

# **Pascack Valley Regional High School District**

**Pascack Hills High School, Montvale, New Jersey  
Pascack Valley High School, Hillsdale, New Jersey**

**Course Name: College Algebra**

Born On: August, 2017  
Previous Revision: August, 2020  
Current Revision: August, 2023  
Board Approval: 8/28/23

## COURSE DESCRIPTION: College Algebra

*College Algebra* is a half-year, 2.5 credit course that is designed to reinforce and expand on students' algebraic reasoning skills. *College Algebra* will cover topics that include linear, polynomial, exponential and logarithmic functions. In addition, this course will help to prepare students for the SAT/ACT exams, college placement tests (including Accuplacer), and mathematics courses they may see in college. Emphasis in this course is placed on tailoring instruction to individual student needs. 11th and 12th grade students enrolled in College Algebra and Statistics I have the option of earning college credit by registering with William Paterson University at a reduced price but at student expense. Please note that dual enrollment is not required, and that the course will have the same requirements and expectations whether or not students elect to register for college credit.

All mathematics courses in the Pascack Valley Regional High School District *are* designed to address multiple learning styles and needs, and accommodations and modifications are made for students with disabilities, multilingual students, students at risk of failure, gifted and talented students, and students with 504 plans. Students are encouraged to analyze data using tools and models to make valid and reliable claims (9.4.12.IML.3), and various technologies are integrated throughout the curriculum, including scientific calculators, graphing calculators, specialized software, and various Internet programs and subscriptions. These tools enrich the curriculum by giving students' access to additional mathematical representations, and they also help to differentiate by providing students with additional options to engage with mathematical tasks.

The Pascack Valley Regional High School Mathematics Department integrates 21st century life and career skills across its courses, with the dual goal of informing students about careers and fields of study that use mathematics (9.3.ST.5, 9.3.ST-ET.5 and 9.3.ST-SM.2), and helping students improve the quantitative, mathematical, and statistical reasoning skills they will need to be effective producers and consumers of quantitative information in their everyday lives (9.2.12.CAP.2). Mathematics courses address the *New Jersey Student Learning Standards for Career Readiness, Life Literacies and Key Skills*, with a particular emphasis on demonstrating the ability to reflect, analyze and use creative skills and ideas (9.4.12.CI.1), investigating new challenges and opportunities for personal growth, advancement and transition (9.4.12.CI.3), identifying problem-solving strategies used in the development of an innovative product or practice (9.4.12.CT.1), and explaining the potential benefits of collaborating to enhance critical thinking and problem solving (9.4.12.CT.2). Mathematics courses also address the *New Jersey Student Learning Standards for English Language Arts Companion Standards*, with a particular focus on following complex multistep procedures (RST.9-10.3/RST.11-12.3), determining the meaning of symbols, key terms, and other domain-specific words and phrases (RST.9-10.4/RST.11-12.3), and translating quantitative or technical information expressed in words into visual forms and translating information expressed visually or mathematically into words (RST.9-10.7). Similarly, the mathematics department seeks to support students by providing them with opportunities to use quantitative, statistical, and mathematical reasoning in interdisciplinary contexts, in contexts that are meaningful to students, and in contexts that attend to the contributions and perspectives of historically marginalized groups. Specifically, mathematics courses will look to incorporate, when appropriate, contributions and experiences of people from the LGBTQ+ community and individuals with disabilities, and references to issues of social and cultural relevance, including climate change.

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<p><b>Unit I – Problem Solving</b></p> <p><b>Time:</b> 4-5 Weeks (See next column for specific time frames)</p> <p><b>Content Statement:</b> Students will be able to utilize multiple strategies to solve non-routine SAT/ACT-like problems.</p> <p><b>Enduring Understandings:</b> Identifying the topic the question is asking about is the crucial first step in knowing which skills to use when solving SAT/ACT problems.</p> <p>Knowing a variety of test-taking strategies such as eliminating multiple-choice options and manipulating problems by substituting “your own” numbers can be an effective SAT/ACT problem solving strategy.</p>	<p><b>Key learning items/concepts:</b> Use Pythagorean Theorem and knowledge of special right triangles to find the side lengths of right triangles <b>(3-4 days)</b></p> <p>Find function values both graphically and algebraically <b>(2 days)</b></p> <p>Solve word problems that incorporate functions <b>(1 day)</b></p> <p>Find the domain and range of quadratic, square root, and rational functions <b>(2-3 days)</b></p> <p>Find the slope of a line given the coordinates of two points that lie on that line; Understand the relationship between slope and parallel/perpendicular</p>	<p>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.</p>	<p><b>NJSLS SMP</b></p> <p>MP1. Make sense of problems and persevere in solving them MP2. Construct viable arguments and critique the reasoning of others MP3. Reason abstractly and quantitatively MP4. Model with mathematics MP5. Attend to precision MP6. Use appropriate tools strategically MP7. Look for and make use of structure MP8. Look for and express regularity in repeated reasoning</p> <p><b>NJSLS for ELA Companion Standards</b></p> <p>RST.9-10.3 RST.9-10.4 RST.9-10.7 RST.11-12.3 RST.11-12.4</p> <p><b>NJSLS-CLKS - 21<sup>st</sup> Century Life and Careers</b></p>	<p>Students will be assessed regularly throughout this course, with a focus on both conceptual understanding and procedural fluency. Assessment tools may include the following:</p> <ul style="list-style-type: none"> <li>- quizzes (F)</li> <li>- tests (S)</li> <li>- performance tasks (F/S)</li> <li>- projects (S)</li> <li>- homework (F)</li> <li>- discussions (F)</li> <li>- journals (F)</li> <li>- Form A, B, or C benchmark (B)</li> <li>- alternative assessments (A)</li> <li>- Word problem Jigsaw activity (F)</li> </ul>	<p>Selection of primary sources <i>Suggestion(s):</i> Texts: SAT/ACT Practice books (on grade level); Larson PreCalculus (advanced); Deltamath (remediation, on grade level, and advanced)</p> <p>Resources: - Desmos - TI 83/84 Calculator - teacher-created tasks</p> <p><b>Modifications and Accommodations:</b> <b>Students with special needs:</b> Teachers and support staff will attend to all modifications and accommodations listed in students' IEPs and 504s. Teachers will incorporate manipulatives, extra time, alternative assessments, scaffolding, spiraling, technology, and flexible grouping to support student learning. <b>Multilingual students:</b> Teachers and support staff will work to support multilingual students in their first language and in English, providing materials and/or</p>

	<p>lines <b>(2-3 days)</b></p> <p>Solve problems using knowledge of equations of lines in both slope intercept form and standard form <b>(1-2 days)</b></p> <p>Solve word problems involving ratios, proportions, and percentages <b>(2-3 days)</b></p> <p><b>Content-specific modifications and accommodations</b></p> <ul style="list-style-type: none"> <li>- use multiple representations and technology to support conceptual understanding</li> <li>- use scaffolding techniques to support function understanding and analysis</li> </ul> <p><b>Interdisciplinary/additional connections</b></p> <ul style="list-style-type: none"> <li>- consider linear applications in science and engineering</li> <li>- utilize word problems that address diverse perspectives and experiences</li> </ul>		<p>9.4.12.CI.1 9.4.12.CI.3 9.4.12.CT.1 9.4.12.CT.2</p> <p><b>- Technology</b> 9.4.12.IML.3</p> <p><b>- Career Education</b> 9.2.12.CAP.2 9.3.ST.5 9.3.ST-ET.5 9.3.ST-SM.2</p> <p><b>NJSLS – CSDT</b> 8.1.12.DA.1 8.1.12.DA.5 8.1.12.DA.6 8.1.12.AP.1 8.2.12.ETW.2</p>		<p>resources to support students’ understanding. Students will be given additional time, as appropriate, and translation tools will be utilized as needed.</p> <p><b><u>Students at risk of school failure:</u></b> Formative and summative data will be used to monitor student success, and students at risk of failure will receive additional supports and services, which may include parent consultation, extra help, and differentiation strategies, including small group instruction, group work, scaffolding, and spiraling.</p> <p><b><u>Gifted and Talented Students:</u></b> Students who excel in their mastery of course standards will be further challenged with more complex tasks, extensions of concepts and skills, and extended problem solving and critical thinking opportunities.</p>
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<p><b>College Algebra</b> – This half-year, 2.5 credit course is designed to reinforce and expand on students' algebraic reasoning skills, and will cover topics that include linear, polynomial, exponential and logarithmic functions. In addition, this course will help to prepare students for the SAT/ACT exams, college placement tests (including Accuplacer), and mathematics courses they may see in college. Emphasis in this course is placed on tailoring instruction to individual student needs.</p>					
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<p><b>Unit 2</b> – Graphing Functions</p> <p><b>Time:</b> 2 weeks (See next column for specific time frames)</p> <p><b>Content Statement:</b> Students will be able to model real-life phenomena with functions.</p> <p><b>Enduring Understandings:</b> Linear functions have a constant rate of change.</p> <p>Slope represents the rate of change of a function, while the y-intercept represents the initial value.</p> <p>Piecewise functions are functions that can be represented by different rules</p>	<p><b>Key learning items/concepts:</b> Vertical Line test <b>(1 day)</b></p> <p>Domain and range <b>(2 days)</b></p> <p>Calculate rate of change <b>(1 day)</b></p> <p>Function notation <b>(2-3 days)</b></p> <p>Graphing using slope-intercept form <b>(1 day)</b></p> <p>Write equations in slope-intercept form <b>(3-4 days)</b></p> <p>Graphing piecewise and step functions and using them to analyze real-life situations <b>(3-4 days)</b></p>	<p><i>Understand the concept of a function and use function notation</i></p> <p><i>Build a function that models a relationship between two quantities</i></p>	<p><b>NJSLS Content Standards</b></p> <p>F-IF 1 F-IF 2 F-BF 1a</p> <p><b>NJSLS SMP</b></p> <p>MP1. Make sense of problems and persevere in solving them MP2. Construct viable arguments and critique the reasoning of others MP3. Reason abstractly and quantitatively MP4. Model with mathematics MP5. Attend to precision MP6. Use appropriate tools strategically MP7. Look for and make use of structure MP8. Look for and express regularity in repeated reasoning</p> <p><b>NJSLS for ELA Companion Standards</b></p> <p>RST.9-10.3 RST.9-10.4</p>	<p>Students will be assessed regularly throughout this course, with a focus on both conceptual understanding and procedural fluency. Assessment tools may include the following:</p> <ul style="list-style-type: none"> <li>- quizzes (F)</li> <li>- tests (S)</li> <li>- performance tasks (F/S)</li> <li>- projects (S)</li> <li>- homework (F)</li> <li>- discussions (F)</li> <li>- journals (F)</li> <li>- Form A, B, or C benchmark (B)</li> <li>- alternative assessments (A)</li> <li>- Piecewise name project (S)</li> </ul>	<p>Selection of primary sources <i>Suggestion(s):</i> Texts: SAT/ACT Practice books (on grade level); Larson PreCalculus (advanced); Deltamath (remediation, on grade level, and advanced)</p> <p>Resources:</p> <ul style="list-style-type: none"> <li>- Desmos</li> <li>- TI 83/84 Calculator</li> <li>- teacher-created tasks</li> </ul> <p><b>Modifications and Accommodations:</b> <b><u>Students with special needs:</u></b> Teachers and support staff will attend to all modifications and accommodations listed in students' IEPs and 504s. Teachers will incorporate manipulatives, extra time, alternative assessments, scaffolding, spiraling, technology, and flexible grouping to support student learning. <b><u>Multilingual students:</u></b> Teachers and support staff will work to support</p>

<p>over different intervals.</p>	<p><b>Content-specific modifications and accommodations</b>                  - use multiple representations and technology to support conceptual understanding                  - use graphic organizers to support students' understanding of piecewise-defined functions</p> <p><b>Interdisciplinary/additional connections</b>                  - consider linear applications in science and engineering                  - explore rate of change situations from climate change applications</p>		<p>RST.9-10.7                  RST.11-12.3                  RST.11-12.4</p> <p><b>NJSLS-CLKS</b>  <b>- 21<sup>st</sup> Century Life and Careers</b>                  9.4.12.CI.1                  9.4.12.CI.3                  9.4.12.CT.1                  9.4.12.CT.2</p> <p><b>- Technology</b>                  9.4.12.IML.3</p> <p><b>- Career Education</b>                  9.2.12.CAP.2                  9.3.ST.5                  9.3.ST-ET.5                  9.3.ST-SM.2</p> <p><b>NJSLS – CSDT</b>                  8.1.12.DA.1                  8.1.12.DA.5                  8.1.12.DA.6                  8.1.12.AP.1                  8.2.12.ETW.2</p>		<p>multilingual students in their first language and in English, providing materials and/or resources to support students' understanding. Students will be given additional time, as appropriate, and translation tools will be utilized as needed.</p> <p><b><u>Students at risk of school failure:</u></b>                  Formative and summative data will be used to monitor student success, and students at risk of failure will receive additional supports and services, which may include parent consultation, extra help, and differentiation strategies, including small group instruction, group work, scaffolding, and spiraling.</p> <p><b><u>Gifted and Talented Students:</u></b> Students who excel in their mastery of course standards will be further challenged with more complex tasks, extensions of concepts and skills, and extended problem solving and critical thinking opportunities.</p>
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<p><b>Unit 3 – Systems</b></p> <p><b>Time:</b> 3-4 weeks (See next column for specific time frames)</p> <p><b>Content Statement:</b> Students will be able to model real-life phenomena with systems of equations and inequalities.</p> <p><b>Enduring Understandings:</b> Systems of equations enable us to solve for two unknowns, given two equations.</p> <p>Systems can be solved with graphing, elimination, or substitution.</p> <p>Systems of inequalities can be used to determine plausible values, given certain</p>	<p><b>Key learning items/concepts:</b> Solve using graphing, substitution, and elimination methods <b>(4-5 days)</b></p> <p>Write and solve systems from real-life problems <b>(2-3 days)</b></p> <p>Solve real-life problems using linear programming <b>(4-5 days)</b></p> <p>Use matrices to solve three-variable systems <b>(2-3 days)</b></p> <p><b>Content-specific modifications and accommodations</b></p> <ul style="list-style-type: none"> <li>- use multiple representations and technology to support conceptual understanding</li> <li>- use Desmos to support students' understanding of linear programming</li> </ul> <p><b>Interdisciplinary/additional</b></p>	<p><i>Solve systems of equations</i></p> <p><i>Represent and solve equations and inequalities graphically</i></p>	<p><b>NJSLS Content Standards</b></p> <p>A-REI 5 A-REI 6 A-REI 10 A-REI 11 A-REI 12</p> <p><b>NJSLS SMP</b></p> <p>MP1. Make sense of problems and persevere in solving them MP2. Construct viable arguments and critique the reasoning of others MP3. Reason abstractly and quantitatively MP4. Model with mathematics MP5. Attend to precision MP6. Use appropriate tools strategically MP7. Look for and make use of structure MP8. Look for and express regularity in repeated reasoning</p> <p><b>NJSLS for ELA Companion Standards</b></p> <p>RST.9-10.3</p>	<p>Students will be assessed regularly throughout this course, with a focus on both conceptual understanding and procedural fluency. Assessment tools may include the following:</p> <ul style="list-style-type: none"> <li>- quizzes (F)</li> <li>- tests (S)</li> <li>- performance tasks (F/S)</li> <li>- projects (S)</li> <li>- homework (F)</li> <li>- discussions (F)</li> <li>- journals (F)</li> <li>- Form A, B, or C benchmark (B)</li> <li>- alternative assessments (A)</li> <li>- Linear programming project (S)</li> </ul>	<p>Selection of primary sources</p> <p><i>Suggestion(s):</i> Texts: SAT/ACT Practice books (on grade level); Larson PreCalculus (advanced); Deltamath (remediation, on grade level, and advanced)</p> <p>Resources:</p> <ul style="list-style-type: none"> <li>- Desmos</li> <li>- TI 83/84 Calculator</li> <li>- teacher-created tasks</li> </ul> <p><b>Modifications and Accommodations:</b></p> <p><b>Students with special needs:</b> Teachers and support staff will attend to all modifications and accommodations listed in students' IEPs and 504s. Teachers will incorporate manipulatives, extra time, alternative assessments, scaffolding, spiraling, technology, and flexible grouping to support student learning.</p> <p><b>Multilingual students:</b> Teachers and support staff will work to support multilingual students in their first language and in English, providing materials</p>

<p>constraints.</p>	<p><b>connections</b>                  - consider applications in science and engineering                  - draw on contexts involving climate change and/or the experiences of diverse populations in linear programming situations</p>		<p>RST.9-10.4                  RST.9-10.7                  RST.11-12.3                  RST.11-12.4</p> <p><b>NJSLS-CLKS</b>                  - <b>21<sup>st</sup> Century Life and Careers</b>                  9.4.12.CI.1                  9.4.12.CI.3                  9.4.12.CT.1                  9.4.12.CT.2</p> <p>- <b>Technology</b>                  9.4.12.IML.3</p> <p>- <b>Career Education</b>                  9.2.12.CAP.2                  9.3.ST.5                  9.3.ST-ET.5                  9.3.ST-SM.2</p> <p><b>NJSLS – CSDT</b>                  8.1.12.DA.1                  8.1.12.DA.5                  8.1.12.DA.6                  8.1.12.AP.1                  8.2.12.ETW.2</p>		<p>and/or resources to support students’ understanding. Students will be given additional time, as appropriate, and translation tools will be utilized as needed.</p> <p><b><u>Students at risk of school failure:</u></b>                  Formative and summative data will be used to monitor student success, and students at risk of failure will receive additional supports and services, which may include parent consultation, extra help, and differentiation strategies, including small group instruction, group work, scaffolding, and spiraling.</p> <p><b><u>Gifted and Talented Students:</u></b>                  Students who excel in their mastery of course standards will be further challenged with more complex tasks, extensions of concepts and skills, and extended problem solving and critical thinking opportunities.</p>
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<p><b>Unit 4</b> – Polynomial and Rational Functions</p> <p><b>Time:</b> 4-5 weeks (See next column for specific time frames)</p> <p><b>Content Statement:</b> Students will be able to model real-life phenomena with polynomial functions.</p> <p><b>Enduring Understandings:</b> Certain polynomial expressions can be rewritten as the product of factors; multiplication undoes this process.</p> <p>The zero product property, when combined with the process of factoring, enables one to solve polynomial equations of degree <math>&gt; 1</math>.</p>	<p><b>Key learning items/concepts:</b> Add, subtract and multiply, and divide polynomials <b>(4-5 days)</b></p> <p>Factor polynomials <b>(3-4 days)</b></p> <p>Simplify, multiply, and divide rational expressions <b>(3 days)</b></p> <p>Add and subtract rational expressions <b>(4-5 days)</b></p> <p>Simplify complex fractions <b>(2 days)</b></p> <p><b>Content-specific modifications and accommodations</b> - use multiple representations and technology to support conceptual understanding - use repetition and differentiation to support students' algebra skills</p>	<p><i>Perform arithmetic operations on polynomials</i></p> <p><i>Rewrite rational expressions</i></p>	<p><b>NJSLS Content Standards</b></p> <p>A-APR 1 A-APR 6</p> <p><b>NJSLS SMP</b></p> <p>MP1. Make sense of problems and persevere in solving them MP2. Construct viable arguments and critique the reasoning of others MP3. Reason abstractly and quantitatively MP4. Model with mathematics MP5. Attend to precision MP6. Use appropriate tools strategically MP7. Look for and make use of structure MP8. Look for and express regularity in repeated reasoning</p> <p><b>NJSLS for ELA Companion Standards</b></p> <p>RST.9-10.3 RST.9-10.4 RST.9-10.7 RST.11-12.3</p>	<p>Students will be assessed regularly throughout this course, with a focus on both conceptual understanding and procedural fluency. Assessment tools may include the following:</p> <ul style="list-style-type: none"> <li>- quizzes (F)</li> <li>- tests (S)</li> <li>- performance tasks (F/S)</li> <li>- projects (S)</li> <li>- homework (F)</li> <li>- discussions (F)</li> <li>- journals (F)</li> <li>- Form A, B, or C benchmark (B)</li> <li>- alternative assessments (A)</li> <li>- Skills practice sets (F)</li> </ul>	<p>Selection of primary sources <i>Suggestion(s):</i> Texts: SAT/ACT Practice books (on grade level); Larson PreCalculus (advanced); Deltamath (remediation, on grade level, and advanced)</p> <p>Resources: - Desmos - TI 83/84 Calculator - teacher-created tasks</p> <p><b>Modifications and Accommodations:</b> <b>Students with special needs:</b> Teachers and support staff will attend to all modifications and accommodations listed in students' IEPs and 504s. Teachers will incorporate manipulatives, extra time, alternative assessments, scaffolding, spiraling, technology, and flexible grouping to support student learning. <b>Multilingual students:</b></p>

<p>Rational expressions can be simplified in much the same way as rational numbers, as long as care is paid to domain restrictions.</p>	<p><b>Interdisciplinary/additional connections</b>                  - consider polynomial and rational applications in science and engineering</p>		<p>RST.11-12.4  <b>NJSLS-CLKS</b>  <b>- 21<sup>st</sup> Century Life and Careers</b>                  9.4.12.CI.1                  9.4.12.CI.3                  9.4.12.CT.1                  9.4.12.CT.2    <b>- Technology</b>                  9.4.12.IML.3    <b>- Career Education</b>                  9.2.12.CAP.2                  9.3.ST.5                  9.3.ST-ET.5                  9.3.ST-SM.2    <b>NJSLS – CSDT</b>                  8.1.12.DA.1                  8.1.12.DA.5                  8.1.12.DA.6                  8.1.12.AP.1                  8.2.12.ETW.2</p>		<p>Teachers and support staff will work to support multilingual students in their first language and in English, providing materials and/or resources to support students’ understanding. Students will be given additional time, as appropriate, and translation tools will be utilized as needed.  <b><u>Students at risk of school failure:</u></b>                  Formative and summative data will be used to monitor student success, and students at risk of failure will receive additional supports and services, which may include parent consultation, extra help, and differentiation strategies, including small group instruction, group work, scaffolding, and spiraling.  <b><u>Gifted and Talented Students:</u></b> Students who excel in their mastery of course standards will be further challenged with more complex tasks, extensions of concepts and skills, and extended problem solving and critical thinking opportunities.</p>
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<p><b>Unit 5</b> – Exponential and Logarithmic Functions</p> <p><b>Time:</b> 4 weeks (See next column for specific time frames)</p> <p><b>Content Statement:</b> Students will be able to model real-life phenomena with exponential and logarithmic functions.</p> <p><b>Enduring Understandings:</b> Exponential functions have a multiplicative scale factor, while linear functions have an additive rate of change.</p> <p>Logarithms help us to analyze the exponent, with a given base, that will yield a certain result.</p>	<p><b>Key learning items/concepts:</b></p> <p>Exponential growth and decay models <b>(2-3 days)</b></p> <p>Rewriting expressions from exponential to logarithmic and vice versa <b>(1 day)</b></p> <p>Properties of Logs <b>(2 days)</b></p> <p>Change of Base <b>(1 day)</b></p> <p>Solving Exponential and Logarithmic Equations <b>(4-5 days)</b></p> <p><b>Content-specific modifications and accommodations</b></p> <ul style="list-style-type: none"> <li>- use multiple representations and technology to support conceptual understanding</li> <li>- use graphic organizers</li> </ul> <p><b>Interdisciplinary/additional</b></p>	<p><i>Analyze functions using different representations.</i></p> <p><i>Construct and compare linear, quadratic, and exponential models and solve problems.</i></p> <p><i>Interpret expressions for functions in terms of the situation they model.</i></p>	<p><b>NJSLS Content Standards</b></p> <p>F-IF 7e F-IF 8b F-LE 1 F-LE 2 F-LE 4 F-LE 5</p> <p><b>NJSLS SMP</b></p> <p>MP1. Make sense of problems and persevere in solving them MP2. Construct viable arguments and critique the reasoning of others MP3. Reason abstractly and quantitatively MP4. Model with mathematics MP5. Attend to precision MP6. Use appropriate tools strategically MP7. Look for and make use of structure MP8. Look for and express regularity in repeated reasoning</p> <p><b>NJSLS for ELA Companion Standards</b></p>	<p>Students will be assessed regularly throughout this course, with a focus on both conceptual understanding and procedural fluency. Assessment tools may include the following:</p> <ul style="list-style-type: none"> <li>- quizzes (F)</li> <li>- tests (S)</li> <li>- performance tasks (F/S)</li> <li>- projects (S)</li> <li>- homework (F)</li> <li>- discussions (F)</li> <li>- journals (F)</li> <li>- Form A, B, or C benchmark (B)</li> <li>- alternative assessments (A)</li> <li>- Exponential/linear exploration (F)</li> </ul>	<p>Selection of primary sources <i>Suggestion(s):</i> Texts: SAT/ACT Practice books (on grade level); Larson PreCalculus (advanced); Deltamath (remediation, on grade level, and advanced)</p> <p>Resources:</p> <ul style="list-style-type: none"> <li>- Desmos</li> <li>- TI 83/84 Calculator</li> <li>- teacher-created tasks</li> </ul> <p><b>Modifications and Accommodations:</b> <b>Students with special needs:</b> Teachers and support staff will attend to all modifications and accommodations listed in students' IEPs and 504s. Teachers will incorporate manipulatives, extra time, alternative assessments, scaffolding, spiraling, technology, and flexible grouping to support student learning.</p> <p><b>Multilingual students:</b> Teachers and support staff will work to support multilingual students in their first language</p>

	<p><b>connections</b>                  - exponential functions will be explored in context, and applications may include population growth (including populations of diverse peoples), compounding interest, half-life, and climate change</p>		<p>RST.9-10.3                  RST.9-10.4                  RST.9-10.7                  RST.11-12.3                  RST.11-12.4</p> <p><b>NJSLS-CLKS</b>                  - <b>21<sup>st</sup> Century Life and Careers</b>                  9.4.12.CI.1                  9.4.12.CI.3                  9.4.12.CT.1                  9.4.12.CT.2</p> <p>- <b>Technology</b>                  9.4.12.IML.3</p> <p>- <b>Career Education</b>                  9.2.12.CAP.2                  9.3.ST.5                  9.3.ST-ET.5                  9.3.ST-SM.2</p> <p><b>NJSLS – CSDT</b>                  8.1.12.DA.1                  8.1.12.DA.5                  8.1.12.DA.6                  8.1.12.AP.1                  8.2.12.ETW.2</p>		<p>and in English, providing materials and/or resources to support students’ understanding. Students will be given additional time, as appropriate, and translation tools will be utilized as needed.</p> <p><b><u>Students at risk of school failure:</u></b>                  Formative and summative data will be used to monitor student success, and students at risk of failure will receive additional supports and services, which may include parent consultation, extra help, and differentiation strategies, including small group instruction, group work, scaffolding, and spiraling.</p> <p><b><u>Gifted and Talented Students:</u></b> Students who excel in their mastery of course standards will be further challenged with more complex tasks, extensions of concepts and skills, and extended problem solving and critical thinking opportunities.</p>
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<p><b>Unit 6</b> – Trigonometric Functions</p> <p><b>Time:</b> 3-4 weeks (See next column for specific time frames)</p> <p><b>Content Statement:</b> Students will be able to model real-life phenomena with trigonometric functions.</p> <p><b>Enduring Understandings:</b> The Law of Sines and Cosines enables one to find missing pieces of a triangle, given other information.</p> <p>Sine and cosine functions represent the length of the opposite and adjacent sides of a right triangle formed by a point as it spins around the unit circle.</p>	<p><b>Key learning items/concepts:</b></p> <p>Law of Sines and Cosines (1 week)</p> <p>Graph trig functions (period, midline, amplitude) (2 weeks)</p> <p><b>Content-specific modifications and accommodations</b></p> <ul style="list-style-type: none"> <li>- use multiple representations and technology to support conceptual understanding</li> <li>- use the unit circle and special right triangles to support understanding of trig graphs</li> </ul> <p><b>Interdisciplinary/additional connections</b></p> <ul style="list-style-type: none"> <li>- connect trig functions to sinusoidal phenomena, such as temperature, daylight, or position on a Ferris Wheel circle</li> </ul>	<p><i>Analyze functions using different representations.</i></p> <p><i>Extend the domain of trigonometric functions using the unit circle.</i></p> <p><i>Model periodic phenomena with trigonometric functions.</i></p>	<p><b>NJSLS Content Standards</b></p> <p>F-IF 7 F-TF 1-2, 5, 8 *F-TF 3-4, 6-7</p> <p><b>NJSLS SMP</b></p> <p>MP1. Make sense of problems and persevere in solving them MP2. Construct viable arguments and critique the reasoning of others MP3. Reason abstractly and quantitatively MP4. Model with mathematics MP5. Attend to precision MP6. Use appropriate tools strategically MP7. Look for and make use of structure MP8. Look for and express regularity in repeated reasoning</p> <p><b>NJSLS for ELA Companion Standards</b></p> <p>RST.9-10.3</p>	<p>Students will be assessed regularly throughout this course, with a focus on both conceptual understanding and procedural fluency. Assessment tools may include the following:</p> <ul style="list-style-type: none"> <li>- quizzes (F)</li> <li>- tests (S)</li> <li>- performance tasks (F/S)</li> <li>- projects (S)</li> <li>- homework (F)</li> <li>- discussions (F)</li> <li>- journals (F)</li> <li>- Form A, B, or C benchmark (B)</li> <li>- alternative assessments (A)</li> <li>- Calculate the distance task (F)</li> </ul>	<p>Selection of primary sources <i>Suggestion(s):</i> Texts: SAT/ACT Practice books (on grade level); Larson PreCalculus (advanced); Deltamath (remediation, on grade level, and advanced)</p> <p>Resources:</p> <ul style="list-style-type: none"> <li>- Desmos</li> <li>- TI 83/84 Calculator</li> <li>- teacher-created tasks</li> </ul> <p><b>Modifications and Accommodations:</b> <b>Students with special needs:</b> Teachers and support staff will attend to all modifications and accommodations listed in students' IEPs and 504s. Teachers will incorporate manipulatives, extra time, alternative assessments, scaffolding, spiraling, technology, and flexible grouping to support student learning. <b>Multilingual students:</b> Teachers and support staff will work to support multilingual students in their first language and in English, providing materials and/or resources to support students' understanding. Students will be given additional time, as</p>

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