
***Objective(s)** *Students will be able to:*

1. Classify polynomials.
2. Model data using polynomial functions.
3. Analyze the factored form of a polynomial.
4. Write a polynomial function from its zeros.
5. Divide polynomials using long division.
6. Divide polynomials using synthetic division.
7. Solve polynomial equations by graphing.
8. Solve polynomial equations by factoring.
9. Solve equations using the Rational Root Theorem.
10. Use the Irrational Root Theorem and the Imaginary Root Theorem.
11. Use the Fundamental Theorem of Algebra in solving polynomial equations with complex roots and finding all zeros of a polynomial function.
12. Count permutations.
13. Count combinations.
14. Use Pascal's Triangle.
15. Use the Binomial Theorem.

ODE Standard, Grade Band Benchmark and/or Grade Level Indicator(s)

Patterns, Functions, and Algebra

Grade 9 / 10. Solve quadratic equations with real roots by factoring, graphing, using the quadratic formula and with technology.

Grade 9 / 11. Add, subtract, multiply and divide monomials and polynomials (division of polynomials by monomials only).

Grade 10 / 10. Solve real-world problems that can be modeled using linear, quadratic, exponential or square root functions.

Grades 11-12/ B. Use the quadratic formula to solve quadratic equations that have complex roots.

Grade 11 / 3. Describe and compare the characteristics of the following families of functions: quadratics with complex roots, polynomials of any degree, logarithms, and rational functions; e.g., general shape, number of roots, domain and range, asymptotic behavior.

Grade 11 / 8. Solve equations involving radical expressions and complex roots.

Mathematical Processes

Grades 8-10/ A, B, C, D, E, F, G, H

Grades 11-12 / H, J

Assignments:

- 6.1 # 25-32, 33-57 odd, 60, GC: 18 & 59
- 6.2 # 1-11 EOO, 17-23 odd, 29-33 odd, 38-39, 41, 52, 55-57, 59, 61, 63, GC: 13 & 15
- 6.3 # 1-21 EOO, 23, 25, 27, 31, 34, 37-55 EOO, 59, 60
- 6.4 # 12-14, 15-31 EOO, 43, 47, 51, 59, 62, 68, GC: 1, 7, 10, 11, 63
- 6.5 # 1-29 EOO, 32-40, 43
- 6.6 # 1-27 EOO, 31
- 6.7 # 1, 4, 5, 7, 9, 10, 13, 17, 18, 20, 21, 23, 26, 27, 28, 29-32, 39, 40, 43-53, 57, 63, 70
- 6.8 # 1-57 EOO, 59, 61-62, 65