# HPISD Curriculum: Algebra I

| Title | Estimated Duration | 6 Weeks | | | | | |
|---|---|---|---|---|---|---|---|
| Unit 13: Operations with Polynomials | 2 weeks | 1 | 2 | 3 | 4 | 5 | **6** |

## Unit Overview

Students learn how to classify polynomials by degree and by the number of terms. They add, subtract, and multiply polynomials, and learn to recognize patterns for special products.

## Enduring Understandings

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| **The student will understand that:** | • Monomials, binomials and polynomials are algebraic expressions that showcase like and unlike terms.<br>• Polynomials are written in their simplest form when there are no like terms.<br>• Operations with polynomials follow the same rules as monomials and binomials such as the distributive property. |

| Concepts | Guiding/Essential Questions |
|---|---|
| • Relationships<br>• Patterns | • How are the properties of polynomials connected to the properties real numbers? |

## Learning Targets

Students will be able to describe functional relationships in a variety of ways.
Students will be able to demonstrate an understanding of the properties and attributes of functions.

| Formative Assessments | Summative Assessments |
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| homework, quizzes | test |

| TEKS: Readiness Standards | TEKS: Supporting Standards |
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| **A.4A** Finds specific function values, simplify polynomial expressions, transform and solve equations, and factor as necessary in problem situations. | **A.1C** Describe functional relationships for given problem situations and write equations or inequalities to answer questions arising from the situations.<br>**A.3B** Look for patterns and represent generalizations algebraically.<br>**A.4B** Use the commutative, associative, and distributive properties to simplify algebraic expressions.<br>**A.11A** Use patterns to generate the laws of exponents and apply them in problem-solving situations.<br>**A.11B** Analyze data and represent situations involving inverse variation using concrete models, tables, graphs, or algebraic methods; and<br>**A.11C** Analyze data and represent situations involving exponential growth and decay using concrete models, tables, graphs, or algebraic methods. |
| **Processes and Skills:**<br>**What students should be able to DO** | **Facts:**<br>**What students should KNOW** |
| • Determine the degree of a polynomial<br>• Add, subtract, and multiply polynomials<br>• Find special products of polynomials<br>• Combine like terms<br>• Multiply a binomial by a trinomial | • FOIL represents First, Outer, Inner, Last when multiplying two binomials.<br>• The idea of extended distribution.<br>• When to add exponents and add coefficients.<br>• A monomial is a variable, a number, or a product of a variable and number<br>• A monomial is the sum of the exponents of the variables in the monomial.<br>• A polynomial is a monomial or a sum of monomials, each called a term.<br>• The degree of a polynomial is the greatest degree of its terms.<br>• A binomial is a polynomial with two terms.<br>• A trinomial is a polynomial with three terms.<br>• When adding/subtracting polynomials, add like terms.<br>• When adding like terms, the exponents remain the same and the coefficients are added.<br>• Polynomials are arranged in descending order of their powers. |

| Topics | | |
|---|---|---|
| polynomials | operations on polynomials | special products |

| Language of Instruction | | |
|---|---|---|
| polynomial | degree of terms | leading coefficient |
| monomial | difference of Squares | simplify |
| binomial | exponent | square of a sum |
| trinomial | grouping | square of a difference |
| degree of polynomial | | |

| State Assessment Connections | National Assessment Connections |
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| Resources |
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| McDougall Littell – Algebra I Sections 9.1, 9.2, and 9.3<br>Teacher-made supplemental materials |