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# Cliffside Park Public Schools

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<b>Department:</b>  <h2 style="text-align: center;">Mathematics</h2>	<b>Course Title</b>  <h2 style="text-align: center;">Pre-Calculus</h2>
<b>Textbook(s):</b> <i>Advanced Mathematics Precalculus with Discrete Mathematics and Data Analysis</i>	
<b>Date:</b>	<b>Unit 1, September 4-30</b>
<b>Essential Question(s):</b>	<ul style="list-style-type: none"> <li>• How do we use functions to solve real world problems?</li> <li>• How can we model a real-life situation with a linear function?</li> <li>• What is the difference between standard, point-slope and slope-intercept forms of linear equation?</li> <li>• How do we choose most appropriate form of linear equation for a given problem?</li> <li>• How do we apply the distance and midpoint formulas?</li> <li>• How do we determine whether two lines are parallel, perpendicular, or neither?</li> <li>• What is the geometric meaning of the solution of system of linear equations?</li> <li>• How do we apply algebra formulas to solve geometry problems?</li> <li>• How the different forms of the equation of a line can be derived from the standard form?</li> <li>• Is the slope-intercept form of linear equation applicable for vertical lines?</li> </ul>
<b>Content</b>	<ul style="list-style-type: none"> <li>• 1.1 Linear Functions. Points and Lines</li> <li>• 1.2 Slopes of Lines.</li> <li>• 1.3 Finding Equations of Lines.</li> <li>• 1.4 Linear Functions and Models.</li> </ul>
<b>Skills:</b>	<ul style="list-style-type: none"> <li>• Evaluate expressions and formulas, including correct units in answers.</li> <li>• Find the intersection of two lines.</li> <li>• Find the length and midpoint of a segment.</li> <li>• Rewrite formulas.</li> <li>• Solve and check linear equations.</li> <li>• Solve and check systems of linear equations.</li> </ul>



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	<ul style="list-style-type: none"><li>• Graph the solution of systems of linear equations.</li><li>• Use linear equations to solve real-world problems.</li><li>• Find the slope of a line.</li><li>• Determine whether two lines are parallel, perpendicular, or neither.</li><li>• Find an equation of a line given certain geometrical properties of the line.</li><li>• Model real-world situations by means of linear function.</li></ul>	
Standards/Benchmarks	<b>A-CED 1-4; A-REI 1-2,5-7; F-IF 1-2, 4-5; N-Q 1-3; N-RN</b>	<ul style="list-style-type: none"><li>•</li></ul>
Assessments/Resources	<ul style="list-style-type: none"><li>• Tests/Textbooks/Notebooks</li><li>• Projects/ Reports/Presentations</li><li>• Effective use of the Promethean board</li></ul>	<ul style="list-style-type: none"><li>•</li></ul>



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<b>Department:</b>		<b>Course Title</b>	
<b>Mathematics</b>		<b>Pre-Calculus</b>	
<b>Textbook(s):</b> <i>Advanced Mathematics Precalculus with Discrete Mathematics and Data Analysis</i>			
	<b>Unit 2, October 1-31</b>		
<b>Essential Question(s):</b>	<ul style="list-style-type: none"> <li>• What is a perfect-square trinomial?</li> <li>• What is the difference between standard form of quadratic equation and vertex form?</li> <li>• How do we transform quadratic equations from standard form to vertex form?</li> <li>• How do we add, subtract, multiply and divide complex numbers?</li> <li>• How do we determine the complex conjugate?</li> <li>• Can we recognize relationships between complex and real numbers?</li> <li>• How do we determine how many real solutions does a quadratic equation have?</li> <li>• What is the Discriminant? What is the Quadratic Formula?</li> <li>• How do we determine the nature of the solutions to the quadratic equation?</li> <li>• What is the geometrical meaning of real solutions to the quadratic equation?</li> <li>• Can we use a quadratic equation to model real-life situation?</li> <li>• How do we determine if a quadratic model is appropriate?</li> <li>• Can we use a quadratic model to make a real-life prediction?</li> </ul>		
<b>Content</b>	<ul style="list-style-type: none"> <li>• 1.5 The Complex Numbers.</li> <li>• 1.6 Solving Quadratic equations.</li> <li>• 1.7 Quadratic Functions and their Graphs.</li> <li>• 1.8 Quadratic Models.</li> </ul>		
<b>Skills:</b>	<ul style="list-style-type: none"> <li>• Add, subtract, multiply, and divide complex numbers.</li> <li>• Solve quadratic equations using different methods.</li> <li>• Use quadratic function to solve real –world problems.</li> <li>• Define and graph quadratic functions.</li> <li>• Model real-world situations using quadratic functions. Transform quadratic equations</li> </ul>		



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	<p>from standard form to vertex form and vice versa.</p> <ul style="list-style-type: none"><li>• Use quadratic equations to solve area problems or problems dealing with velocity and acceleration.</li><li>• Graph the parabola.</li><li>• Find the vertex, y-intercept and x-intercepts of the parabola.</li><li>• Find an equation for the line of symmetry of parabola</li></ul>	
Standards/Benchmarks	<b>N-CN 1-3, 5-9; A-CED 1-2; A-APR 1; F-IF 4-5, 7a, 8a; A-REI 4</b>	<ul style="list-style-type: none"><li>•</li></ul>
Assessments/Resources	<ul style="list-style-type: none"><li>• Tests/Textbooks/Notebooks</li><li>• Projects/ Reports/Presentations</li><li>• Effective use of the Promethean board</li></ul>	<ul style="list-style-type: none"><li>•</li></ul>



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<b>Textbook(s):</b> <i>Advanced Mathematics Precalculus with Discrete Mathematics and Data Analysis</i>	
	<b>Unit 3, November 1 – December 19</b>
<b>Essential Question(s):</b>	<ul style="list-style-type: none"> <li>• What is the difference between long and synthetic division?</li> <li>• What is a polynomial? How do we classify polynomials?</li> <li>• How do we identify a particular term of a polynomial?</li> <li>• How do we graph a polynomial function?</li> <li>• What is the effect of a squared or cubed factor?</li> <li>• What is the procedure of finding maximums and minimums of polynomial functions?</li> <li>• Can we determine zeros of a polynomial function from its graph?</li> <li>• How do we apply polynomials to solve real-world problems?</li> </ul>
<b>Content</b>	<ul style="list-style-type: none"> <li>• 2.1 Polynomials.</li> <li>• 2.2 Synthetic Division. The Remainder and Factor Theorems.</li> <li>• 2.3 Graphing Polynomial Functions.</li> <li>• 2.4 Finding Maximums and Minimums of Polynomial Functions.</li> <li>• 2.5 Using Technology to Approximate Roots of Polynomial Equations.</li> <li>• 2.6 Solving Polynomial equations by Factoring.</li> <li>• 2.7 General Results for Polynomial Equations.</li> </ul>
<b>Skills:</b>	<ul style="list-style-type: none"> <li>• Identify a polynomial function.</li> <li>• Evaluate a polynomial function using synthetic substitution.</li> <li>• Determine zeros of a polynomial function.</li> <li>• Use synthetic division and apply the remainder and factor theorems.</li> <li>• Graph a polynomial function and determine an equation for a polynomial graph.</li> <li>• Write a polynomial function for a given situation.</li> <li>• Find the maximum or minimum value of the function.</li> <li>• Solve polynomial equations by various methods of factoring.</li> <li>• Use the rational root theorem to solve polynomial equation.</li> </ul>



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	<ul style="list-style-type: none"><li>• Apply general theorems about polynomial functions.</li></ul>	
Standards/Benchmarks	<b>F-IF 1-5, 7c; A-APR 1-7; A-CED 1-2; A-REI 1,4,10</b>	<ul style="list-style-type: none"><li>•</li></ul>
Assessments/Resources	<ul style="list-style-type: none"><li>• Tests/Textbooks/Notebooks</li><li>• Projects/ Reports/Presentations</li><li>• Effective use of the Promethean board</li></ul>	<ul style="list-style-type: none"><li>•</li></ul>



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<b>Department:</b>  <h3 style="text-align: center;">Mathematics</h3>	<b>Course Title</b>  <h3 style="text-align: center;">Pre-Calculus</h3>	
<b>Textbook(s):</b> <i>Advanced Mathematics Precalculus with Discrete Mathematics and Data Analysis</i>		
	<b>Unit 4, December 22 – January 22</b>	
<b>Essential Question(s):</b>	<ul style="list-style-type: none"> <li>• What is the difference between “and” and “or” in mathematical use?</li> <li>• When do we reverse the inequality sign?</li> <li>• What are the basic techniques of factoring?</li> <li>• What are properties of real numbers used in solving linear inequalities?</li> <li>• How do we give a set of inequalities that defines the given shaded region?</li> <li>• What is the geometrical meaning of absolute value?</li> <li>• How do we solve combined absolute value inequalities?</li> <li>• How do we solve a polynomial inequality by analyzing its graph?</li> <li>• How do we use a sign analysis to solve a polynomial inequality?</li> <li>• How do we determine whether a polynomial will change sign at a zero?</li> <li>• How do we know whether the point is above, on, or below the graph of the equation?</li> <li>• What is the Linear Programming?</li> <li>• What is the feasible region?</li> <li>• What is the Corner-Point Principle?</li> </ul>	
<b>Content</b>	<ul style="list-style-type: none"> <li>• 3.1 Linear Inequalities; Absolute Value.</li> <li>• 3.2 Polynomial Inequalities in One Variable.</li> <li>• 3.3 Polynomial Inequalities in Two Variables.</li> <li>• 3-4 Linear Programming.</li> </ul>	
<b>Skills:</b>	<ul style="list-style-type: none"> <li>• Solve and graph linear inequality in one variable.</li> <li>• Solve and graph polynomial inequalities in one variable.</li> <li>• Graph polynomial inequalities in two variables.</li> <li>• Graph the solution set of a system of inequalities.</li> </ul>	



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	<ul style="list-style-type: none"><li>• Solve certain applied programs using linear programming.</li><li>• Perform basic operations on polynomials.</li><li>• Factoring polynomials by grouping.</li><li>• Perform a sign analysis to solve a polynomial inequality.</li><li>• Solve rational polynomial inequalities.</li><li>• Write a set of inequalities that defines the given shaded region.</li><li>• Solve real-world problems using systems of linear inequalities.</li><li>• Use a computer or graphing calculator to solve systems of inequalities.</li></ul>	
Standards/Benchmarks	<b>A-CED 1-4; A-APR 1; A-REI 1-7, 10-12; N-Q 1-3</b>	<ul style="list-style-type: none"><li>•</li></ul>
Assessments/Resources	<ul style="list-style-type: none"><li>• Tests/Textbooks/Notebooks</li><li>• Projects/ Reports/Presentations</li><li>• Effective use of the Promethean board</li></ul>	<ul style="list-style-type: none"><li>•</li></ul>





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<b>Department:</b>  <h3 style="text-align: center;">Mathematics</h3>	<b>Course Title</b>  <h3 style="text-align: center;">ICM</h3>	
<b>Textbook(s):</b> <i>Advanced Mathematics Precalculus with Discrete Mathematics and Data Analysis</i>		
	<b>Unit 5, January 23 - February 23</b>	
<b>Essential Question(s):</b>	<ul style="list-style-type: none"> <li>• How do we use functions to solve real world problems?</li> <li>• What is the meaning of the domain and range of a function?</li> <li>• What is the difference between dependent variable and independent variable?</li> <li>• What is the Vertical –Line Test and the Horizontal-Line Test?</li> <li>• How do we determine whether a relation is a function?</li> <li>• How do we determine the domain, range, and values of a function from its graph?</li> <li>• What is the definition of the composite of two functions?</li> <li>• Is function composition commutative?</li> <li>• How do we find the domain of a composite of functions?</li> <li>• What is the inverse of a relation?</li> <li>• How do we determine the domain and range of a relation and its inverse?</li> <li>• How do we determine whether the inverse of a function is a function?</li> <li>• How do we graph the inverse of the given function?</li> </ul>	
<b>Content</b>	<ul style="list-style-type: none"> <li>• 4.1 Functions.</li> <li>• 4.2 Operations on Functions.</li> <li>• 4.3 Reflecting Graphs; Symmetry.</li> <li>• 4.4 Periodic Functions; Stretching and Translating Graphs.</li> <li>• 4.5 Inverse Functions.</li> <li>• 4.6 Functions of two variables.</li> </ul>	
<b>Skills:</b>	<ul style="list-style-type: none"> <li>• Determine the domain, range, and values of function.</li> <li>• Identify a function; Use function notation; Graph function.</li> <li>• Perform operations on functions; Rewrite formulas.</li> <li>• Reflect graphs and use symmetry to sketch graphs.</li> </ul>	



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	<ul style="list-style-type: none"><li>• Use linear equations to solve real-world problems.</li><li>• Apply the Vertical –Line Test and Horizontal –Line Test.</li><li>• Find values and rules for composites of functions.</li><li>• Find the inverse of relation.</li><li>• Make and interpret graphs of inverses of relations</li><li>• Determine periodicity and amplitude from graphs.</li><li>• Stretch and shrink graphs.</li><li>• Form a function of one variable from a verbal description.</li><li>• Graph functions of two variables in a two-dimensional coordinate system.</li></ul>	
Standards/Benchmarks	<b>F-BF 1-5; F-IF 1-9; A-REI 10-11; N-Q 1-3</b>	•
Assessments/Resources	<ul style="list-style-type: none"><li>• Tests/Textbooks/Notebooks</li><li>• Projects/ Reports/Presentations</li><li>• Effective use of the Promethean board</li></ul>	



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<p><b>Textbook(s):</b> <i>Advanced Mathematics Precalculus with Discrete Mathematics and Data Analysis</i></p>		
	<p><b>Unit 6, February 24 – March 13</b></p>	
<p>Essential Question(s):</p>	<ul style="list-style-type: none"> <li>• How do we apply the laws of exponents?</li> <li>• How do we simplify a rational expression?</li> <li>• What is the natural exponential function?</li> <li>• How do we apply the compound interest formula to solve real-world problems?</li> <li>• Can we recognize properties of the graph of exponential functions?</li> <li>• What is The Rule of 72?</li> <li>• What is the number <math>e</math>?</li> <li>• What is the effective annual yield?</li> </ul>	
<p>Content</p>	<ul style="list-style-type: none"> <li>• 5.1 Growth and Decay: Integral Exponents.</li> <li>• 5.2 Growth and Decay: Rational Exponents.</li> <li>• 5.3 Exponential functions.</li> <li>• 5.4 The number <math>e</math> and the Function <math>e^x</math>.</li> </ul>	
<p>Skills:</p>	<ul style="list-style-type: none"> <li>• Graph exponential functions.</li> <li>• Define and apply integral exponents.</li> <li>• Recognize properties of exponents.</li> <li>• Use properties of exponents.</li> <li>• Evaluate powers with negative exponents.</li> </ul>	



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	<ul style="list-style-type: none"><li>• Perform operations with rational exponents.</li><li>• Solve real-world problems dealing with compound and simple interest.</li><li>• Use simple interest formula.</li><li>• Apply the compound interest formula.</li><li>• Define and use exponential functions.</li><li>• Simplify expressions using Rational Exponent Theorem.</li><li>• Solve exponential equations.</li><li>• Recognize properties of negative rational exponents.</li><li>• Define and apply the natural exponential functions.</li><li>• Estimate the time it takes for a quantity to double.</li><li>• Use exponential functions to describe exponential growth and decay.</li></ul>	
Standards/Benchmarks	<b>N-RN 1-3, A-SSE 3c; F-LE 1-5; F-BF 1; N-Q 1-3</b>	<ul style="list-style-type: none"><li>•</li></ul>
Assessments/Resources	<ul style="list-style-type: none"><li>• Tests/Textbooks/Notebooks</li><li>• Projects/ Reports/Presentations</li><li>• Effective use of the Promethean board</li><li>• Additional reinforces – Master Lessons “Exponential functions”</li></ul>	<ul style="list-style-type: none"><li>•</li></ul>



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<b>Department:</b>  <b>Mathematics</b>	<b>Course Title</b>  <b>ICM</b>
<b>Textbook(s):</b> <i>Advanced Mathematics Precalculus with Discrete Mathematics and Data Analysis</i>	
	<b>Unit 7, March 14 – March 31</b>
<b>Essential Question(s):</b>	<ul style="list-style-type: none"><li>• What is the common logarithm?</li><li>• What is the base of the natural logarithm?</li><li>• How do we find a logarithm without a calculator?</li><li>• Can we find a logarithm of a negative number?</li><li>• What is the domain of a logarithmic function?</li><li>• How do we evaluate logarithmic expressions?</li><li>• How do we change logarithms from one base to another?</li><li>• What is a logarithmic scale?</li><li>• Do we know any applications of logarithms?</li><li>• What is the unit of measuring the loudness of a sound?</li><li>• How the decibel is related to the intensity of a sound?</li><li>• Which techniques do we use to solve logarithmic equations?</li></ul>



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Content	<ul style="list-style-type: none"><li>• 5.5 Logarithmic Functions.</li><li>• 5.6 Laws of Logarithms.</li><li>• 5.7 Exponential Equations; Changing Bases.</li></ul>	•
Skills:	<ul style="list-style-type: none"><li>• Define and apply logarithms.</li><li>• Find the domain, range, and zeros of logarithmic functions.</li><li>• Recognize properties of logarithmic function from its graph.</li><li>• Graph logarithmic function.</li><li>• Prove and apply laws of logarithms.</li><li>• Write a logarithmic expression as a rational number or as a single logarithm.</li><li>• Simplify logarithmic expressions.</li><li>• Solve logarithmic equations.</li><li>• Solve exponential equations.</li><li>• Change logarithms from one base to another.</li><li>• Evaluate logarithmic expressions.</li><li>• Apply logarithms to solve real-world problems</li></ul>	•
Standards/Benchmarks	<b>F-LE 2-5; A-SSE 3c; F-IF 4-5, 7e; F-BF 5</b>	•
Assessments/Resources	<ul style="list-style-type: none"><li>• Tests/Textbooks/Notebooks</li><li>• Projects/ Reports/Presentations</li><li>• Effective use of the Promethean board</li></ul>	•



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<b>Mathematics</b>	<b>ICM</b>	
<b>Textbook(s):</b> <i>Advanced Mathematics Precalculus with Discrete Mathematics and Data Analysis</i>		
	<b>Unit 8, April 1 – April 21</b>	
Essential Question(s):	<ul style="list-style-type: none"> <li>• What is the difference between degrees and radians?</li> <li>• When do we use radians to measure the angle?</li> <li>• What is the standard position of an angle?</li> <li>• What is the meaning of a negative angle?</li> <li>• How do we convert radians to degrees?</li> <li>• What are coterminal angles?</li> <li>• How many coterminal angles each angle has?</li> <li>• What is the object's apparent size?</li> <li>• What is the unit circle?</li> <li>• How do we indicate where the sin and cosine functions have positive and negative values?</li> <li>• What is a fundamental period of sine and cosine functions?</li> <li>• How do we find exact values of sine and cosine functions by considering the unit circle?</li> <li>• How do we recognize how many solutions has the given trigonometric equation?</li> </ul>	
Content	<ul style="list-style-type: none"> <li>• 7.1 Angles, Arcs, and Sectors. Measurement of angles.</li> <li>• 7.2 Sectors of Circles.</li> <li>• 7.3 The Sine and Cosine Functions.</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>



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Skills:	<ul style="list-style-type: none"><li>• Find the measure of an angle in either degrees or radians.</li><li>• Find coterminal angles.</li><li>• Convert radian measure to degrees and vice versa.</li><li>• Find the arc length.</li><li>• Find the area of a sector of a circle.</li><li>• Solve problems involving apparent size.</li><li>• Use the definition of Sine and Cosine to find values of these functions.</li><li>• Solve simple trigonometric equations.</li><li>• Indicate where the sine and cosine functions have positive and negative values.</li><li>• Compare values of sine and cosine functions of different angles.</li><li>• Determine exact values of sine and cosine by considering the unit circle.</li></ul>	•
Standards/Benchmarks	<b>F-TF 1-4; F-IF 1-2, 4-5; N-Q 1-3; F-BF 1; A-SSE 1-2</b>	•
Assessments/Resources	<ul style="list-style-type: none"><li>• Tests/Textbooks/Notebooks</li><li>• Projects/ Reports/Presentations</li><li>• Effective use of the Promethean board</li></ul>	•





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<p><b>Textbook(s):</b> <i>Advanced Mathematics Precalculus with Discrete Mathematics and Data Analysis</i></p>	
<p style="text-align: center;"><b>Unit 9, April 22 – May 8</b></p>	
<p>Essential Question(s):</p>	<ul style="list-style-type: none"> <li>• What is the reference angle?</li> <li>• How do we use calculators and tables to find value of the sine and cosine functions?</li> <li>• How do we sketch the graphs of Sine and Cosine?</li> <li>• What symmetry does the graph of the sine function have?</li> <li>• What symmetry does the graph of the cosine function have?</li> <li>• How do we explain the features (x-intercepts, vertical asymptotes, periodicity, and so on) of the trigonometric functions?</li> <li>• What is one-to-one function?</li> <li>• Why we have to restrict the domain of the trigonometric function in order to define the inverse?</li> </ul>
<p>Content</p>	<ul style="list-style-type: none"> <li>• 7.4 Evaluating and Graphing Sine and Cosine.</li> <li>• 7.5 The other Trigonometric Functions.</li> <li>• 7.6 The Inverse Trigonometric Functions.</li> </ul>
<p>Skills:</p>	<ul style="list-style-type: none"> <li>• Use reference angles to find value of the sine and cosine functions.</li> <li>• Use special angles and tables to find value of the sine and cosine functions.</li> <li>• Sketch the graphs of the sine and cosine functions.</li> <li>• Find sin and cosines of special angles.</li> <li>• Find values of the tangent, cotangent, secant, and cosecant functions and sketch the functions' graphs.</li> <li>• Analyze the domain of the tangent, cotangent, secant, and cosecant functions.</li> </ul>



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	<ul style="list-style-type: none"><li>• Give the values of angles for which the tangent, cotangent, secant, and cosecant functions are undefined or equal to zero.</li><li>• Find values of the inverse trigonometric functions without a calculator.</li><li>• Find domain and range of inverse trigonometric functions.</li></ul>	
Standards/Benchmarks	<b>F-TF 1-9; F-IF 1-2, 4-5; N-Q 1-3; A-REI 10</b>	<ul style="list-style-type: none"><li>•</li></ul>
Assessments/Resources	<ul style="list-style-type: none"><li>• Tests/Textbooks/Notebooks</li><li>• Projects/ Reports/Presentations</li><li>• Effective use of the Promethean board</li></ul>	<ul style="list-style-type: none"><li>•</li></ul>



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<b>Department:</b>  <div style="text-align: center; font-size: 1.2em; font-weight: bold;">Mathematics</div>	<b>Course Title</b>  <div style="text-align: center; font-size: 1.2em; font-weight: bold;">ICM</div>
<b>Textbook(s):</b> <i>Advanced Mathematics Precalculus with Discrete Mathematics and Data Analysis</i>	
	<b>Unit 10, May 9 – May 28</b>
<b>Essential Question(s):</b>	<ul style="list-style-type: none"> <li>What is the inclination of a line?</li> <li>How are the slope of a line and the angle of inclination related?</li> <li>How do we find the inclination of the given line?</li> <li>How do we solve trigonometric equations without using tables or a calculator?</li> <li>How do we find the period and amplitude of sine and cosine curves?</li> <li>What is the geometrical meaning of a trigonometric equation?</li> <li>How do we solve trigonometric equations graphically?</li> <li>What are applications of trigonometric functions?</li> <li>How do we translate sine and cosine graphs horizontally and vertically?</li> <li>What are Pythagorean Relationships?</li> <li>What are Cofunction Relationships?</li> <li>What do we call trigonometric identities?</li> </ul>
<b>Content</b>	<ul style="list-style-type: none"> <li>8.1 Equations and applications of Sine Waves. Simple Trigonometric Equations.</li> <li>8.2 Sine and Cosine Curves.</li> <li>8.3 Modeling Periodic Behavior.</li> <li>8.4 Identities and Equations. Relationships Among the functions.</li> <li>8.5 Solving More Difficult Trigonometric Equations.</li> </ul>
<b>Skills:</b>	<ul style="list-style-type: none"> <li>Solve simple trigonometric equations.</li> <li>Apply trigonometric equations.</li> <li>Find equations of different sine and cosine curves and apply these equations.</li> <li>Use trigonometric functions to model periodic behavior.</li> <li>Simplify trigonometric expressions.</li> </ul>



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	<ul style="list-style-type: none"><li>• Prove trigonometric identities.</li><li>• Find period and amplitude of Sine and Cosine curves.</li><li>• Use trigonometric identities to solve more difficult trigonometric equations.</li><li>• Translate sine and cosine graphs.</li><li>• Model real-world problems using trigonometry.</li></ul>	
Standards/Benchmarks	<b>F-TF 1-9; F-IF 1-2, 4-5; N-Q 1-3; A-REI 1-4</b>	<ul style="list-style-type: none"><li>•</li></ul>
Assessments/Resources	<ul style="list-style-type: none"><li>• Tests/Textbooks/Notebooks</li><li>• Projects/ Reports/Presentations</li><li>• Effective use of the Promethean board</li></ul>	<ul style="list-style-type: none"><li>•</li></ul>



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<p>Department:</p> <p style="text-align: center;"><b>Mathematics</b></p>	<p>Course Title</p> <p style="text-align: center;"><b>ICM</b></p>
<p><b>Textbook(s):</b> <i>Advanced Mathematics Precalculus with Discrete Mathematics and Data Analysis</i></p>	
	<p><b>Unit 11, June 1 – June 11</b></p>
<p>Essential Question(s):</p>	<ul style="list-style-type: none"> <li>• How do we solve right triangles using trigonometry?</li> <li>• How do we use triangle trigonometry in real life?</li> <li>• How do we apply the formula of the area of a triangle to solve real-world problems?</li> <li>• What is Law of Sines?</li> <li>• How do we derive the Law of Sines?</li> <li>• What is the Law of Cosines?</li> <li>• How do we apply the Law of Sines and Cosines?</li> </ul>
<p>Content</p>	<ul style="list-style-type: none"> <li>• 9.1 Solving Right Triangles.</li> <li>• 9.2 The Area of a Triangle.</li> <li>• 9.3 The Law of Sines.</li> <li>• 9.4 The Law of Cosines.</li> <li>• 9.5 Applications of Trigonometry to Navigation and Surveying.</li> </ul>
<p>Skills:</p>	<ul style="list-style-type: none"> <li>• Use trigonometry to find unknown sides or angles of a right triangle.</li> <li>• Find the area of a triangle given the length of two sides and the measure of the included angle</li> <li>• Use the law of sines to find unknown parts of triangle.</li> <li>• Use the law of cosines to find unknown parts of a triangle.</li> <li>• Apply Law of Sines and Law of Cosines to solve geometry problems.</li> <li>• Use trigonometry to solve navigation and surveying problems.</li> </ul>
<p>Standards/Benchmarks</p>	<p><b>F-TF 3-9; N-Q 1-3; A-REI 1-4; A-CED 1, 4; A-SSE 1-2</b></p>



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Assessments/Resources	<ul style="list-style-type: none"><li>• Tests/Textbooks/Notebooks</li><li>• Projects/ Reports/Presentations</li><li>• Effective use of the Promethean board</li></ul>	•
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### Differentiation/Accommodations/Modifications

Gifted and Talented	English Language Learners	Students with Disabilities	Students at Risk of Failure
<p><b>(content, process, product and learning environment)</b></p> <p><b>Extension Activities</b></p> <p>Conduct research and provide presentation of cultural topics.</p> <p>Design surveys to generate and analyze data to be used in discussion.</p> <p>Debate topics of interest / cultural importance.</p> <p>Authentic listening and reading sources that provide data and support for speaking and writing prompts.</p> <p>Exploration of art and/or artists to understand society and history.</p> <p><b>Anchor Activities</b></p>	<p><b>Modifications for Classroom</b></p> <p>Assign a peer helper in the class setting</p> <p>Use Smartphone as dictionary</p> <p>Use Dictionary</p> <p>Use materials in native language, if available</p> <p><b>Modifications for Homework/Assignments</b></p> <p>Modified Assignments</p> <p>Native Language Translation (peer, online assistive technology, translation device, bilingual dictionary)</p> <p>Extended time for assignment completion as needed</p> <p>Highlight key vocabulary</p> <p>Use graphic organizers</p>	<p><i>(appropriate accommodations, instructional adaptations, and/or modifications as determined by the IEP or 504 team)</i></p> <p><b>Modifications for Classroom</b></p> <p>Pair visual prompts with verbal presentations</p> <p>Ask students to restate information, directions, and assignments.</p> <p>Repetition and and practice</p> <p>Model skills / techniques to be mastered.</p> <p>Extended time to complete class work</p> <p>Provide copy of class notes</p>	<p><b>Modifications for Classroom</b></p> <p>Pair visual prompts with verbal presentations</p> <p>Ask students to restate information, directions, and assignments.</p> <p>Repetition and and practice</p> <p>Model skills / techniques to be mastered.</p> <p>Extended time to complete class work</p> <p>Provide copy of classnotes</p> <p>Preferential seating to be mutually determined by the student and teacher</p>



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<p>Use of Higher Level Questioning Techniques</p> <p>Provide assessments at a higher level of thinking</p>	<p><b>Modifications for Assessments</b></p> <p>Extended time on classroom tests and quizzes.</p> <p>Student may take/complete tests in an alternate setting as needed.</p> <p>Restate, reread, and clarify directions/questions</p> <p>Use dictionary or approved electronic device</p>	<p>Preferential seating to be mutually determined by the student and teacher</p> <p>Student may request to use a computer to complete assignments.</p> <p>Establish expectations for correct spelling on assignments.</p> <p>Extra textbooks for home.</p> <p>Student may request books on tape / CD / digital media, as available and appropriate.</p> <p>Assign a peer helper in the class setting</p> <p>Provide oral reminders and check student work during independent work time</p> <p>Assist student with long and short term planning of assignments</p>	<p>Student may request to use a computer to complete assignments.</p> <p>Establish expectations for correct spelling on assignments.</p> <p>Extra textbooks for home.</p> <p>Student may request books on tape / CD / digital media, as available and appropriate.</p> <p>Assign a peer helper in the class setting</p> <p>Provide oral reminders and check student work during independent work time</p> <p>Assist student with long and short term planning of assignments</p> <p>Encourage student to proofread</p>
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		<p>Encourage student to proofread assignments and tests</p> <p>Provide regular parent/ school communication</p> <p>Teachers will check/sign student agenda daily</p> <p>Student requires use of other assistive technology device</p> <p><b>Modifications for Homework and Assignments</b> Extended time to complete assignments.</p> <p>Student requires more complex assignments to be broken up and explained in smaller units, with work to be submitted in phases.</p> <p>Provide the student with clearly stated (written) expectations and</p>	<p>assignments and tests</p> <p>Provide regular parent/ school communication</p> <p>Teachers will check/sign student agenda daily</p> <p>Student requires use of other assistive technology device</p> <p><b>Modifications for Homework and Assignments</b> Extended time to complete assignments.</p> <p>Student requires more complex assignments to be broken up and explained in smaller units, with work to be submitted in phases.</p>
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		<p>grading criteria for assignments.</p> <p><b>Modifications for Assessments</b></p> <p>Extended time on classroom tests and quizzes.</p> <p>Student may take/complete tests in an alternate setting as needed.</p> <p>Restate, reread, and clarify directions/questions</p> <p>Distribute study guide for classroom tests.</p> <p>Establish procedures for accommodations / modifications for assessments</p>	<p>Provide the student with clearly stated (written) expectations and grading criteria for assignments.</p> <p>Implement RAFT activities as they pertain to the types / modes of communication (role, audience, format, and topic).</p> <p><b>Modifications for Assessments</b></p> <p>Extended time on classroom tests and quizzes.</p> <p>Student may take/complete tests in an alternate setting as needed.</p> <p>Restate, reread, and clarify directions/questions</p> <p>Distribute study guide for classroom tests.</p> <p>Establish procedures for accommodations / modifications for assessments.</p>
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