

An even degree is a *necessary condition* for a polynomial to have no real roots .

A positive global minimum is a *sufficient condition* for a polynomial to have no real roots

Values all of the same sign is a *necessary and sufficient condition* for a polynomial to have no real roots.

If a polynomial function has no real roots, then it has an even degree.

If a polynomial function has a positive global minimum, then it has no real roots.

A polynomial function has values all of the same sign if and only if the function has no real roots.