

Algebra IIB Scope and Sequence-Spring Lake High School

Suggested timeline	CCSS	Learning Target	Resources
Week 13-14	<p>A.APR.B.3 Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function.</p> <p>A.APR.D.6 Rewrite simple rational expressions in different forms . . . using inspection, long division.</p> <p>F.IF.B.4 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities.</p> <p>F.IF.C.7 Graph functions expressed symbolically and show key features of the graph, by hand in simple cases.</p> <p>A.REI.D.10 Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve.</p> <p>N.CN.C.7 Solve quadratic equations with real coefficients that have complex solutions.</p> <p>Mathematical Practice Standards: 1, 2, 4, 5, 6, 7</p>	<p>Students need to be able to do synthetic division.</p> <p>Students need to find the real zeros and graph polynomial functions.</p>	5.3-5.5
Week 14-15	<p>A.APR.C.5 Know and apply the Binomial theorem for the expansion of <math>(x + y)^n</math> . . . with coefficients determined . . . by Pascal's Triangle.</p> <p>S.ID.B.6 Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.</p> <p>S.ID.C.8 Compute and interpret the correlation coefficient of a linear fit.</p> <p>Mathematical Practice Standards: 1, 2, 4, 5, 6, 7, 8</p>	<p>Students need to know how to use the binomial theorem.</p> <p>Students need to transform a cubic function.</p>	5.6-5.7
Week 16	<p>N.RN.A.1 Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents.</p> <p>N.RN.A.2 Rewrite expressions involving radicals and rational exponents using the properties of exponents.</p> <p>A.SSE.A.2 Use the structure of an expression to</p>	<p>Students simplify expressions with fractional exponents.</p> <p>Students also simplify radical expressions and apply the properties for multiplying and dividing radicals.</p>	6.1-6.3

	<p>identify ways to rewrite it.</p> <p>Common Core Mathematical Practice Standards: 1, 2, 3, 7</p>		
Week 17	<p>A.REI.A.2 Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.</p> <p>F.BF.A.1.b Combine standard function types using arithmetic operations.</p> <p>F.BF.B.4.a Solve an equation of the form <math>f(x) = c</math> for a simple function <math>f</math> that has an inverse and write an expression for the inverse.</p> <p>Common Core Mathematical Practice Standards: 1, 2, 3, 4, 5, 6, 7</p>	Students perform operations on functions, including finding the inverse. Students also solve equations containing radicals.	6.4-6.6
Week 18	<p>F.IF.C.7.b Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.</p> <p>F.BF.B.3 Identify the effect on the graph of replacing <math>f(x)</math> by <math>f(x) + k</math>, <math>k f(x)</math>, <math>f(kx)</math>, and <math>f(x + k)</math> for specific values of <math>k</math> (both positive and negative); find the value of <math>k</math> given the graphs.</p> <p>Experiment with cases and illustrate an explanation of the effects on the graph using technology.</p> <p>Common Core Mathematical Practice Standards: 1, 4, 5, 6, 7</p>	Students graph a square root function and understand how changes to the function transform the graph.	6.7-6.8
Week 19-20	<p>F.IF.C.7.e Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.</p> <p>F.BF.A.1.a Determine an explicit expression, a recursive process, from a context.</p> <p>F.BF.B.3 Identify the effect on the graph of replacing <math>f(x)</math> by <math>f(x) + k</math>, <math>k f(x)</math>, <math>f(kx)</math>, and <math>f(x + k)</math> for specific values of <math>k</math> (both positive and negative); find the value of <math>k</math> given the graphs.</p> <p>Also F.IF.B.4, F.IF.C.9, F.BF.B.4.a, F.LE.A.1.c.</p> <p>Common Core Mathematical Practice Standards: 1, 2, 4, 5, 6, 7, 8</p>	Students graph exponential and logarithmic functions. Students also model exponential growth and decay.	7.1-7.3

<p>Week 21-22</p>	<p>F.IF.B.4 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship.</p> <p>F.LE.A.2 Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs.</p> <p>F.LE.A.4 For exponential models, express as a logarithm the solution to <math>ab^{ct} = d</math> where <math>a</math>, <math>c</math>, and <math>d</math> are numbers and the base <math>b</math> is 2, 10, or <math>e</math>; evaluate the logarithm using technology.</p> <p>Also A.REI.D.11, F.IF.C.7.e.</p> <p>Common Core Mathematical Practice Standards: 1, 2, 4, 5, 6, 7, 8</p>	<p>Students solve exponential and logarithmic equations and work with the natural logarithm and base <math>e</math>. Students also work with compounded interest.</p>	<p>7.4-7.6</p>
<p>Week 23</p>	<p>S.IC.B.6 Evaluate reports based on data.</p> <p>S.CP.A.2 Understand that two events <math>A</math> and <math>B</math> are independent if the probability of <math>A</math> and <math>B</math> occurring together is the product of their probabilities . . .</p> <p>S.CP.A.5 Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.</p> <p>S.CP.B.7 Apply the Addition Rule, <math>P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)</math>, and interpret the answer in terms of the model.</p> <p>Common Core Mathematical Practice Standards: 1, 2, 3</p>	<p>Students apply the rules for probability and conditional probability and distinguish between events being independent and dependent.</p>	<p>11.1-11.4</p>