

Department:		Course Title	
	Mathematics	College Prep Mathematics	
Textbook(s): College A	Algebra & Trigonometry		
Date:	Unit 1, September 4-30		
Essential Question(s):	 equation? How do we choose most appropriate How do we apply the distance and mi How do we determine whether two lin What is the geometric meaning of the How do we apply algebra formulas to 	n with a linear function? ard, point-slope and slope-intercept forms of linear form of linear equation for a given problem? dpoint formulas? es are parallel, perpendicular, or neither? solution of system of linear equations? solve geometry problems? on of a line can be derived from the standard form?	
Content	 1.1 Linear Functions. Points and L 1.2 Slopes of Lines. 1.3 Finding Equations of Lines. 1.4 Linear Functions and Models. 	• • • •	•
Skills:	 Evaluate expressions and formulas, in Find the intersection of two lines. Find the length and midpoint of a seg Rewrite formulas. Solve and check linear equations. Solve and check systems of linear eq Graph the solution of systems of linear 	ment. uations.	•



	 Use linear equations to solve real-world problems. Find the slope of a line. Determine whether two lines are parallel, perpendicular, or neither. Find an equation of a line given certain geometrical properties of the line. Model real-world situations by means of linear function. 	
Standards/Benchmarks	A-CED 1-4; A-REI 1-2,5-7; F-IF 1-2, 4-5; N-Q 1-3; N-RN	•
Assessments/Resources	 Tests/Textbooks/Notebooks Projects/ Reports/Presentations Effective use of the Promethean board 	•

Department:		Course Title	
	Mathematics	College Prep Mathematics	
Textbook(s): College	Algebra & Trigonometry		
	Unit 2, October 1-31		
		nial? standard form of quadratic equation and vertex form? equations from standard form to vertex form?	
	 How do we add, subtract, multiply and divide complex numbers? How do we determine the complex conjugate? 		
 Essential Question(s): Can we recognize relationships between complex and real numbers? How do we determine how many real solutions does a quadratic equation have? 			
	 What is the Discriminant? Wha How do we determine the nature 	t is the Quadratic Formula? re of the solutions to the guadratic equation?	



	 What is the geometrical meaning of real solutions to the quadratic equation? Can we use a quadratic equation to model real-life situation? How do we determine if a quadratic model is appropriate? Can we use a quadratic model to make a real-life prediction? 1.5 The Complex Numbers. 1.6 Solving Quadratic equations. 1.7 Quadratic Functions and their Graphs. 	•
Content	 1.8 Quadratic Models. 	
Skills:	 Add, subtract, multiply, and divide complex numbers. Solve quadratic equations using different methods. Use quadratic function to solve real –world problems. Define and graph quadratic functions. Model real-world situations using quadratic functions. Transform quadratic equations from standard form to vertex form and vise versa. Use quadratic equations to solve area problems or problems dealing with velocity and acceleration. Graph the parabola. Find the vertex, y-intercept and x-intercepts of the parabola. Find an equation for the line of symmetry of parabola 	•
Standards/Benchmarks	N-CN 1-3, 5-9; A-CED 1-2; A-APR 1; F-IF 4-5, 7a, 8a; A-REI 4	•
Assessments/Resources	 Tests/Textbooks/Notebooks Projects/ Reports/Presentations Effective use of the Promethean board 	•



Department:		Course Title	
	Mathematics	College Prep Mathematic	CS
Textbook(s): College	Algebra & Trigonometry		
	Unit 3, November 1 – December 19		
Essential Question(s):	 What is the difference between long What is a polynomial? How do we c How do we identify a particular term How do we graph a polynomial func What is the effect of a squared or cu What is the procedure of finding ma Can we determine zeros of a polynomials to sol How do we apply polynomials to sol 	lassify polynomials? of a polynomial? tion? ubed factor? ximums and minimums of polynomial functions? omial function from its graph?	
Content	 2.1 Polynomials. 2.2 Synthetic Division. The Rema 2.3 Graphing Polynomial Functio 2.4 Finding Maximums and Minir 	ainder and Factor Theorems. ns. nums of Polynomial Functions. mate Roots of Polynomial Equations. s by Factoring.	•
Skills:	 Identify a polynomial function. Evaluate a polynomial function using Determine zeros of a polynomial fur Use synthetic division and apply the 	g synthetic substitution. Inction. I remainder and factor theorems. termine an equation for a polynomial graph. I en situation. e of the function.	•



	 Use the rational root theorem to solve polynomial equation. Apply general theorems about polynomial functions. 	
Standards/Benchmarks	F-IF 1-5, 7c; A-APR 1-7; A-CED 1-2; A-REI 1,4,10	•
Assessments/Resources	 Tests/Textbooks/Notebooks Projects/ Reports/Presentations Effective use of the Promethean board 	•



Department:		Course Title	
	Mathematics	College Prep Mathematics	
Textbook(s): Colleg	ge Algebra & Trigonometry		
	Unit 4, December 22 – January 22		
Essential Question(s):	 What is the difference between "and" and When do we reverse the inequality sign? What are the basic techniques of factoring What are properties of real numbers used How do we give a set of inequalities that do What is the geometrical meaning of absolute How do we solve combined absolute value How do we solve a polynomial inequality to How do we use a sign analysis to solve a How do we determine whether a polynomial How do we know whether the point is about the feasible region? What is the Corner-Point Principle? 	y? in solving linear inequalities? lefines the given shaded region? ute value? e inequalities? by analyzing its graph? polynomial inequality? ial will change sign at a zero?	
Content	 3.1 Linear Inequalities; Absolute Value. 3.2 Polynomial Inequalities in One Vari 3.3 Polynomial Inequalities in Two Vari 3-4 Linear Programming. 	able.	•



	Solve and graph linear inequality in one variable.	•
	Solve and graph polynomial inequalities in one variable.	
	Graph polynomial inequalities in two variables.	
	 Graph the solution set of a system of inequalities. 	
	Solve certain applied programs using linear programming.	
	Perform basic operations on polynomials.	
	Factoring polynomials by grouping.	
Skills:	 Perform a sign analysis to solve a polynomial inequality. 	
	Solve rational polynomial inequalities.	
	 Write a set of inequalities that defines the given shaded region. 	
	 Solve real-world problems using systems of linear inequalities. 	
	Use a computer or graphing calculator to solve systems of inequalities.	
		•
	A-CED 1-4; A-APR 1; A-REI 1-7, 10-12; N-Q 1-3	
Standards/Benchmarks		
	Tests/Textbooks/Notebooks	•
	Projects/ Reports/Presentations	
Assessments/Resources	Effective use of the Promethean board	



Department:	Mathematics	Course Title	
	Mathematics		
Textbook(s): Colleg	ge Algebra & Trigonometry	1	
	Unit 5, January 23 - February 23		
Essential Question(s):	 How do we use functions to solve real wo What is the meaning of the domain and ra What is the difference between dependen What is the Vertical –Line Test and the Ho How do we determine whether a relation i How do we determine the domain, range, What is the definition of the composite of the solution composition commutative? How do we find the domain of a composite What is the inverse of a relation? How do we determine whether the inverse How do we graph the inverse of the given 	ange of a function? t variable and independent variable? prizontal-Line Test? s a function? and values of a function from its graph? two functions? e of functions? ange of a relation and its inverse? e of a function is a function?	
Content	 4.1 Functions. 4.2 Operations on Functions. 4.3 Reflecting Graphs; Symmetry. 4.4 Periodic Functions; Stretching and 4.5 Inverse Functions. 4.6 Functions of two variables. 	Translating Graphs.	•



		1
	Determine the domain, range, and values of function.	•
	Identify a function; Use function notation; Graph function.	
	Perform operations on functions; Rewrite formulas.	
	 Reflect graphs and use symmetry to sketch graphs. 	
	 Use linear equations to solve real-world problems. 	
	Apply the Vertical –Line Test and Horizontal –Line Test.	
	Find values and rules for composites of functions.	
Skills:	Find the inverse of relation.	
on the second se	 Make and interpret graphs of inverses of relations 	
	Determine periodicity and amplitude from graphs.	
	Stretch and shrink graphs.	
	Form a function of one variable from a verbal description.	
	 Graph functions of two variables in a two-dimensional coordinate system. 	
		•
		•
	F-BF 1-5; F-IF 1-9; A-REI 10-11; N-Q 1-3	
Standards/Benchmarks		
	Tests/Textbooks/Notebooks	
	Projects/ Reports/Presentations	
	Effective use of the Promethean board	
Assessments/Resources		



Department:		Course Title	
	Mathematics	ICM	
Textbook(s): Colleg	ge Algebra & Trigonometry	I	
	Unit 6, February 24 – March 13		
Essential Question(s):	 How do we apply the laws of exponents? How do we simplify a rational expression? What is the natural exponential function? How do we apply the compound interest f Can we recognize properties of the graph What is The Rule of 72? What is the number e? What is the effective annual yield? 	ormula to sole real-world problems?	
Content	 5.1 Growth and Decay: Integral Expon- 5.2 Growth and Decay: Rational Expor 5.3 Exponential functions. 5.4 The number e and the Function e^x. 	nents.	•
Skills:	 Graph exponential functions. Define and apply integral exponents. Recognize properties of exponents. Use properties of exponents. Evaluate powers with negative exponents Perform operations with rational exponents Solve real-world problems dealing with constructions. Use simple interest formula. Apply the compound interest formula. Define and use exponential functions. 	ts.	•



	 Simplify expressions using Rational Exponent Theorem. Solve exponential equations. Recognize properties of negative rational exponents. Define and apply the natural exponential functions. Estimate the time it takes for a quantity to double. 	
	 Use exponential functions to describe exponential growth and decay. 	
	N-RN 1-3, A-SSE 3c; F-LE 1-5; F-BF 1; N-Q 1-3	•
Standards/Benchmarks	Tasta/Taythaska/Natabaska	
Assessments/Resources	 Tests/Textbooks/Notebooks Projects/ Reports/Presentations Effective use of the Promethean board Additional reinforces – Master Lessons "Exponential functions" 	•

Department:		Course Title	
	Mathematics	ICM	
Textbook(s): Colleg	e Algebra & Trigonometry		
	Unit 7, March14 – March 31		
	 What is the common logarithm? What is the base of the natural logarithm How do we find a logarithm without a ca Can we find a logarithm of a negative number 	llculator? umber?	
Essential Question(s):	 What is the domain of a logarithmic function How do we evaluate logarithmic expression How do we change logarithms from one 	sions?	



	 What is a logarithmic scale? Do we know any applications of logarithms? What is the unit of measuring the loudness of a sound? How the decibel is related to the intensity of a sound? Which techniques do we use to solve logarithmic equations? 	
Content	 5.5 Logarithmic Functions. 5.6 Laws of Logarithms. 5.7 Exponential Equations; Changing Bases. 	•
Skills:	 Define and apply logarithms. Find the domain, range, and zeros of logarithmic functions. Recognize properties of logarithmic function from its graph. Graph logarithmic function. Prove and apply laws of logarithms. Write a logarithmic expression as a rational number or as a single logarithm. Simplify logarithmic expressions. Solve logarithmic equations. Solve exponential equations. Change logarithms from one base to another. Evaluate logarithmic expressions. Apply logarithms to solve real-world problems 	•
Standards/Benchmarks	F-LE 2-5; A-SSE 3c; F-IF 4-5, 7e; F-BF 5	•
Assessments/Resources	 Tests/Textbooks/Notebooks Projects/ Reports/Presentations Effective use of the Promethean board 	•



Department:		Course Title	
	Mathematics	ICM	
Textbook(s): Colleg	e Algebra & Trigonometry	<u> </u>	
	Unit 8, April 1 – April 21		
Essential Question(s):	 What is the difference between degrees a When do we use radians to measure the a What is the standard position of an angle? What is the meaning of a negative angle? How do we convert radians to degrees? What are coterminal angles? How many coterminal angles each angle for the what is the object's apparent size? What is the unit circle? How do we indicate where the sin and cost values? What is a fundamental period of sine and the work of the we find exact values of sine and the object of the work of	angle? has? sine functions have positive and negative cosine functions? sosine functions by considering the unit circle?	
Content	 7.1 Angles, Arcs, and Sectors. Measure 7.2 Sectors of Circles. 7.3 The Sine and Cosine Functions. 	ement of angles.	•



	Find the measure of an angle in either degrees or radians.	•
	Find coterminal angles.	
	Convert radian measure to degrees and vise versa.	
	• Find the arc length.	
	Find the area of a sector of a circle.	
	Solve problems involving apparent size.	
Skills:	Use the definition of Sine and Cosine to find values of these functions.	
OKIIS.	Solve simple trigonometric equations.	
	• Indicate where the sine and cosine functions have positive and negative values.	
	 Compare values of sine and cosine functions of different angles. 	
	Determine exact values of sine and cosine by considering the unit circle.	
		•
	F-TF 1-4; F-IF 1-2, 4-5; N-Q 1-3; F-BF 1; A-SSE 1-2	
Standards/Benchmarks		
	Tests/Textbooks/Notebooks	•
	Projects/ Reports/Presentations	
Assessments/Resources	Effective use of the Promethean board	
//00000110110/1/00001000		



Department:		Course Title	
	Mathematics	ICM	
Textbook(s): Colleg	ge Algebra & Trigonometry		
	Unit 9, April 22 – May 8		
Essential Question(s):	on) of the trigonometric functions?What is one-to-one function?	d Cosine? ne function have?	
Content	 7.4 Evaluating and Graphing Sine and 7.5 The other Trigonometric Functions 7.6 The Inverse Trigonometric Function 	S.	•
Skills:	 Use reference angles to find value of the Use special angles and tables to find value Sketch the graphs of the sine and cosine Find sin and cosines of special angles. Find values of the tangent, cotangent, se functions' graphs. Analyze the domain of the tangent, cotangent, cotangent, se functions 	ue of the sine and cosine functions. functions. cant, and cosecant functions and sketch the	•



	 Give the values of angles for which the tangent, cotangent, secant, and cosecant functions are undefined or equal to zero. Find values of the inverse trigonometric functions without a calculator. Find domain and range of inverse trigonometric functions. 	
Standards/Benchmarks	F-TF 1-9; F-IF 1-2, 4-5; N-Q 1-3; A-REI 10	•
Assessments/Resources	 Tests/Textbooks/Notebooks Projects/ Reports/Presentations Effective use of the Promethean board 	•



Department:		Course Title	
	Mathematics	ICM	
Textbook(s): Colle	ge Algebra & Trigonometry		
	Unit 10, May 9 – May 28		
Essential Question(s):	 What id the inclination of a line? How the slope of a line and the and How do we find the inclination of the How do we find period amplitude of How do we find period amplitude of What is the geometrical meaning of How do we solve trigonometric eq What are applications of trigonometric How do we translate sin and cosin What are Pythagorean Relationsh What are Cofunction Relationships What do we call trigonometric ider 	he given line? uations without using tables or a calculator? of sine and cosine curves? of trigonometric equation? uation graphically? etric functions? ne graphs horizontally and vertically? ips? s?	
Content	8.2 Sine and Cosine Curves.8.3 Modeling Periodic Behavior	elationships Among the functions.	•
Skills:	 Solve simple trigonometric equation Apply trigonometric equations. Find equations of different sine an Use trigonometric function to mod 	d cosine curves and apply these equations.	•



	 Simplify trigonometric expressions. Prove trigonometric identities. Find period and amplitude of Sine and Cosine curves. Use trigonometric identities to solve more difficult trigonometric equations. Translate sine and cosine graphs. 	
	Model real-world problems using trigonometry.	•
	F-TF 1-9; F-IF 1-2, 4-5; N-Q 1-3; A-REI 1-4	
Standards/Benchmarks		
Assessments/Resources	 Tests/Textbooks/Notebooks Projects/ Reports/Presentations Effective use of the Promethean board 	•



Department:		Course Title	
Mathematics		ICM	
Textbook(s): Colleg	ge Algebra & Trigonometry		
	Unit 11, June 1 – June 11		
Essential Question(s):	 How do we solve right triangles using trigo How do we use triangle trigonometry in rea How do we apply the formula of the area of What is Law of Sines? How do we derive the Law of Sines? What is the Law of Cosines? How do we apply the Law of Sines and Co 	al life? of a triangle to solve real-world problems?	
Content	 9.1 Solving Right Triangles. 9.2 The Area of a Triangle. 9.3 The Law of Sines. 9.4 The Law of Cosines. 9.5 Applications of Trigonometry to Nav 		•
Skills:	angleUse the law of sines to find unknown partsUse the law of cosines to find unknown parts	of two sides and the measure of the included of triangle.	•
	 Apply Law of Sines and Law of Cosines to Use trigonometry to solve navigation and s 	• • • •	



	F-TF 3-9; N-Q 1-3; A-REI 1-4; A-CED 1, 4; A-SSE 1-2	•
Standards/Benchmarks		
Assessments/Resources	 Tests/Textbooks/Notebooks Projects/ Reports/Presentations Effective use of the Promethean board 	•



Г

Cliffside Park Public Schools

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



Anchor Activities			
	Use graphic organizers	Preferential seating to be mutually	
Use of Higher Level Questioning Techniques	Modifications for Assessments	determined by the student and teacher	Student may request to use a computer to complete
Provide assessments at a higher level of thinking	Extended time on classroom tests and quizzes.		assignments.
	Student may take/complete tests in an alternate setting as needed.	Student may request to use a computer to complete assignments.	Establish expectations for correct
	Restate, reread, and clarify directions/questions		spelling on assignments.
	Use dictionary or approved electronic device	Establish expectations for correct spelling on assignments.	Extra textbooks for home.
		Extra textbooks for home.	Student may request books on tape / CD / digital media, as available and appropriate.
		Student may request books on tape / CD / digital media, as available and appropriate.	Assign a peer helper in the class setting
		Assign a peer helper in the class setting	Provide oral reminders and check student work during independent work time
		Provide oral reminders and check student work during independent work time	Assist student with long and short term planning of assignments



Assist student with long and short term planning of assignments Encourage student to proofread assignments and tests Provide regular parent/ school communication Teachers will check/sign student agenda daily Student requires use of other assistive technology device	Encourage student to proofread assignments and tests Provide regular parent/ school communication Teachers will check/sign student agenda daily Student requires use of other assistive technology device
Modifications for Homework and Assignments Extended time to complete assignments. Student requires more complex assignments to be broken up and explained in smaller units, with work to be submitted in phases.	Modifications for Homework and Assignments Extended time to complete assignments. Student requires more complex assignments to be broken up and



	Provide the student with clearly stated (written) expectations and grading criteria for assignments. Modifications for Assessments Extended time on classroom tests and quizzes. Student may take/complete tests in an alternate setting as needed. Restate, reread, and clarify directions/questions Distribute study guide for classroom tests. Establish procedures for accommodations / modifications for assessments	 explained in smaller units, with work to be submitted in phases. Provide the student with clearly stated (written) expectations and grading criteria for assignments. Implement RAFT activities as they pertain to the types / modes of communication (role, audience, format, and topic). Modifications for Assessments Extended time on classroom tests and quizzes. Student may take/complete tests in an alternate setting as needed. Restate, reread, and clarify directions/questions Distribute study guide for classroom tests. Establish procedures for accommodations / modifications for assessments.
--	---	---