10 Topic: Solving Higher Order Polynomials Copied from: All Algebra 2, Copied on: 02/28/22 Copied from: Algebra 2A, Copied on: 02/28/22 Copied from: Algebra 2A, Copied on: 02/28/22

Content Area: Mathematics
Course(s): Algebra 2
Time Period: Semester 2
Length: 2 weeks
Status: Published

Standards

MA.K-12.2 Reason abstractly and quantitatively.

MA.K-12.4 Model with mathematics.

MA.F-IF.C.7c Graph polynomial functions, identifying zeros when suitable factorizations are available,

and showing end behavior.

MA.A-APR.B.2 Know and apply the Remainder Theorem: For a polynomial p(x) and a number a, the

remainder on division by x - a is p(a), so p(a) = 0 if and only if (x - a) is a factor of p(x).

MA.F-LE.A.3 Observe using graphs and tables that a quantity increasing exponentially eventually

exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial

function.

Enduring Understandings

- 1. Mathematics is a language consisting of symbols and rules.
- 2. The same mathematical ideas can be represented concretely or symbolically.
- 3. There can be different strategies to solve a problem, but some are more effective and efficient than others.

Essential Questions

- 1. Which operations and equivalences will simplify and help me solve the problem?
- 2. How is thinking algebraically different from thinking arithmetically?
- 3. How does explaining my process help me to understand a problem's solution better?
- 4. What is meant by equality?

Knowledge and Skills

- Understand and Use Polynomial Long Division
- Understand and Use Polynomial Synthetic Division
- Use Integral Roots Test
- Use Rational Roots Test
- Understand and Use Complex Root Theorem
- Understand and Use Descartes Rule of Signs

Transfer Goals

Using mathematical reasoning and strategic thinking can allow for practical solutions of many problems.

Often unique vocabulary and implementation methods are needed to solve problems.

Resources

- 1. McDougal/Littell Algebra & Trigonometry Structure & Method Book 2
- 2. Aufmann/Barker/Lockwood Intermediate Algebra with Applications Sixth Edition
- 3. Houghton/Mifflin/Harcourt On Core Mathematics Algebra 2
- 4. Holt Algebra 2 with Trigonometry
- 5. Larson/Boswell Big Ideas Math: Algebra 2 Texas Edition
- 6. Khan Academy
- 7. PurpleMath
- 8. KutaSoftware
- 9. <u>CK-12</u>

- 10. Quizlet
- 11. Albert I/O
- 12. <u>Desmos</u>
- 13. Problem Attic