

**SOUTH WESTERN SCHOOL DISTRICT  
PLANNED COURSE**

Course Title: Honors Algebra II

Grade Level: 9, 10, 11

Course Materials:

Primary Source(s)

Algebra and Trigonometry  
(Houghton Mifflin)

Supplemental Source(s)

Practice Masters Glencoe  
Skills Practice Glencoe  
Online Resources  
Cognitive Tutor Text

Key Learning:

All students will know that:

1. There are specific steps in solving linear application problems
2. Data can be displayed, interpreted, and analyzed in a linear relationship.
3. Various methods can be used to solve systems of linear equations and inequalities.
4. Operations can be performed with polynomials.
5. Factoring is essential when simplifying rational expressions.
6. Algebraic processes are necessary for simplifying expressions and solving equations involving radicals.
7. Quadratic equations can be solved graphically and algebraically.

**Essential Questions:**

Algebra I Review

1. How do you classify real numbers?
2. How do you solve compound inequalities?
3. How do you solve absolute value inequalities?
4. How do you set up and solve linear application problems?

System of Linear Equations and Inequalities

1. How do you determine if two lines are parallel, perpendicular, or neither?
2. How do you solve a system of linear equations graphically?
3. How do you solve a system of equations using substitution?
4. How do you solve a system of equations using elimination?
5. How do you solve a system of equations using Cramer's Rule?
6. How do you solve a three-variable system of equations?
7. How do you write and/or solve a system of equations to find a solution in a real life situation?
8. How do you solve a system of linear inequalities?
9. How is linear programming used to optimize cost or profit?

### Probability and Statistics

1. How can information be graphically displayed?
2. How are box-and-whisker plots used to compare data and interpret a set of data?
3. How do outliers affect the measures of central tendency?
4. How are odds and probability related?
5. How can knowing the odds of an event be used to find the probability or outcome of a future event?
6. How are counting techniques applied in problem-solving settings?
7. How do you find probabilities for compound events?

### Polynomials

1. How do properties of exponents apply to simplifying monomials?
2. How do you add, subtract, multiply, and divide polynomials?
3. How do you multiply two binomials?
4. How do you factor quadratic expressions?
5. How do you solve quadratic equations using various factoring techniques?
6. How do you factor polynomials?
7. How do you solve quadratic equations using various factoring techniques?
8. How do you set up and solve quadratic applications by factoring?
9. How do you use sign graphs to solve quadratic inequalities?

### Rational Expressions and Equations

1. How can you divide monomials using laws of exponents?
2. How can you simplify rational expressions?
3. How can you multiply and divide rational expressions?
4. How can you add and subtract rational expressions?
5. How can you simplify complex algebraic fractions?
6. How can you solve rational equations?
7. How can you determine if a solution is valid?
8. How can you solve applications involving rate of work, mixture, membership and circuitry using rational equations?

### Radical Functions

1. How do you simplify radical and complex expressions?
2. How do you add, subtract, multiply, and divide radical and complex expressions?
3. How do you write and simplify expressions involving rational exponents?
4. How do you solve radical equations?
5. How do you determine if there are extraneous roots?
6. How do you compose two functions?
7. How do you find the inverse of a given function?

### Quadratic Functions

1. How do you graph quadratic functions?
2. How do you find and interpret the maximum and minimum value of a quadratic function?
3. How do you find quadratic solutions by graphing?
4. How do you solve quadratics by using the quadratic formula?
5. How do you use the discriminant to determine the nature of the root?
6. How do you solve a quadratic equation by completing the square?

Revised 6/2009

# Algebra I Review

## **Key Learning:**

*There are specific steps in solving linear application problems*

## **Unit Essential Question:**

*How do you solve and apply linear equations and inequalities?*

### **Concepts**

Sets of Numbers

### **Concepts**

Solve Compound  
Inequalities

### **Concepts**

Linear Applications

### **Lesson EQ:**

How do you classify real numbers?

### **Lesson EQ:**

How do you solve compound inequalities?

How do you solve absolute value inequalities?

### **Lesson EQ:**

How do you set up and solve linear application problems?

### **Vocabulary:**

Whole Numbers  
Natural Numbers  
Integers  
Irrational/Rational Numbers  
Real Numbers  
Venn Diagram

### **Vocabulary:**

Intersection  
Union  
Compound inequalities  
Absolute value  
Extraneous  
Solutions  
Infinity  
Solution

### **Vocabulary:**

Linear

Unit Title: Algebra I Review

<b>Standards</b>	<b>Content (what the students will know)</b>	<b>Performance (what the students will do)</b>	<b>Activities/ Assessments</b>
<b>Anchors</b> M11.A.3.1.1  <b>Section</b> 1-1 1-2  (Important)	<ul style="list-style-type: none"> <li>Sets of numbers(real, rational, irrational, integer, whole, natural)</li> </ul>	<ul style="list-style-type: none"> <li>Categorize sets of numbers</li> </ul>	<ul style="list-style-type: none"> <li>Skills practice, Practice, Study Guide Intervention, &amp; Word Problem Worksheets</li> <li><a href="#">What are real numbers? - graphic organizer</a></li> </ul>
<b>Anchors</b> M11.A.2.1.1  <b>Section</b> 1-7 1-8 1-9  (Important)	<ul style="list-style-type: none"> <li>Set up problem solving situations</li> </ul>	<ul style="list-style-type: none"> <li>Apply operations in problem solving situations(distance and work)</li> </ul>	<ul style="list-style-type: none"> <li>Skills practice, Practice, Study Guide Intervention, &amp; Word Problem Worksheets</li> <li>Glencoe – Math in Motion – Equations &amp; Inequalities</li> <li><a href="#">What words tell us to add, subtract, multiply, and divide – graphic organizer</a></li> <li><a href="#">Partner Problems Worksheet</a></li> <li><a href="#">Algebra Connect – Solving Equations Game</a></li> <li><a href="#">Word Problem(rtd) - Video</a></li> <li><a href="#">Word Problems (Geom)-video</a></li> <li>Blog pg. 21</li> <li>Word Problem Worksheet</li> </ul>
<b>Anchors</b> M11.D.2.1.1  <b>Section</b> 2-1 2-2 2-3 2-4  (Important)	<ul style="list-style-type: none"> <li>Inequality symbols</li> <li>Compound inequalities (union, intersection)</li> </ul>	<ul style="list-style-type: none"> <li>Solve one-variable equations and inequalities (one-step and multi-step)</li> <li>Graph inequalities</li> <li>Graph solution set for compound inequalities (including absolute value)</li> </ul>	<ul style="list-style-type: none"> <li>Skills practice, Practice, Study Guide Intervention, &amp; Word Problem Worksheets</li> <li><a href="#">Solving equations writing assignment</a></li> </ul>

# Systems of Linear Equations and Inequalities

## Key Learning:

*Various methods can be used to solve systems of linear equations and inequalities.*

## Unit Essential Question:

*How do you solve systems of linear equations and inequalities algebraically and graphically?*

### Concepts

Solve a system of  
linear equations  
graphically

### Concepts

Solve a system of  
linear equations  
algebraically

### Concepts

Solve a system of  
linear inequalities

### Lesson EQ:

How do you solve a system  
of linear equations  
graphically?

How do you determine if  
lines are parallel or  
perpendicular?

### Lesson EQ:

How do you solve a system of  
equations using substitution?

How do you solve a system of  
equations using elimination?

How do you solve a system of  
equations using Cramer's  
Rule?

How do you solve a three-  
variable system of equations?

How do you write and/or  
solve a system of equations  
to find a solution in a real life  
situation?

### Lesson EQ:

How do you solve a  
system of linear  
inequalities?

How is linear  
programming used to  
optimize cost or profit?

### Vocabulary:

Inconsistent  
Consistent  
Independent  
Dependent  
Break Even Point  
Point of Intersection  
Parallel  
Perpendicular

### Vocabulary:

Substitution Method  
Cramer's Rule  
Elimination Method  
Ordered Triple  
Determinant

### Vocabulary:

Optimization  
Feasible Region  
Constraints

Unit Title: Systems of Linear Equations and Inequalities

<b>Standards</b>	<b>Content (what the students will know)</b>	<b>Performance (what the students will do)</b>	<b>Activities/ Assessments</b>
<b>Anchors</b> M11.D.2.1.4  <b>Section</b> 3-5 3-6  <u>(Essential)</u>	<ul style="list-style-type: none"> <li>- Select and apply the appropriate method for solving a system of linear equations</li> </ul>	<ul style="list-style-type: none"> <li>- Solve a system of linear equations by graphing, substitution, and elimination</li> <li>- Write and solve a system of linear equations for a real life situation</li> </ul>	<ul style="list-style-type: none"> <li>- Skills practice, Practice, Study Guide Intervention, &amp; Word Problem Worksheets</li> <li>- <a href="#">How do you solve systems by graphing graphic organizer</a></li> <li>- <a href="#">Wartime Battle</a></li> <li>- Word Problem worksheet</li> <li>- <a href="#">How do you solve a system of equations by linear combination? – graphic organizer</a></li> <li>- <a href="#">Systems of linear equations graphic organizer</a></li> <li>- <a href="#">Solving Linear Systems</a></li> <li>-</li> <li>-</li> </ul>
<b>Anchors</b> M11.C.3.1.2 M11.D.2.1.3 M11.D.3.2.1 <b>Section</b> 3-4  <u>(Important)</u>	<ul style="list-style-type: none"> <li>- The differences between parallel and perpendicular lines</li> <li>- Standard form and slope-intercept form</li> </ul>	<ul style="list-style-type: none"> <li>- Write an equation of a line using two points, two-intercepts, or a point and a slope</li> <li>- Determine if two lines are parallel, perpendicular, or neither</li> <li>- Writing equations of lines from real life problem situations</li> </ul>	<ul style="list-style-type: none"> <li>- Skills practice, Practice, Study Guide Intervention, &amp; Word Problem Worksheets</li> <li>- <a href="#">Graphic Organizer – Writing equations of lines</a></li> <li>- <a href="#">How do you write the equation of line graphic organizer</a></li> <li>- <a href="#">How do you find the equation of a line given a rectangular coordinate plane graphic organizer</a></li> <li>- <a href="#">Blockbuster – Writing equations- Game</a></li> </ul>
<b>Anchors</b>  <b>Section</b> 16-9  <u>(Important)</u>	<ul style="list-style-type: none"> <li>- Determinants can be used to solve systems of linear equations</li> </ul>	<ul style="list-style-type: none"> <li>- Solve a system of linear equations using Cramer’s Rule</li> </ul>	<ul style="list-style-type: none"> <li>- Skills practice, Practice, Study Guide Intervention, &amp; Word Problem Worksheets</li> <li>- Jigsaw – all methods</li> <li>- <a href="#">System of Equations Word Problems &amp; Graphic Organizer (Powerpoint)</a></li> <li>- <a href="#">System of Equations Word Problems (Word)</a></li> <li>- <a href="#">Solving systems graphic organizer (culminating)</a></li> <li>-</li> </ul>

<b>Anchors</b>  <b>Section</b> 3-7  <u>(Important)</u>	<ul style="list-style-type: none"> <li>- How a feasible region is formed by two or more linear inequalities</li> <li>- How to write constraints given a problem situation</li> </ul>	<ul style="list-style-type: none"> <li>- Determine the coordinates of vertices of a feasible region</li> <li>- Solve real world optimization problems using linear programming</li> </ul>	<ul style="list-style-type: none"> <li>- Skills practice, Practice, Study Guide Intervention, &amp; Word Problem Worksheets</li> <li>- Math-in-motion (preview LP)</li> <li>- <a href="#">Lesson 2 (system of linear inequalities)(word)</a></li> <li>- <a href="#">Graphing linear inequalities lesson plan and handouts</a></li> <li>- Linear Programming Problems Packet</li> <li>- Linear Programming poster w/group &amp; present – (packet)</li> </ul>
<b>Anchors</b>  <b>Section</b> 16-9 9-9  <u>(Compact)</u>	<ul style="list-style-type: none"> <li>- That an ordered triple is a solution to a system with three variables</li> </ul>	<ul style="list-style-type: none"> <li>- Solve systems of linear equations with three variables</li> </ul>	<ul style="list-style-type: none"> <li>- Skills practice, Practice, Study Guide Intervention, &amp; Word Problem Worksheets</li> <li>- Application Problems 3 – variable (worksheet)</li> </ul>

# Probability and Statistics

## Key Learning:

Data analysis can be used to manage information, identify patterns, and make predictions.

## Unit Essential Question:

How can data be displayed, organized, and utilized to make valid inferences and predictions about real world phenomena?

### Concepts

Statistics

### Concepts

Probability

## Lesson EQ:

--How can information be graphically displayed?

-How are box-and-whisker plots used to compare data and interpret a set of data?

How do outliers affect the measures of central tendency?

## Lesson EQ:

-How are odds and probability related?

-How can knowing the odds of an event be used to find the probability or outcome of a future event?

-How are counting techniques applied in problem-solving settings?

-How do you find probabilities for compound events?

## Vocabulary:

Stem-and-Leaf Plot	Mode
Box-and-Whisker Plot	Range
Interquartile Range	
Q1, Q2, Q3	
Outliers	
Central Tendency	
Mean	
Median	

## Vocabulary:

Simple probability	Arrangements
Theoretical probability	Sample
Experimental probability	Odds
Independent events	Permutations
Dependent events	Combinations
Possible outcomes	
Tree diagram	
Fundamental Counting Principle	



Unit Title: Probability & Statistics

<b>Standards</b>	<b>Content (what the students will know)</b>	<b>Performance (what the students will do)</b>	<b>Activities/ Assessments</b>
<b>Anchors</b> <b>M11.E.1.1.1</b> <b>M11.E.1.1.2</b> <b>M11.E.2.1.1</b> <b>M11.E.2.1.2</b> <b>M11.E.2.1.3</b> <b>M11.E.4.1.1</b>  <b>Sections</b> <b>15-2</b>  <b><u>(Essential)</u></b>	- Central tendency (mean, median, mode, range)  - Variation (range, interquartile range, outliers)  - Graphs for quantitative data (stem & leaf and box & whisker)	- Calculate summary statistics of data distributions using measures of central tendency.  - Compare and contrast different data distributions using summary statistics  - Select and utilize an appropriate graphical display for a data set  - Collect and summarize data into a box-and-whisker plot to show the median, the upper and lower quartiles	-Cog Tutor 12.1 - Taking the PSAT (Measures of Central Tendency)  -Cog Tutor 12.2 - Compact Discs (Collecting and Analyzing Data)  -Cog Tutor 12.3 - Breakfast Cereals (Quartiles & Box-and-Whisker Plots) Glencoe: CSB-7 CSB-8 -Human box-and-whisker plot -On-line resources
<b>Anchors</b> <b>M11.E.3.1.1</b> <b>M11.E.3.1.2</b> <b>M11.E.3.2.1</b> <b>M11.E.4.1.2</b>  <b>Sections</b> <b>15-8</b> <b>15-9</b>  <b><u>(Essential)</u></b>	-Probability of mutually exclusive events  - Probability, simulations (involving coins, dice, and random numbers)  - Fundamental Counting Principle  - Probability of independent and dependent events  - Odds of an event	- Solve probability problems involving simple events  - Solve probability problems involving compound and independent events  - Calculate the probability and odds of an event  -Use the appropriate counting technique to a given problem situation	-Cog Tutor 11.1 - Your Best Guess (Introduction to Probability)  -Cog Tutor 11.3 – A Brand New Bag (Using Probabilities to Make Predictions)  -Cog Tutor 11.5 – Going to the Movies (Combinations & Permutations)  -Cog Tutor 11.6 – Going Out for Pizza (Combinations & Permutations)  -Cog Tutor 11.7 – Picking Out Socks (Independent & Dependent Events) Glencoe: CSB-4, 0-4, 0-5

# Polynomials

## **Key Learning:**

*Operations can be performed with polynomials.*

## **Unit Essential Question:**

*How do you perform operations with polynomials?*

### **Concepts**

Simplifying  
Monomials

### **Concepts**

Polynomial  
Operations

### **Concepts**

Factoring  
Polynomials

### **Lesson EQ:**

How do properties  
of exponents  
apply to  
simplifying  
monomials?

### **Lesson EQ:**

How do you add, subtract,  
multiply, and divide  
polynomials?

How do you multiply two  
binomials?

How do you factor  
quadratic expressions?

How do you solve  
quadratic equations using  
various factoring  
techniques?

### **Lesson EQ:**

How do you factor  
polynomials?

How do you solve  
quadratic equations using  
various factoring  
techniques?

How do you set up and  
solve quadratic  
applications by factoring?

How do you use sign graphs  
to solve quadratic  
inequalities?

### **Vocabulary:**

Monomial  
Degree  
Scientific Notation  
Exponent Properties

### **Vocabulary:**

Polynomial  
Degree  
Binomial  
Trinomial  
Synthetic Division  
Long Division  
Remainder

### **Vocabulary:**

Greatest Monomial Factor  
Difference of Two Squares  
Short Trinomial  
Long Trinomial  
Grouping  
FOIL Method  
Sign Graphs  
Critical Points  
Polynomial Inequality

Unit Title: Polynomials

Standards	Content (what the students will know)	Performance (what the students will do)	Activities/ Assessments
<b>Anchors</b> M11.A.1.1.2 M11.A.2.2.1 M11.A.2.2.2 M11.D.2.2.1  <b>Section</b> 4-1 4-2 5-1  <u>(Essential)</u>	<ul style="list-style-type: none"> <li>- Properties of exponents</li> <li>- Scientific Notation</li> </ul>	<ul style="list-style-type: none"> <li>- Simplify/evaluate expressions involving multiplying with exponents, power of powers, and powers of products</li> <li>- Express numbers and simplify expressions using scientific notation</li> <li>- Utilize the operations of addition, subtraction, and multiplication with polynomials</li> </ul>	<ul style="list-style-type: none"> <li>- Skills practice, Practice, Study Guide Intervention, &amp; Word Problem Worksheets</li> <li>- Frayer using operations on Polynomials</li> <li>- Graphic organizer (flipchart) for monomial rules</li> <li>- <a href="#">Graphic Organizer - Polynomials</a></li> </ul>
<b>Anchors</b>  <b>Section</b> 8-3 8-4  <u>(Important)</u>	<ul style="list-style-type: none"> <li>- Process to divide a polynomial by a binomial</li> </ul>	<ul style="list-style-type: none"> <li>- Use long division to divide a polynomial by a binomial</li> <li>- Use synthetic division to divide a polynomial by a binomial</li> </ul>	<ul style="list-style-type: none"> <li>- Skills practice, Practice, Study Guide Intervention, &amp; Word Problem Worksheets</li> <li>- <a href="#">Long Division Algorithm graphic organizer</a></li> <li>- <a href="#">Synthetic Division graphic organizer</a></li> </ul>
<b>Anchors</b> M11.D.2.2.2 M11.D.2.1.5  <b>Sections</b> 4-5 4-6 4-7 4-8 4-9  <u>(Essential)</u>	<ul style="list-style-type: none"> <li>- FOIL Method</li> <li>- Methods used for factoring a quadratic expression</li> <li>- Zero product property</li> </ul>	<ul style="list-style-type: none"> <li>- Factor quadratic expressions</li> <li>- Solve quadratic equations by factoring</li> <li>- Solve quadratic inequalities using sign graphs</li> </ul>	<ul style="list-style-type: none"> <li>- Skills practice, Practice, Study Guide Intervention, &amp; Word Problem Worksheets</li> <li>- <a href="#">Pre-factoring Puzzles</a></li> <li>- <a href="#">Algebra Connect – Factoring (trinomials)</a></li> <li>- Factoring Flipchart</li> <li>- Factoring puzzle</li> <li>- Factoring Worksheets</li> <li>- Factoring Jeopardy</li> </ul>

# Rational Functions

## **Key Learning:**

*Factoring is essential when simplifying rational expressions.*

## **Unit Essential Question:**

*How do you perform operations with rational expressions?*

### **Concepts**

Simplifying  
Rational Expressions

### **Concepts**

Operations with  
Rational Expressions

### **Concepts**

Solving Rational  
Equations

### **Lesson EQ:**

How can you  
divide monomials  
using laws of  
exponents?

How can you  
simplify rational  
expressions?

### **Lesson EQ:**

How can you  
multiply and divide  
rational  
expressions?

How can you add  
and subtract  
rational  
expressions?

How can you  
simplify complex  
algebraic fractions?

### **Lesson EQ:**

How can you solve  
rational equations?

How can you  
determine if a solution  
is valid?

How can you solve  
applications involving  
rate of work, mixture,  
membership and  
circuitry using rational  
equations?

### **Vocabulary:**

Least common  
denominator

### **Vocabulary:**

Complex fraction

### **Vocabulary:**

Extraneous roots

Unit Title: Rational Functions

<b>Standards</b>	<b>Content (what the students will know)</b>	<b>Performance (what the students will do)</b>	<b>Activities/ Assessments</b>
<b>Anchors</b> M11.D.2.1.5 M11.A.1.2.1 M11A.2.2.2  <b>Section</b> 5-1 5-2  (Essential)	Greatest common factor (GCF) and/ or Least common multiple (LCM) for sets of monomials Exponent rules	Simplify rational expressions by exponent rules and factoring	Supplemental worksheets Online resources
<b>Anchors</b> M11.D2.2 M11.D.2.1.5  <b>Section</b> 5-4 5-5 5-6 5-7  (Essential)	Factoring procedures Least common denominator Division rule for fractions Rules for performing operations with fractions	-find products and quotients of rational expressions  -find sums and differences of rational expressions -simplify complex fractions	<a href="#">Rational Expressions and equations</a> Supplemental worksheets Online resources
<b>Anchors</b>  M11.A.2.1  <b>Section</b> 5-8 5-9  (Essential)	Solve problems using operations with rational numbers including rates and percent( single and multiple step) ( e.g. distance, work, and mixture problems	-Solve application problems involving rational equations.	Supplemental worksheets Online resources

# Radical Functions

## **Key Learning:**

*Algebraic processes are necessary to simplify expressions and solve equations involving radicals.*

## **Unit Essential Question:**

*How do you simplify radical expressions and solve radical equations?*

### **Concepts**

Simplify  
Radicals

### **Concepts**

Performing  
Operations with  
Radicals

### **Concepts**

Solving Radical  
Equations

### **Concepts**

Operations of  
Functions

### **Lesson EQ:**

How do you  
simplify  
radical and  
complex  
expressions?

### **Lesson EQ:**

How do you  
add, subtract,  
multiply, and  
divide radical  
expressions and  
complex  
numbers?

### **Lesson EQ:**

How do you  
solve radical  
equations?

How do you  
determine if  
there are  
extraneous  
roots?

### **Lesson EQ:**

How do you  
compose two  
functions?

How do you find  
the inverse of a  
given function?

### **Vocabulary:**

Nth root  
Radical sign  
Index  
Radicand  
Principal Root  
Complex  
number  
Imaginary Unit

How do you  
write and  
simplify  
expressions  
involving  
rational  
exponents?

### **Vocabulary:**

Extraneous  
Roots

### **Vocabulary:**

Inverse  
Composition

### **Vocabulary:**

Rationalize  
Denominator  
Conjugate  
Rational  
Exponent

Unit Title: Radical Functions

<b>Standards</b>	<b>Content (what the students will know)</b>	<b>Performance (what the students will do)</b>	<b>Activities/ Assessments</b>
<b>Anchors</b>  M11.A.1.1.3  <b>Section</b> 6-1 6-2  <u>(Essential)</u>	<ul style="list-style-type: none"> <li>- Components of a radical</li> <li>- Rules for simplifying radicals</li> </ul>	<ul style="list-style-type: none"> <li>- Simplify nth roots</li> </ul>	<ul style="list-style-type: none"> <li>- Skills practice, Practice, Study Guide Intervention, &amp; Word Problem Worksheets</li> <li>- M&amp;M lab</li> <li>- Simplify square roots worksheet (puzzle)</li> </ul>
<b>Anchors</b>  <b>Section</b> 6-3 6-4  <u>(Essential)</u>	<ul style="list-style-type: none"> <li>- How to use operations with radical expressions</li> <li>- How to convert from rational exponents to radical form and vice versa</li> </ul>	<ul style="list-style-type: none"> <li>- Simplify radical expressions involving addition, subtraction, and multiplication</li> <li>- Rationalize the denominator using conjugates</li> <li>- Use rational exponents in application problems</li> </ul>	<ul style="list-style-type: none"> <li>- Skills practice, Practice, Study Guide Intervention, &amp; Word Problem Worksheets</li> <li>- <a href="#">Showdown (radical vs. complex)</a></li> <li>- <a href="#">Graphic organizer radical thinking</a></li> </ul>
<b>Anchors</b>  <b>Section</b> 6-5  <u>(Essential)</u>	<ul style="list-style-type: none"> <li>- Process for solving radical equations</li> </ul>	<ul style="list-style-type: none"> <li>- Solve radical equations and confirm solutions</li> </ul>	<ul style="list-style-type: none"> <li>- Skills practice, Practice, Study Guide Intervention, &amp; Word Problem Worksheets</li> <li>- Problems on students back</li> </ul>
<b>Anchors</b>  <b>Sections</b> 6-7 6-8  <u>(Essential)</u>	<ul style="list-style-type: none"> <li>- Process used to simplify square roots</li> <li>- Properties of imaginary unit</li> </ul>	<ul style="list-style-type: none"> <li>- Simplify square roots of negative numbers</li> <li>- Perform operations with complex numbers</li> </ul>	<ul style="list-style-type: none"> <li>- Skills practice, Practice, Study Guide Intervention, &amp; Word Problem Worksheets</li> <li>- <a href="#">Operations with Complex</a></li> </ul>

# Quadratic Functions

## **Key Learning:**

*Quadratic equations can be solved graphically and algebraically.*

## **Unit Essential Question:**

*How do you solve quadratic equations?*

### **Concepts**

Graphing  
Quadratics

### **Concepts**

Solve Quadratics  
using the  
Quadratic Formula

### **Concepts**

Completing the  
Square

### **Lesson EQ:**

How do you  
graph quadratic  
functions?

How do you find  
and interpret the  
maximum and  
minimum value  
of a quadratic  
function?

How do you find  
quadratic  
solutions by  
graphing?

### **Lesson EQ:**

How do you solve  
quadratics by  
using the quadratic  
formula?

How do you use  
the discriminant to  
determine the  
nature of the root?

### **Lesson EQ:**

How do you  
solve a  
quadratic  
equation by  
completing the  
square?

### **Vocabulary:**

Axis of  
Symmetry  
Vertex  
Parabola  
Roots  
Zeros  
Minimum  
Maximum

### **Vocabulary:**

Quadratic term  
Linear term  
Constant Term  
Standard Form  
Quadratic  
Formula  
Discriminant

### **Vocabulary:**

Trinomial Square  
Perfect Square  
Completing the  
Square



Unit Title: Quadratic Functions

<b>Standards</b>	<b>Content (what the students will know)</b>	<b>Performance (what the students will do)</b>	<b>Activities/ Assessments</b>
<b>Anchors</b> M11.D.4.1  <b>Sections</b>  <u>(Essential)</u> <u>7-5</u>	<ul style="list-style-type: none"> <li>- Various components of a quadratic graph</li> <li>- Standard form of a quadratic equation</li> </ul>	<ul style="list-style-type: none"> <li>- Graph quadratic functions</li> <li>- Determine maximum and minimum values of a quadratic function</li> <li>- Solve quadratic equation by graphing</li> </ul>	<ul style="list-style-type: none"> <li>- Skills practice, Practice, Study Guide Intervention, &amp; Word Problem Worksheets</li> <li>- Math-in- motion quadratic functions and relations (preview)</li> <li>- Fireworks Video-Discovery Learning</li> <li>- <a href="#">Graphing quadratic equations – graphic organizer</a></li> <li>- <a href="#">Graphing Quadratic Functions Standard Form graphic organizer</a></li> </ul>
<b>Anchors</b> M11.A.1.1.1 M11.A.1.1.3 <b>Sections</b> 7-2 7-3  <u>(Essential)</u>	<ul style="list-style-type: none"> <li>- The quadratic formula</li> <li>- The discriminant and its meaning in relation to the solutions</li> </ul>	<ul style="list-style-type: none"> <li>- Solve quadratic equation using the quadratic formula</li> <li>- Use the discriminant to predict the nature of the roots</li> <li>- Apply quadratic formula to real life situations</li> </ul>	<ul style="list-style-type: none"> <li>- Skills practice, Practice, Study Guide Intervention, &amp; Word Problem Worksheets</li> <li>- Quadratic Formula Song – youtube (2)</li> <li>- How to use quadratic formula – youtube</li> <li>- <a href="#">Perplexing Polynomial Puzzle (adobe)</a></li> <li>- <a href="#">Foldable – the discriminant (powerpoint)</a></li> </ul>
<b>Anchors</b>  <b>Sections</b> 7-1  <u>(Important)</u>	<ul style="list-style-type: none"> <li>- Factoring a trinomial square</li> </ul>	<ul style="list-style-type: none"> <li>- Solve quadratic equation using the technique of completing the square</li> </ul>	<ul style="list-style-type: none"> <li>- <a href="#">Completing the square lesson</a></li> <li>- <a href="#">Purple math completing the square</a></li> </ul>