

Polynomial Study Guide

- Evaluating Functions
 - Substitute given value into all variables and evaluate
 - Always use parenthesis around the value(s) you are substituting
- Simplifying Expressions
 - Follow order of operations
 - Combine like terms
- Nature of Zeros
 - Fundamental Theorem of Algebra
 - Degree of polynomial = total number of solutions (real + complex)
 - rational vs. irrational vs. complex
 - Real solutions (both rational and irrational) appear as x-intercepts
 - Complex and irrational solutions ALWAYS come in pairs (conjugates)
- Factors and solutions
 - If $x = k$, then $(x - k)$ is a factor
 - If you know the solutions, then you know the factors
 - Multiplying the factors will produce a standard form polynomial
- Factoring completely
 - Always factor out GCF first
 - Sum and difference of cubes
 - Grouping
 - Quadratic pattern
 - Combinations of the above
- Solving polynomials
 - Factoring
 - factor the polynomial
 - Set the factors equal to zero and solve
 - Graphing (with synthetic division)
 - ~~Graph and look for “nice” x-intercepts (verify with table)~~
 - ~~Use synthetic division (with the solution) to decrease the degree~~
 - ~~Repeat until you have a quadratic~~
 - ~~Solve the resulting quadratic with the method of your choice~~