COURSE TITLE

Honors Algebra II

LENGTH

Full Year

DEPARTMENT

STEM Department

SCHOOL

Rutherford High School

DATE

September 10, 2018

Honors Algebra II

I.   Introduction/Overview/Philosophy

In Honors Algebra 2, instructional time should focus on six critical areas: (1) Review of Basic Algebra; (2) Polynomial Functions; (3) Advanced Functions; (4) Introduction to Trigonometry; (5) Probability and Statistics; (6) Sequences and Series. Throughout the course, mathematical concepts will be taught with an emphasis on enduring understandings, essential questions, real world application, technology, and cross-curricular interaction.

II.   Objectives

Course Outline:

1. Quadratic Functions
   a. Factoring Polynomials
   b. Completing the Square
   c. Solving Quadratic Equations
   d. Graphing Quadratic Functions
   e. Applications
2. Complex Numbers
   a. Imaginary numbers
   b. Operations with complex numbers
   c. Solving Quadratic Functions
3. Systems of Equations
   a. Solving Systems graphically
   b. Solving systems algebraically
   c. Non-Linear Systems
4. Rational Exponents
   a. Operations with Radicals
   b. Taking the nth root
   c. Solving
5. Logarithms/Exponentials Functions
   a. Exponential Growth and Decay
6. Series and Sequences
   a. Algebraic Sequences
   b. Sum of Arithmetic Sequence
   c. Geometric Sequences
   d. Sum of Finite and Infinite Series
7. Polynomials
   a. Operations
   b. Compositions
   c. Inverse
   d. Rational Root Theorem
   e. Fundamental Theorem of Algebra

8. Rational Expressions
    a. Multiplying
    b. Dividing
    c. Adding
    d. Subtracting
    e. Complex Fractions
    f. Solving
9. Parabolas
    a. Focus
    b. Directrix
    c. Transformations
    d. Writing Equations
10. Rate of Change
    a. Linear Functions
    b. Exponential Functions
    c. Quadratic Functions
    d. Piece-wise Functions
    e. Application Problems
11. Statistics and Probability
    a. Central Tendency
    b. Standard Deviation
    c. Independent and dependent probability
12. Trigonometry
    a. Right Triangle Trigonometry
    b. Applications
    c. Degrees and Radians
    d. Unit Circle

Student Outcomes:

After successfully completing this course, the student will:
- Analyze functions using different representations
- Build a function that models a relationship between two quantities
- Build new functions from existing functions
- Construct & compare linear, quadratic, & exponential models
- Extend the domain of trigonometric functions using the unit circle
- Extend the properties of exponents to rational exponents
- Interpret functions in terms of the context
- Interpret functions that arise in applications in terms of the context
- Interpret the structure of expressions
- Make inferences and justify conclusions from sample surveys, experiments and observational studies
- Model periodic phenomena with trigonometric functions
- Perform arithmetic operations with complex numbers
- Prove and apply trigonometric identities
- Represent and solve equations and inequalities graphically
- Rewrite rational expressions
- Summarize, represent, and interpret data on a single count or measurement variable
- Summarize, represent, and interpret data on two categorical and quantitative variables

- Translate between the geometric description and the equation for a conic section
- Understand and evaluate random processes underlying statistical experiments
- Understand solving equations as a process of reasoning and explain the reasoning
- Understand the independence and conditional probability and use them to interpret data
- Understand the relationship between zeros and factors of polynomials
- Use complex numbers in polynomial identities and equations
- Use polynomial identities to solve problems
- Use the rules of probability to compute probabilities of compound events in a uniform probability model
- Write expressions in equivalent forms to solve problems

New Jersey Student Learning Standards

CAREER READY PRACTICES

CRP1   *Act as a responsible and contributing citizen and employee.*
Career-ready individuals understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.

CRP2   *Apply appropriate academic and technical skills.*
Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation

CRP4   *Communicate clearly and effectively and with reason.*
Career-ready individuals communicate thoughts, ideas, and action plans with clarity, whether using written, verbal, and/or visual methods. They communicate in the workplace with clarity and purpose to make maximum use of their own and others' time. They are excellent writers; they master conventions, word choice, and organization, and use effective tone and presentation skills to articulate ideas. They are skilled at interacting with others; they are active listeners and speak clearly and with purpose. Career-ready individuals think about the audience for their communication and prepare accordingly to ensure the desired outcome.

CRP6. *Demonstrate creativity and innovation.*
Career-ready individuals regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. They can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which ideas and suggestions will add greatest value. They seek new methods, practices, and ideas from a variety of sources and seek to apply those ideas to their own workplace. They take action on their ideas and understand how to bring innovation to an organization.

CRP7. *Employ valid and reliable research strategies.*
Career-ready individuals are discerning in accepting and using new information to make decisions, change practices or inform strategies. They use reliable research process to search for new information. They evaluate

the validity of sources when considering the use and adoption of external information or practices in their workplace situation.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.

CRP11. Use technology to enhance productivity.

Career-ready individuals find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring new technology. They are proficient with ubiquitous technology applications. They understand the inherent risks-personal and organizational-of technology applications, and they take actions to prevent or mitigate these risks.

TECHNOLOGY

Standard 8.1 Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.

Strand F: Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

8.1.12.F.1- Evaluate the strengths and limitations of emerging technologies and their impact on educational, career, personal and or social needs.

21ST CENTURY LIFE AND CAREERS

Strand A: Income and Careers

9.1.12.A.3 Analyze the relationship between various careers and personal earning goals.

9.1.12.A.4 Identify a career goal and develop a plan and timetable for achieving it, including educational/training requirements, costs, and possible debt.

Strand B: Money Management

9.1.12.B.2 Compare strategies for saving and investing and the factors that influence how much should be saved or invested to meet financial goals.

9.1.12.B.8 Describe and calculate interest and fees that are applied to various forms of spending, debt, and saving.

9.2 Career Awareness, Exploration, and Preparation

Strand C: Career Preparation

9.2.12.C.1 Review career goals and determine steps necessary for attainment.

NEW JERSEY STUDENT LEARNING STANDARDS- MATH

A.APR.B.2. Know and apply the Remainder Theorem: For a polynomial p(x) and a number a, the remainder on division by x – a is p(a), so p(a) = 0 if and only if (x – a) is a factor of p(x).

A.APR.B.3. Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.

A.APR.C.4. Prove polynomial identities and use them to describe numerical relationships. For example, the difference of two squares; the sum and difference of two cubes; the polynomial identity $(x^2 + y^2)^2 = (x^2 - y^2)^2 + (2xy)^2$ can be used to generate Pythagorean triples.

A.APR.D.6. Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.

A.CED.A.1 Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.

A.REI.A.1. Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

A.REI.A.2. Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.

A.REI.B.4. Solve quadratic equations in one variable.

> A.REI.B.4b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b.

 A.REI.C.6. Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.

A.REI.C.7. Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. For example, find the points of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.

A.REI.D.11. Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.*

A.SSE.A.2. Use the structure of an expression to identify ways to rewrite it. For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.

A.SSE.B.3. Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression

> A.SSE.B.3c: Use the properties of exponents to transform expressions for exponential functions. For example the expression 1.15^t can be rewritten as $(1.15^{1/12})^{12t} \approx 1.012^{12t}$ to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.

A.SSE.B.4. Derive and/or explain the derivation of the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. For example, calculate mortgage payments.

F.BF.A.1. Write a function that describes a relationship between two quantities.

> F.BF.A.1b. Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.

F.BF.A.2. Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.

F.BF.B.3. Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k\,f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.

F.BF.B.4. Find inverse functions.

F.BF.B.4a. Solve an equation of the form f(x) = c for a simple function f that has an inverse and write an expression for the inverse. For example, f(x) =2 x3 or f(x) = (x+1)/(x–1) for x ≠1.

F.IF.B.4. For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.

F.IF.B.6. Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.

F.IF.C.7. Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.

> F.IF.C.7c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.

> F.IF.C.7e. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.

F.IF.C.8. Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function

> F.IF.C.8b: Use the properties of exponents to interpret expressions for exponential functions. For example, identify percent rate of change in functions such as $y = (1.02)t$, $y = (0.97)t$, $y = (1.01)12t$, $y = (1.2)t/10$, and classify them as representing exponential growth or decay.

F.IF.C.9. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.

F.LE.A.2 Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).

F.LE.A.4. Understand the inverse relationship between exponents and logarithms. For exponential models, express as a logarithm the solution to abct = d where a, c, and d are numbers and the base b is 2, 10, or e; evaluate the logarithm using technology.

F.LE.B.5. Interpret the parameters in a linear or exponential function in terms of a context.

F.TF.A.1. Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.

F.TF.A.2. Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.

F.TF.B.5 Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.

F.TF.C.8. Prove the Pythagorean identity $\sin2(\theta) + \cos2(\theta) = 1$ and use it to find $\sin(\theta)$, $\cos(\theta)$,or $\tan(\theta)$ given $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ and the quadrant of the angle.

G.GPE.A.2. Derive the equation of a parabola given a focus and directrix

N.CN.A.1. Know there is a complex number i such that i2 = –1, and every complex number has the form a + bi with a and b real.

N.CN.A.2. Use the relation i2 = –1 and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers

N.CN.C.7. Solve quadratic equations with real coefficients that have complex solutions.

N.Q.A.2. Define appropriate quantities for the purpose of descriptive modeling.

N.RN.A.1. Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. For example, we define 51/3 to be the cube root of 5 because we want (51/3)3 = 5(1/3)3 to hold, so (51/3)3 must equal 5.

N.RN.A.2. Rewrite expressions involving radicals and rational exponents using the properties of exponents.

S.CP.A.1. Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not").

S.CP.A.2. Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent.

S.CP.A.3. Understand the conditional probability of A given B as P(A and B)/P(B), and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.

S.CP.A.4. Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities.

S.CP.A.5. Recognize and explain the NEW Concepts of conditional probability and independence in everyday language and everyday situations. For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.

S.CP.B.6. Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A, and interpret the answer in terms of the model.

S.CP.B.7. Apply the Addition Rule, P(A or B) = P(A) + P(B) – P(A and B), and interpret the answer in terms of the model.

S.IC.A.1. Understand statistics as a process for making inferences about population parameters based on a random sample from that population.

S.IC.A.2. Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?

S.IC.B.3. Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.

S.IC.B.4. Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling

S.IC.B.5. Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant

S.IC.B.6. Evaluate reports based on data.

S.ID.A.4. Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.

S.ID.B.6. Represent data on two quantitative variables on a scatter plot, and describe how the variables are related

> 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. Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.

Mathematical Practices
1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

III.   Proficiency Levels

Honors Algebra II is appropriate for students that have met the established criteria.

IV.   Methods of Assessment

Student Assessment
The teacher will provide a variety of assessments during the course of the year. The assessment may include but is not limited to: chapter and unit tests and quizzes, teacher observations, open-ended problems, cooperative work, and homework.

Curriculum/Teacher Assessment
The teacher will provide the subject area supervisor with suggestions for changes on an ongoing basis.

V.   Grouping

Honors Algebra 2 is a heterogeneously grouped sophomore/junior level course.

VI.   Articulation/Scope & Sequence/Time Frame

Course length is one year.

VII.   Resources

Texts/Supplemental Reading/References

Algebra 2 New Jersey Edition, McDougall Littell, 2008.

VIII. Suggested Activities

Appropriate activities are listed in the curriculum map below.

IX.   Methodologies

The following methods of instruction are suggested: teacher guided explorations, working in groups/working with a partner, working with manipulatives and discovery activities.

X.   Interdisciplinary Connections

At this grade level, connections to many other disciplines are appropriate and natural. Reading and writing become an integral part of the mathematics process. Connections with science are frequent throughout both curricula. Technology plays an important part in learning mathematics as well.

XI.   Differentiating Instruction for Students with Special Needs: Students with Disabilities, Students at Risk, English Language Learners, and Gifted & Talented Students

Differentiating instruction is a flexible process that includes the planning and design of instruction, how that instruction is delivered, and how student progress is measured. Teachers recognize that students can learn in multiple ways as they celebrate students' prior knowledge. By providing appropriately challenging learning, teachers can maximize success for all students.

Differentiating in this course includes but is not limited to:

Differentiation for Support (ELL, Special Education, Students at Risk)
- Peer mentoring on problems
- Differentiated teacher feedback on assignments
- Modeling out problems on whiteboard
- Visual aids as we project problems on whiteboard
- Study guides
- Tiered assignments
- Scaffolding of materials and assignments
- Re-teaching and review
- Guided note taking
- Exemplars of varied performance levels
- Multi-media approach to accommodating various learning styles

Differentiation for Enrichment
- Supplemental reading material for independent study
- Flexible grouping
- Tiered assignments
- Topic selection by interest
- Enhanced expectations for independent study
- Elevated questioning techniques using Webb's Depth of Knowledge matrix

XII. Professional Development

The teacher will continue to improve expertise through participation in a variety of professional development opportunities.

XII.   Curriculum Map/Pacing Guide

Unit Topic	Time Allocated	Differentiating Instruction for Students with Disabilities, Students at Risk, English Language Learners, & Gifted & Talented Students	Standards	Assessments
Quadratic Functions ● Factoring Polynomials ● Completing the Square ● Solving Quadratic Equations ● Graphing Quadratic Functions ● Applications	5 weeks	*For Support:* Use of a notecard for formulas for graphing, Use of IXL, Guided notes, Teacher Modeling *For Enhancement:* Use of IXL, Provide extension activities, Curriculum compacting	A.REI.B.4 A.REI.B.4b A.SSE.A.2 A.APR.B.3 A.APR.C.4 CRP1,2,4,6,7,8,11 9.2.12.C.1 8.1.12.F.1 9.1.12.A.3	*Formative Assessment:* Homework, Classwork, IXL, Questioning *Summative Assessment* Quiz on factoring, solving, and graphing Test on Quadratic Functions
Complex Numbers ● Imaginary numbers ● Operations with complex numbers ● Solving Quadratic Functions	2 weeks	*For Support:* Guided notes, Use of a calculator, Use of IXL, Khan Academy *For Enhancement:* Real world problems and scenarios, Inquiry-based instruction	N.CN.A.1 N.CN.A.2 A.REI.B.4 A.REI.B.4b CRP1,2,4,6,7,8,11 8.1.12.F.1	*Formative Assessment:* Homework, Classwork, IXL, Group and Cooperative Work *Summative Assessment* Quiz on operations and solving Test on Complex Numbers
Systems of Equations ● Solving Systems graphically ● Solving systems algebraically ● Non-Linear Systems	3 weeks	*For Support:* Guided notes, use of calculator, use of IXL *For Enhancement:*	A.REI.C.7 A.REI.C.6 A.REI.D.11 CRP1,2,4,6,7,8,11	*Formative Assessment:* Group work, Questions on Systems, Homework *Summative Assessment*

Unit Topic	Time Allocated	Differentiating Instruction for Students with Disabilities, Students at Risk, English Language Learners, & Gifted & Talented Students	Standards	Assessments
		Khan Academy, Independent Study		Quizzes- systems, applications, non-linear Test on Systems
Rational Exponents • Operations with Radicals • Taking the nth root • Solving	3 weeks	*For Support:* Allow errors, guided notes, modified assessments *For Enhancement:* Independent study, student driven projects	N.RN.A.1 N.RN.A.2 A.SSE.B.3 A.SSE.B.3c F.IF.C.8 A.REI.A.2 CRP1,2,4,6,7,8,11	*Formative Assessment:* Classwork, Group work, IXL *Summative Assessment* Quiz on Operation Test on Rational Exponents
Logarithms/Exponentials Functions • Exponential Growth and Decay	3 weeks	*For Support:* Khan Academy, Testing Modeling, Scaffolding *For Enhancement:* Interest based content, use of IXL	F.LE.A.2 F.LE.B.5 F.LE.A.4 F.IF.C.7e CRP1,2,4,6,7,8,11 9.1.12.A.4 9.1.12.B.2 9.1.12.B.8	*Formative Assessment:* Cooperative work, class work, homework, do nows *Summative Assessment* Quizzes of Exponential functions, logarithmic functions Test on Functions
Series and Sequences • Algebraic Sequences • Sum of Arithmetic Sequence • Geometric Sequences • Sum of Finite and Infinite Series	2 weeks	*For Support:* Guided notes, modified assessments, use of IXL *For Enhancement:* Real world problems, Khan Academy,	F.BF.A.2 F.LE.A.2 A.SSE.B.4 CRP1,2,4,6,7,8,11	*Formative Assessment:* Classwork, exit tickets, homework *Summative Assessment* Quizzes on Arithmetic, Geometric, Applications Test on Series and Sequences

Unit Topic	Time Allocated	Differentiating Instruction for Students with Disabilities, Students at Risk, English Language Learners, & Gifted & Talented Students	Standards	Assessments
Polynomials • Operations • Compositions • Inverse • Rational Root Theorem • Fundamental Theorem of Algebra	8 weeks	*For Support:* Guided notes, Khan Academy, use of IXL *For Enhancement:* Critical thinking tasks, lesson pacing, extension activities	A.APR.B.2 A.SSE.A.2 A.APR.B.3 F.IF.C.7c F.IF.B.4 F.BF.B.3 F.BF.B.4 CRP1,2,4,6,7,8,11	*Formative Assessment:* Questioning, Group work, homework *Summative Assessment* Quizzes on operations, graphing, theorems Test on Polynomials
Rational Expressions • Multiplying • Dividing • Adding • Subtracting • Complex Fractions • Solving	3 weeks	*For Support:* Use of IXL, modified assessments, use of prompts *For Enhancement:* Independent study, Khan Academy, Interest based content	A.APR.D.6 A.REI.A.2 CRP1,2,4,6,7,8,11	*Formative Assessment:* Homework, group work on rational expressions, questioning *Summative Assessment* Quizzes on multiplying/dividing, adding/subtraction, solving Test on Rational Expressions
Parabolas • Focus • Directrix • Transformations • Writing Equations	2 weeks	*For Support:* Pre-teaching of vocabulary, teacher modeling *For Enhancement:* Extension activities, Use of IXL	G.GPE.A.2 CRP1,2,4,6,7,8,11	*Formative Assessment:* Do nows, classwork, questioning, group work *Summative Assessment:* Quizzes on Parabolas

Unit Topic	Time Allocated	Differentiating Instruction for Students with Disabilities, Students at Risk, English Language Learners, & Gifted & Talented Students	Standards	Assessments
Rate of Change • Linear Functions • Exponential Functions • Quadratic Functions • Piece-wise Functions • Application Problems	1 week	*For Support:* Guided notes, Khan Academy *For Enhancement:* Higher order thinking skills, adjusting the pace of the lesson, student driven projects	F.IF.B.6 CRP1,2,4,6,7,8,11	*Formative Assessment:* IXL, cooperative work, homework *Summative Assessment* Quizzes on functions, applications
Statistics and Probability • Central Tendency • Standard Deviation • Independent and dependent probability	4 weeks	*For Support:* Use of a notecard, allow errors, authentic assessments *For Enhancement:* Real world scenarios, use of IXL, Student driven projects	S.ID.B.6 S.ID.B.6 S.IC.A.1 S.CP.A.1 S.CP.A.2 S.CP.A.3 S.CP.A.4 CRP1,2,4,6,7,8,11	*Formative Assessment:* Homework, IXL, group work, classwork *Summative Assessment* Quizzes on statistics, probability Test Project- student choice
Trigonometry • Right Triangle Trigonometry • Applications • Degrees and Radians • Unit Circle	4 weeks	*For Support:* Use of calculator, guided notes *For Enhancement:* Khan Academy, IXL, extension activities	F.TF.A.1 F.TF.A.2 F.IF.C.7e F.TF.B.5 F.TF.C.8 CRP1,2,4,6,7,8,11	*Formative Assessment:* Classwork, homework, questioning *Summative Assessment* Quizzes on right triangle trigonometry, applications, unit circle Test on Trigonometry