

GBCS Curriculum Guide			GRADE: 11th AND 12th		SUBJECT: Algebra IIB			
Topic	Pacing	Unit	Standards	Enduring Understandings & Essential Questions	Learning Targets	Vocabulary/Concepts	Materials	Assessments
Graphing Quadratics, Polynomials, Square root and cube root functions	3 days	Graphing	A.CED.1 A.REI.10 F.IF.4 F.IF.7 A.SSE.3a F.BF.3 F.IF.7c F.IF.5 A.CED.2 A.APR.3	What are the advantages of a quadratic function in vertex form? In standard form? How is any quadratic function related to the parent quadratic function $y = x^2$ ? How are the real solutions of a quadratic equation related to the graph of the related quadratic function? What does the degree of a polynomial tell you about its related polynomial function?	I can graph a quadratic function from standard, vertex, intercept form. I can graph polynomial functions. I can graph square and cube root functions. I can compare translated graphs with their parent functions.	Standard form of a quadratic function parabola vertex form intercept form polynomial function local maximum local minimum like radicals radical function	None	
Factoring Quadratics, Polynomials	6 days	Factoring	A.SSE.3a A.CED.1 F.IF.8 A.SSE.1 A.SSE.2 A.SSE.3 A.APR.3 A.APR.4	For a polynomial equation, how are factors and roots related?	I can factor quadratics with a leading coefficient of 1 and without 1. I can factor polynomials using grouping, quadratic form.	polynomial factored completely factor by grouping quadratic form	None	
Polynomial Operations, Properties of Exponents, Rational Exponents, Radicals, Complex Numbers	12 days	Simplifying Expressions	A.SSE.2 A.APR.1 A.APR.4 F.BF.1 A.SSE.3 A.APR.2 A.APR.3 N.RN.1 N.CN.1 N.CN.2 N.CN.3	To simplify the nth root of an expression, what must be true about the expression?	I can add, subtract, multiply, and divide polynomials. I can simplify expressions with exponents. I can simplify radical expressions. I can add, subtract, multiply, and divide polynomials.	complex number imaginary number polynomial long division synthetic division nth root of a index of a radical simplest form of a radical like radicals	None	

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Exponential and Logarithmic Functions	20 days	Chapter 4	F.IF.7E* F.BF.5+ F.LE.4* F.LE.2*	How do you model a quantity that changes regularly over time by the same same percentage? How are exponents and logarithms related? How are exponential functions and logarithmic functions related?	I can determine the final value after exponential growth or decay is applied in different settings. I can determine logarithmic values. I can use log properties to expand and condense logarithms. I can solve logarithm and exponential equations.	exponential function exponential growth function growth factor asymptote exponential decay function decay factor natural base e logarithm of y with base b common logarithm natural logarithm exponential equation logarithmic equation	None	
Rational Functions	20 days	Chapter 5	A.CED.2* F.IF.7D+* A.APR.7+ A.REI.2 F.IF.9	Are two quantities inversely proportional if an increase in one corresponds to a decrease in the other? What kinds of asymptote are possible for a rational function? Are a rational expression and its simplified form equivalent?	I can graph a rational function. I can determine asymptotes of rational functions. I can add, subtract, multiply, and divide rational functions. I can solve rational equations.	constant of variation complex fraction cross multiplying decreasing even function inverse variation increasing joint variation odd function rational function simplified form of a rational exp	None	

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Data Analysis and Statistics	20 days	Chapter 6	<b>A.APR.5+</b> <b>S.MD.3+*</b> <b>S.ID.4*</b> <b>S.IC.1*</b> <b>S.IC.3*</b>	What is the difference between a permutation and a combination? What is the difference between experimental and theoretical probability? How are measures of central tendency different from standard deviation?	I can determine the number of possible outcomes for an event occurring. I can use the binomial theorem to expand binomials and determine leading coefficients. I can calculate the probability of a sample with a normal curve. I can create a case study with sample and surveys.	combination Pascal's triangle binomial theorem random variable probability distribution binomial distribution binomial experiment symmetric skewed normal distribution normal curve standard normal distribution z-score sample unbiased sample biased sample margin of error biased questions experiment observational study controlled experiment control group treatment group randomized comparative experiment	None	

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Sequences and Series	20 days	Chapter 7	F.IF.3 F.BF.2* A.SSE.4* A.SSE.3* F.BF.2*	How can you represent the terms of a sequence explicitly? How can you represent them recursively? What are equivalent explicit and recursive definitions for an arithmetic sequence? How can you model a geometric sequence? How can you model its sum?	I can write the explicit and recursive rule for an arithmetic and geometric sequence and series. I can determine the sum of a series.	sequence terms of a sequence series summation notation sigma notation arithmetic sequence common difference arithmetic series geometric sequence common ratio geometric series partial sum explicit rule recursive rule iteration	None	
Trigonometric Ratios and Functions	25 days	Chapter 9	G.SRT.6 F.TF.1 F.TF.2 F.TF.6+ G.SRT.11+	How do the trigonometric functions relate to the trigonometric ratios for a right triangle? What is a radian measure? How can you evaluate trigonometric functions of any angle? A trigonometric function corresponds one number to many, how can its inverse be a function? When can the law of sines be used to solve a triangle? In which cases can the law of cosines be used to solve a triangle?	I can calculate the six trig ratios of a right triangle and a point on a coordinate plane. I can use inverse trig functions to calculate angle measures. I can calculate reference angles. I can convert between degree and radians. I can use the unit circle to determine exact values at critical points. I can use law of sines and cosines to solve a triangle.	sine cosine tangent cosecant secant cotangent radian central angle unit circle reference angle inverse sine inverse cosine inverse tangent law of sines law of cosines	None	
Trigonometric Graphs, Identities, and Equations	15 days	Chapter 10	F.IF.7E* F.TF.5* F.TF.8 F.TF.7+* F.TF.9+	How can you model periodic behavior? What function has as its graph a sine curve with amplitude 4, period $\pi$ , and a minimum at the origin? If you know the value of $\sin \theta$ , how can you find $\cos \theta$ , $\tan \theta$ , $\csc \theta$ , $\sec \theta$ , and $\cot \theta$ ? How do you verify that an equation involving the variable $x$ is an identity?	I can graph and translate sine, cosine, tangent functions using radians. I can use trig identities to simplify expressions. I can solve trig equations.	amplitude periodic function cycle period frequency trigonometric identity sinusoid	None	