 double roots and 1 single root, 4 turns. It is degree 5.

What kind(s) of roots does this graph have?

This graph has 1 double root and 1 triple root, it has 4 turns. It is degree 5.

What kind(s) of roots does this graph have?

This graph has 2 single roots and 2 double roots, it has 5 turns. It is degree 6.