

Please Note:

All standards are designed to be learned by the end of the course. This guide represents a recommended time line and sequence to be used voluntarily by teachers for planning purposes. Specific questions regarding when content will actually be addressed in a specific course are best answered by the individual teacher.

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Advanced Topics in Mathematics

2016 – 2017

	Week	Major Concepts / Topics	Possible Resources
Quarter 1 Aug 10 – Oct 14	1 8/10 - 8/12	Chapter 1 – Equations and Inequalities <ul style="list-style-type: none"> Lesson 1.1 – Graphs and Graphing Utilities 	Lesson 1.1 – Graphing linear functions
	2 8/15 – 8/19	Chapter 1 – Equations and Inequalities <ul style="list-style-type: none"> Lesson 1.2 – Linear Equations and Rational Equations Lesson 1.3 – Models and Applications 	Lesson 1.2 – Solving rational equations Interpreting graphs of linear and nonlinear functions Lesson 1.3 – Graphing word problems Modeling with combined functions
	3 8/22 – 8/26	Chapter 2 – Functions and Graphs <ul style="list-style-type: none"> Lesson 2.1 – Basics of Functions and Their Graphs Lesson 2.2 – More on Functions and Their Graphs 	Lesson 2.1 – Even, odd functions Lesson 2.2 – Shifting and reflecting functions
	4 8/29 – 9/2	Chapter 2 – Functions and Graphs <ul style="list-style-type: none"> Lesson 2.3 – Linear Functions and Slope Lesson 2.4 – More on Slope 	Lesson 2.3 – Graphing linear functions word problems Lesson 2.4 – Recognizing slope of curves
	5 9/6 – 9/9	Chapter 2 – Functions and Graphs <ul style="list-style-type: none"> Lesson 2.5 – Transformations of Functions 	Lesson 2.5 – Shifting and reflecting functions
	6 9/12 – 9/16	Chapter 2 – Functions and Graphs <ul style="list-style-type: none"> Lesson 2.6 – Combinations of Functions; Composite Functions Lesson 2.7 – Inverse Functions 	Lesson 2.6 – Compose functions Lesson 2.7 – Inverses of linear functions
	7 9/19 – 9/23	Chapter 5 – Trigonometric Functions <ul style="list-style-type: none"> Lesson 5.1 – Angles and Radian Measure Lesson 5.2 – Right Triangle Trigonometry 	Lesson 5.1 – Radians and arc length Lesson 5.2 – Right Triangles and Trigonometry
	8 9/26 – 9/30	Chapter 5 – Trigonometric Functions <ul style="list-style-type: none"> Lesson 5.2 – Right Triangle Trigonometry Lesson 5.8- Applications of Trigonometric Functions Lesson 5.3 – Trigonometric Functions of Any Angle 	Lesson 5.2 – Trig functions and side ratios in right triangles Lesson 5.8 – Modeling with trigonometric functions Lesson 5.3 – Unit circle trigonometry
	9 10/3 – 10/7	Chapter 5 – Trigonometric Functions <ul style="list-style-type: none"> Lesson 5.4 – Trigonometric Functions of Real Numbers; Periodic Functions 	Lesson 5.4 – Symmetry and periodicity of trigonometric functions
	10 10/10 – 10/14	Chapter 5 – Trigonometric Functions <ul style="list-style-type: none"> Lesson 5.5 – Graphs of Other Trigonometric Functions 	Lesson 5.5 – Graphs of trigonometric functions

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Quarter 2 Oct 18 – Dec 21	1 10/18 – 10/21	Chapter 5 – Trigonometric Functions <ul style="list-style-type: none"> • Lesson 5.6 – Graphs of Other Trigonometric Functions • Lesson 5.7 – Inverse Trigonometric Functions 	Lesson 5.6 – Symmetry and periodicity of trigonometric functions Lesson 5.7 - Inverse trig word problems
	2 10/24 – 10/28	Chapter 5 – Trigonometric Functions <ul style="list-style-type: none"> • Lesson 5.7 – Inverse Trigonometric Functions • Lesson 5.8 – Applications of Trigonometric Functions • Assessment Chapter 6- Analytic Trigonometry <ul style="list-style-type: none"> • Lesson 6.1 – Verifying Trigonometric Identities 	Lesson 5.8 – Modeling with trigonometric functions Lesson 6.1 – Manipulating trig expressions with Pythagorean identities
	3 10/31 – 11/4	Chapter 6 – Analytic Trigonometry <ul style="list-style-type: none"> • Lesson 6.2 – Sum and Difference Formulas • Lesson 6.3 – Double-Angle, Power-Reducing, and Half-Angle Formulas • Assessment 	Lesson 6.2 – Addition and subtracting trig identities Lesson 6.3 – Applying angle addition formulas Trigonometric Identity Review
	4 11/7 – 11/10	Chapter 6 – Analytic Trigonometry <ul style="list-style-type: none"> • Lesson 6.5- Trigonometric Equations 	Lesson 6.5- Solving Trigonometric Equations
	5 11/14 – 11/18	Chapter 6- Analytic Trigonometry <ul style="list-style-type: none"> • Lesson 6.5- Trigonometric Equations Chapter 1- Equations and Inequalities <ul style="list-style-type: none"> • Lesson 1.4 – Complex Numbers 	Lesson 1.4 – The imaginary unit and complex numbers
	6 11/21 – 11/22	Chapter 7 – Additional Topics in Trigonometry <ul style="list-style-type: none"> • Lesson 7.3 – Polar Coordinates 	Lesson 7.3 – Polar coordinates
	7 11/28 – 12/2	Chapter 7 – Additional Topics in Trigonometry <ul style="list-style-type: none"> • Lesson 7.5 – Complex Numbers in Polar Form; DeMoivre’s Thoerem 	Lesson 7.5 – DeMoivre’s Theorem - YouTube
	8 12/5 – 12/9	Chapter 7 – Additional Topics in Trigonometry <ul style="list-style-type: none"> • Lesson 7.4 – Graphs and Polar Equations 	Lesson 7.4 – Complex numbers; Polar form
	9 12/12 – 12/16	Chapter 7 – Additional Topics in Trigonometry <ul style="list-style-type: none"> • Lesson 7.4 – Graphs and Polar Equations 	
	10 12/19 – 12/21	<ul style="list-style-type: none"> • District Exams 	

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Quarter 3 Jan 5 – Mar 10	1 1/5 – 1/6	Chapter 1 – Equations and Inequalities <ul style="list-style-type: none"> Lesson 1.4 – Complex Numbers Lesson 1.5 – Quadratic Equations 	Lesson 1.5 – Understanding the process for solving quadratic equations
	2 1/9 – 1/13	Chapter 3 – Polynomial and Rational Functions <ul style="list-style-type: none"> Lesson 3.1 – Quadratic Functions Lesson 3.2 – Polynomial Functions and Their Graphs 	Lesson 3.1 – Quadratic functions-Vertex Form; Quadratic Functions-Standard Form Lesson 3.2 – Polynomial graphs
	3 1/17 – 1/20	Chapter 3 – Polynomial and Rational Functions <ul style="list-style-type: none"> Lesson 3.2 – Polynomial Functions and Their Graphs Lesson 3.3 – Dividing Polynomials; Remainder and Factor Theorems Lesson 3.4 – Zeros of Polynomial Functions 	Lesson 3.3 – Dividing polynomials; Remainder Theorem Lesson 3.4 – Zeros of Polynomials
	4 1/23 – 1/27	Chapter 3 – Polynomial and Rational Functions <ul style="list-style-type: none"> Lesson 3.4 – Zeros of Polynomial Functions Lesson 3.5 – Rational Functions and Their Graphs 	Lesson 3.5 – Graphs of rational functions
	5 1/30 – 2/3	Chapter 3 – Polynomial and Rational Functions <ul style="list-style-type: none"> Lesson 3.5 – Rational Functions and Their Graphs Chapter 4 – Exponential and Logarithmic Functions <ul style="list-style-type: none"> Lesson 4.1 – Exponential Functions Lesson 4.2 – Logarithmic Functions 	Lesson 4.1 – Exponential Expressions; Exponential Functions Lesson 4.2 – Using logarithms to solve exponential equations
	6 2/6 – 2/10	Chapter 4 – Exponential and Logarithmic Functions <ul style="list-style-type: none"> Lesson 4.2 – Logarithmic Functions Lesson 4.3 – Properties of Logarithms 	Lesson 4.2 – Logarithms Lesson 4.3 – Logarithm properties
	7 2/13 – 2/16	Chapter 4 – Exponential and Logarithmic Functions <ul style="list-style-type: none"> Lesson 4.4 – Exponential and Logarithmic Equations Lesson 4.5 – Exponential Growth and Decay; Modeling Data 	Lesson 4.4 – Modeling with exponential functions Lesson 4.5 – Exponential growth and decay
	8 2/21 – 2/24	Chapter 4 – Exponential and Logarithmic Functions <ul style="list-style-type: none"> Lesson 4.5 – Exponential Growth and Decay; Modeling Data Chapter 9 – Matrices and Determinants <ul style="list-style-type: none"> Lesson 9.3 – Matrix Operations and Their Applications 	Lesson 4.5 – Exponential growth and decay word problems Lesson 9.3 – Representing relationships with matrices
	9 2/27 – 3/3	Chapter 9 – Matrices and Determinants <ul style="list-style-type: none"> Lesson 9.5 – Determinants and Cramer’s Rule Lesson 9.4 – Multiplicative Inverses of Matrices and Matrix Equations 	Lesson 9.5 – Cramer’s Rule Lesson 9.4 – Zero and identity matrices; Multiplying a matrix by a vector
	10 3/6 – 3/10	<ul style="list-style-type: none"> Chapter 9 – Matrices and Determinants Lesson 9.4 – Multiplicative Inverses of Matrices and Matrix Equations 	

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Quarter 4 Mar 21 – May 24	1 3/12 – 3/24	Chapter 2 – Functions and Graphs <ul style="list-style-type: none"> Lesson 2.8 – Distance and Midpoint Formulas; Circles Chapter 10 – Conic Sections and Analytic Geometry <ul style="list-style-type: none"> Lesson 10.1 – The Ellipse 	Lesson 2.8 – Distance formula ; Midpoint formula Lesson 10.1 – Ellipses
	2 3/27 – 3/31	Chapter 10 – Conic Sections and Analytic Geometry <ul style="list-style-type: none"> Lesson 10.1 – The Ellipse Lesson 10.2 – The Hyperbola 	Lesson 10.2 – Hyperbolas
	3 4/3 – 4/7	Chapter 10 – Conic Sections and Analytic Geometry <ul style="list-style-type: none"> Lesson 10.3 – The Parabola Topic - Cavalieri’s Principle 	Lesson 10.3 – Parabolas Cavalieri’s Principle – Cavalieri’s Principle ; Cavalieri’s Principle YouTube
	4 4/10 – 4/13	Chapter 11 – Sequences, Induction, and Probability <ul style="list-style-type: none"> Lesson 11.1 – Sequences and Summation Notation 	Lesson 11.1 – Sequences and Series
	5 4/17 – 4/21	Chapter 11 – Sequences, Induction, and Probability <ul style="list-style-type: none"> Lesson 11.2 – Arithmetic Sequences Lesson 11.3 – Geometric Sequences and Series 	Lesson 11.2 – Arithmetic sequences Lesson 11.3 – Geometric series
	6 4/24 – 4/28	Chapter 11 – Sequences, Induction, and Probability <ul style="list-style-type: none"> Lesson 11.6 – Counting Principles, Permutations, and Combinations Lesson 11.7 – Probability 	Lesson 11.6 – Combinations and Permutations Lesson 11.7 – Probability - Dependent ; Categorical data ; Adding probabilities
	7 5/1 – 5/5	<ul style="list-style-type: none"> Topic - Random Variables 	
	8 5/8 – 5/12	<ul style="list-style-type: none"> Standards Based Performance Tasks 	
	9 5/15 – 5/19	<ul style="list-style-type: none"> Standards Based Performance Tasks 	
	10 5/22 – 5/24	<ul style="list-style-type: none"> Final Exams 	

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