Unit 8 Polynomials and Factoring

Content Area: **Math**
Course(s): **CP Algebra 1**
Time Period: **Marking Period 3**
Length: **4**
Status: **Published**

Unit Overview

This unit allows students to master arithmetic with polynomial and rational expressions. Students will also see structure in expressions. Students will learn how to factor.

Link to optional Desmos curriculum:
https://teacher.desmos.com/collection/61bcc95700581818dff1d4d7?intro-banner-expanded=true

Enduring Understandings

- Students will understand how to apply the rules of algebra to manipulate variables.
- Students will understand how to keep an equation balanced and how to solve for an unknown to solve for a solution.
- The students need to understand how the inverse operations of multiplying and factoring are related in simplifying and expanding expressions, and the importance of these methods in other areas of math.

Essential Questions

How can we write an unknown as an algebraic expression?

How can we evaluate algebraic expressions?

How can we use the properties of algebra to simplify expressions?

How can we isolate an unknown quantity?

How can we rewrite an expression as a product or vice versa?

Why is re-writing an expression important?

How can we solve a quadratic equation?

New Jersey Student Learning Standards (No CCS)

MA.S-ID.B.6a	Fit a function to the data (including with the use of technology); use functions fitted to data to solve problems in the context of the data.
MA.A-APR	Arithmetic with Polynomials and Rational Expressions
MA.A-APR.A	Perform arithmetic operations on polynomials
MA.F-IF.C.7c	Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.
MA.A-APR.A.1	Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.
MA.A-APR.B	Understand the relationship between zeros and factors of polynomials
MA.F-IF.C.8a	Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.

Interdisciplinary Connections

LA.W.9-10.6	Use technology, including the Internet, to produce, share, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.
SCI.HS-ETS1-2	Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.
TECH.8.1.12.C.CS4	Contribute to project teams to produce original works or solve problems.

Technology Standards

TECH.8.1.12.C.CS4	Contribute to project teams to produce original works or solve problems.
TECH.8.1.12.D.CS3	Exhibit leadership for digital citizenship.
TECH.8.1.12.E.CS4	Process data and report results.
TECH.8.1.12.F.CS3	Collect and analyze data to identify solutions and/or make informed decisions.
TECH.8.1.12.F.CS4	Use multiple processes and diverse perspectives to explore alternative solutions.
TECH.8.2.12.C.CS2	The application of engineering design.

21st Century Themes/Careers

CAEP.9.2.12.C.3	Identify transferable career skills and design alternate career plans.

Financial Literacy Integration

PFL.9.1.12.C.1	Compare and contrast the financial benefits of different products and services offered by a variety of financial institutions.

PFL.9.1.12.C.2	Compare and compute interest and compound interest and develop an amortization table using business tools.
PFL.9.1.12.C.3	Compute and assess the accumulating effect of interest paid over time when using a variety of sources of credit.