ALGEBRA 2 HONORS SYLLABUS

2019- 2020 Academic School Year

Marking Period 1

Chapter 3 – Quadratic Equations and Complex Numbers (Test: Factoring Supplemental & 3.1)

Section	Title	NJSLS	Suggested Problems *Teachers must also assign mixed review problems as part of homework assignments.
Supplement	Factoring Quadratic Expressions	A-SSE.A.2, A-SSE.B.3a	Teacher created worksheet using Kuta software or other supplemental material.
3.1	Solving Quadratic Equations	A-SSE.A.2, A-REI.B.4b, F-IF.C.8a, N-RN.A.2	Big Ideas Text pp. 99-102; 14-32 even, 35-46, 48-54 even, 55, 60, 61, 66, 71, 76-83

Chapter 2 – Quadratic Functions (Test 2.1, 2.2 & 2.4)

Section	Title	NJSLS	Problems
2.1	Transformations and Quadratic Functions	F-IF.C.7c, F-BF.B.3	Big Ideas Text pp. 52 - 54, #1, 2, 4 –40 even, 43, 45, 46, 50–52
2.2	Characteristics of Quadratic Functions	F-IF.B.4, F-IF.C.7.c, F-IF.C.9, A-APR.B.3	Big Ideas Text pp. 61-64, # 1–2, 4–48 even, 49, 65, 74, 77, 81–88
2.4	Modeling with Quadratic Functions	A-CED.A.2	Big Ideas Text pp. 80, # 2 – 8, 18, 20

Chapter 3 – Quadratic Equations and Complex Numbers (Test: 3.2, Supplement, 3.3 & 3.4)

Section	Title	NJSLS	Problems
3.2	Complex Numbers *Include higher powers of *i*	N-CN.A.1, N-CN.A.2, N-CN.C.7, A-REI.B.4b	Big Ideas Text pp. 108-110; 1-4, 6-30 even, 38-44 even, 50-74 even, 77, 76-84
Supplement	Simplify Radicals	N-RN.A.1, N-RN.A.2	Use Kuta Software
3.3	Completing the Square	N-CN.C.7, A-REI.B.4b, F-IF.C.8a	Big Ideas Text pp. 116-118; 1, 2-20 even, 26-38 even, 42-62 even, 66, 68, 69, 71, 74-81
3.4	Using the Quadratic Formula	A-CED.A.3, A-REI.C.7, A-REI.D.11	Big Ideas Text pp. 127-130; 1-4, 6-18 even, 33, 34, 48-60 even, 66, 69, 72, 77-84

Marking Period 2

Chapter 1 – Linear Functions (Test: Supplemental 2x2, 1.4 & 3.5)

Section	Title	NJSLS	Problems
Supplement	Solving 2x2 linear systems algebraically	A-REI.C.6	For objectives relating to system of two, teachers should use Kuta or other supplementary materials. pp. 28, # 33-38
1.4	Solving Linear	A-CED.A.3, A-REI.C.6	pp. 34-36;, # 1, 2-28 even, 33, 38, 40, 41, 44-51
3.5	Solving Nonlinear Systems Graphically	A-CED.A.3, A-REI.C.7, A-REI.D.11	Big Ideas Text pp. 136-138, 1,2, 2-34 even, 35, 38-50 even, 58, 60, 61-66

Chapter 4 – Polynomial Functions (Test: 4.1 - 4.3)

Section	Title	NJSLS	Problems
4.1	Graphing Polynomial Functions	F-IF.B.4, F-IF.C.7c	Big Ideas Text pp. 162-164; 1, 2-22 even, 23, 26-32 even (include min/max, domain/range intervals of increase/decrease), 34-40 even, 43, 48, 51-56
4.2	Adding, Subtracting, and Multiplying Polynomials	A-APR.A.1, A-APR.C.4, A-APR.C.5	Big Ideas Text pp. 170-172; 1, 2-32 even, 33, 36-50 even, 51, 52, 55, 56, 63, 66-69
4.3	Dividing Polynomials	A-APR.B.2, A-APR.D.6	Big Ideas Text pp. 177-178; 1-4, 6-32 even, 33, 37, 38, 39, 41-44

Chapter 4 – Polynomial Functions (Test: 4.4 - 4.6 & 4.8)

Section	Title	NJSLS	Problems
4.4	Factoring Polynomials	A-SSE.A.2, A-APR.B.2, A-APR.B.3	Big Ideas Text pp. 184-186; 1-4, 6-54 even, 57-64, 69-75, 77-84
4.5	Solving Polynomial Equations	A-APR.B.3	Big Ideas Text pp. 194-196; 1, 2, 4-46 even, 48, 50, 56, 57, 59-62, 66-73
4.6	The Fundamental Theorem of Algebra	N-CN.C.8, N-CN.C.9, A-APR.B.3	Big Ideas Text pp.202-204; 1, 4-28 even, 54-60
4.8	Analyzing Graphs of Polynomial	A-APR.B.3, F-IF.B.4, F-IF.C.7c, F-BF.B.3	Big Ideas Text Big Ideas Text pg.216 #3-10, 17-22(*Use TI84 or Desmos)*, 23-30

Marking Period 3

Chapter 5 – Rational Exponents and Radical Functions (Test: 5.1, 5.2 & 5.4)

Section	Title	NJSLS	Problems
5.1	*n*th Roots and Rational Exponents	N-RN.A.1, N-RN.A.2	For objectives relating to simplifying expressions with rational exponents teacher should use Kuta or other supplementary materials. Big Ideas Text pp. 241 -242; 1-4, 6-46 even, 51-58
5.2	Properties of Rational Exponents and Radicals	N-RN.A.2	Big Ideas Text pp. 248-249; 1,2, 4-46 even, 47, 48-54 even, 55, 58-70 even, 71,7275,77,78, 82-88
5.4	Solving Radical Equations and Inequalities	A-REI.A.1, A-REI.A.2	Big Ideas Text pp. 266-268; 1,2, 4-50 even, 54a-58 even, 64-70

Chapter 5 – Rational Exponents and Radical Functions (Test: 5.3, 5.5 & 5.6)

Section	Title	NJSLS	Problems
5.3	Graphing Radical Functions	F-IF.C.7b, F-BF.B.3	Big Ideas Text pp. 256-258; 1,2, 4-34 even, 39, 50-62 even, 64, 69-76
5.5	Performing Function Operations	F-BF.A.1b	Big Ideas Text pp. 273-274; 1,2,4-20 even, 21-23, 28-35
Supplement	Composition of Functions	F-BF.A.1c	*Supplement Composition of functions using Kuta Software*
5.6	Inverse of a Function	A-CED.A.4, F-BF.B.4a	Big Ideas Text pp. 281-284; 1-4, 5-56 even, 60, 63, 70, 73-79

Chapter 6 – Exponential and Logarithmic Functions (Test: 6.2 – 6.4)

Section	Title	NJSLS	Problems
6.2	The Natural Base *e*	F-IF.C.7e, F-LE.B.5	Big Ideas Text pg. 307: #1 – 14, 35, 38, 41,42, 48 - 51
6.3	Logarithms and Logarithmic Functions	F-IF.C.7e, F-BF.B.4a, F-LE.A.4	Big Ideas Text pg. 314: #1 – 24. 27-32, 41, 42, 55-60
6.4	Transformations of Exponential and Logarithmic Functions	F-IF.C.7e, F-BF.B.3	Big Ideas Text pg. 322: #1-16, 19, 25, 26, 28-30, 35, 40, 41, 43, 45-48, 57-60 *Supplemental transformations and reflections of exponentials with Kuta software.*

Marking Period 4

Chapter 6 – Exponential and Logarithmic Functions (Test: 6.5 - 6.6)

Section	Title	NJSLS	Problems
6.5	Properties of Logarithms	A-SSE.A.2, F-LE.A.4	Big Ideas Text pg. 331: #1-40, 43
6.6	Solving Exponential and Logarithmic Equations	A-REI.A.1, F-LE.A.4	Big Ideas Text pg. 338 #1-40, 43, 75-78

Chapter 7 – Rational Functions (Test 7.3-7.5)

Section	Title	NJSLS	Problems
7.3	Multiplying and Dividing Rational Expressions	A-APR.D.6, A-APR.D.7	Big Ideas Text pg. 370: 1-18, 20-32, 43, 44, 59-66
7.4	Adding and Subtracting Rational Expressions	A-APR.D.6, A-APR.D.7	Big Ideas Text pg. 388; 1-26, 39-44, 51, 54, 58-61
7.5	Solving Rational Equations	A-CED.A.4, A-REI.A.1, A-REI.A.2	Big Ideas Text pg. 398: 1-12, 15-30, 37-44, 46, 61-64

Chapter 7 – Rational Functions (Test 7.2 & Graphing Rational Functions)

Section	Title	NJSLS	Problems
7.2	Graphing a Simple Rational Function	A-APR.D.6, F-BF.B.3	Big Ideas Text pg. 370: 1-18, 20-32, 43, 44, 59-66
Supplement	Graphing Rational Functions in the form $y = \frac{p(x)}{q(x)}$ Example: $y = \frac{x^2-25}{2x^3-7x^2-15}$	A-APR.D.6, A-APR.D.7	Use Kuta software to graph rational functions with holes, vertical asymptotes and horizontal asymptotes. Students should be able to graph a rational function without a calculator. Also have students algebraically find and discuss these characteristics along with domain and range.

Chapter 8 – Sequences and Series (Test: 8.1 – 8.5)

Section	Title	NJSLS	Problems
8.1	Defining and Using Sequences & Series	F-IF.A.3	Big Ideas Text pg. 414: #2-24 even, 27, 28, 32-50 even, 52
8.2	Analyzing Arithmetic Sequences & Series	F-IF.A.3, F-BF.A.2	Big Ideas Text pg. 422: #2-28 even with **no graphs 24-28,** 32-38 even, 48-52 even
8.3	Analyzing Geometric Sequences & Series	A-SSE.B.4, F-IF.A.3, F-BF.A.2	Big Ideas Text pg. 430: #6-12 even, 16- 30 even with **no graphs 24-30,** 32-40 even, 48-52 even
8.4	Finding Sums of Infinite Geometric Series	A-SSE.B.4	Big Ideas Text pg. 439: #4-16even
8.5	Using Recursive Rules with Sequences	-IF.A.3, F-BF.A.1a, F-BF.A.2	Big Ideas Text pg. 447: #4-22 even, 30-38 even, 42-48 even

Course Expectations and Skills

- Students are required to have proficiency in all prerequisite topics for Algebra 1 and Geometry. Those who do not demonstrate proficiency will be required to seek additional help after school to close their achievement gap in order to be successful in this course.
- Students are required to learn and utilize a graphing calculator (TI 84+) in this course. They are encouraged to purchase a graphing calculator, but not required. Classroom sets are available for teachers to use as needed. In addition, free on-line graphing apps and programs are promoted by teachers for students on homework.
- Students are required to participate in both small and large group discussions and activities, as directed.
- Students are required to complete a project each marking period, including those which require the use of technology.

Resources

Text Book: Big Ideas Algebra 2

Assessment Information

Department of Mathematics - Algebra 2 Honors

Grading Policy: Applicable for all 4 Marking Periods

Category Code	Description	Percentage
Major	Summative Assessments	50%
BMK	District Benchmarks	20%
Minor	Formative Assessments including 1 project a marking period(alternative form of assessment)	25%
HW	Homework assignments	5%