

HPISD Curriculum: Algebra II								
Title		Estimated Duration	6 Weeks					
Unit 5: Quadratic Functions Part III		2 weeks	1	2	3	4	5	6
Unit Overview								
Deriving quadratic equations, solving systems of quadratic equations, applying quadratic equations to real events, and solving and graphing quadratic inequalities.								
Enduring Understandings								
The student will understand that:		<ul style="list-style-type: none"> • Quadratic functions can be represented and solved in a variety of ways. • Solutions to systems of several quadratic equations and inequalities can be used to solve real world problems. • The domain and range of a function are restricted by the context it represents. 						
Concepts		Guiding/Essential Questions						
<ul style="list-style-type: none"> • Relationships • Problem Solving 		<ul style="list-style-type: none"> • How is a factor of a quadratic related to a root of the quadratic? • How can the context represented by a function restrict the function's domain and range? • How can a quadratic function be written, given the roots of the function? • What methods can be used to solve a system of quadratic equations without a calculator? • What is the purpose of sign analysis? • What calculator method can be used to find the vertex of a parabola? • What calculator method can be used to the roots of a parabola? • What calculator method can be used to the y-intercept of a parabola? 						
Learning Targets								
<ul style="list-style-type: none"> • Students will formulate systems of equations and inequalities from problem situations, use a variety of methods to solve them, and analyze the solutions in terms of the situations. • Students will understand that quadratic functions can be represented in different ways and will translate among their various representations. • Students will formulate equations and inequalities based on quadratic functions, use 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				
<p>A2.3B Use algebraic methods, graphs, tables, or matrices to solve systems of equations or inequalities.</p> <p>A2.3C Interpret and determine the reasonableness of solutions to systems of equations or inequalities for given contexts.</p> <p>A2.6A 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.</p> <p>A2.6B Relate representations of quadratic functions, such as algebraic, tabular, graphical, and verbal descriptions.</p> <p>A2. 8A Analyze situations involving quadratic functions and formulate quadratic equations or inequalities to solve problems.</p> <p>A2.8D Solve quadratic equations and inequalities using graphs, tables, and algebraic methods.</p>	<p>A2.6C Determine a quadratic function from its roots (real and complex) or a graph.</p> <p>A2.8C Compare and translate between algebraic and graphical solutions of quadratic equations.</p>				
Processes and Skills: What students should be able to DO	Facts: What students should KNOW				
<ul style="list-style-type: none"> • Derive quadratic equations given various pieces of information. • Solve systems of quadratic equations with and without a graphing calculator. • Use the calculator to find different parts of the parabola • Graph and solve quadratic inequalities from vertex form. • Solve quadratic inequalities using sign analysis • Apply their quadratic knowledge to solve real world problems. 	<ul style="list-style-type: none"> • Sign analysis is used to solve quadratic inequalities. • Roots, solutions, zeros, and x-intercepts are all names for solutions of quadratic equations. 				
Topics					
quadratic equations quadratic inequalities roots	<table border="0"> <tr> <td style="padding-right: 20px;">vertex form</td> <td>systems of equations</td> </tr> <tr> <td>sign analysis</td> <td>domain and range</td> </tr> </table>	vertex form	systems of equations	sign analysis	domain and range
vertex form	systems of equations				
sign analysis	domain and range				

Language of Instruction	
sign analysis	roots maximum and minimum
State Assessment Connections	National Assessment Connections
Resources	
McDougal Littell – Algebra 2 Supplemental material	