HPISD Curriculum: Algebra II

Title	Estimated Duration	6 Weeks					
Unit 3: Quadratic Functions Part I	2 weeks	**1**	2	3	4	5	6

Unit Overview

Performing operations with complex numbers, solving quadratic equations, and graph parabolas.

Enduring Understandings

The student will understand that:	• Quadratic functions can be represented and solved in different ways.

Concepts	Guiding/Essential Questions
• relationships	• What is meant by the expression "factored form"? • What is a complex number? • How is the x-coordinate of the vertex of a parabola determined from a quadratic equation? Then, how is the y-coordinate found? • How are solutions to quadratic equations related to the graph of the quadratic equation? • How do I know if an equation is quadratic? • How can the discriminant be used to determine the number and type of roots of a quadratic?

Learning Targets

- Students will use properties and attributes of functions and apply functions to problem situations.
- Students will understand that quadratic functions can be represented in different ways and will translate among their various representations.
- Students will formulate equations based on quadratic functions, uses a variety of methods to solve them, and analyze the solutions in terms of the situation.

Formative Assessments	Summative Assessments
homework, quizzes	test

TEKS: Readiness Standards	TEKS: Related Supporting Standards
A2.6.A determine the reasonable domain and range values of quadratic functions, as well as interpret and determine the reasonableness of solutions to quadratic equations and inequalities **A2.6B** Relate representations of quadratic functions such as algebraic, tabular, graphical, and verbal descriptions. **A2.8D** Solve quadratic equations and inequalities using graphs and algebraic methods.	**A2.2A** use tools including factoring and properties of exponents to simplify expressions and to transform and solve equations **A2.2B** Use complex numbers to describe the solutions of quadratic equations. **A2.4A** identify and sketch graphs of parent functions, including linear (f (x) = x),_quadratic (f (x) = x2), exponential _(f (x) = ax), and logarithmic _(f (x) =logax) functions, absolute value of x (f (x) = |x|), square root _of x (f (x) =ax), and reciprocal _of x (f (x) = 1/x) **A2.8B** Analyze and interpret the solutions of quadratic equations using discriminants and solve quadratic equations using the quadratic formula. **A2.8.C** compare and translate between algebraic and graphical solutions of quadratic equations
Processes and Skills: **What students should be able to DO**	**Facts:** **What students should KNOW**
• Solve quadratic equations. • Graph quadratic equations from standard form. • Simplify expressions containing imaginary numbers.	• A quadratic equation is a polynomial equation of the second degree. • The graph of a quadratic function is a parabola. • The square root of a negative one yields an imaginary number. • Roots, solutions, zeros, and x-intercepts are all names for solutions of quadratic equations.

Topics		
Quadratic Equations	Factoring	Quadratic Formula

Language of Instruction	
Quadratic equations	Complex numbers

State Assessment Connections	National Assessment Connections

Resources
McDougal Littell – Algebra 2 Supplemental material