Algebra II/Geometry Course Outline

Texts: Prentice Hall Mathematics – Algebra 2
Prentice Hall Mathematics – Geometry

WEEK	TEXTBOOK	SUPPLEMENTS	SOL
1	1-1 Properties of Real Numbers 1-2 Algebraic Expressions 1-3 Solving Equations 1-4 Solving Inequalities	Venn Diagram of Real Number System **Technology:** use TI-83 to check solutions to equations **Technology:** Verify solutions by graphing solution set on calculator (TEST menu)	AII.1 AII.10 AII.4
2	1-5 Absolute Value Equations and Inequalities	Have students determine the difference between AND and OR in our everyday life *before* approaching compound inequalities.	AII.4
3	2-1 Relations and Functions 2-2 Linear Equations 2-2 Extension – Piecewise Functions 2-3 Direct Variation	**Technology:** Verify equations by comparing given points to points found in the table of TI-83 Have students find real-world examples of direct variation.	AII.8 AII.9 AII.10 AII.20
4	2-4 Using Linear Models 2-5 Absolute Value Functions and Graphs 2-6 Vertical and Horizontal Translations 2-7 Two-Variable Inequalities	**Technology:** Use TI-83 to find linear regression and use table to make predictions. **Technology:** Use TI-83 to explore families of absolute value functions. Have students explain how the equation of an absolute value function and its graph are related.	AII.4 AII.8 AII.9 AII.19 AII.15

5	3-1 Graphing Systems of Equations 3-2 Solving Systems Algebraically 3-3 Systems of Inequalities	**Technology:** Graph systems on calculator. Solve systems using CALC 5 keys Use real-world situations. **Technology:** Graph systems of inequalities on TI-83	AII.12
6	3-4 Linear Programming	**Technology:** Use CALC to solve linear programming applications.	AII.13
7	4-1 Organizing Data Into Matrices 4-2 Adding and Subtracting Matrices 4-3 Matrix Multiplication 4-4 Geometric Transformations With Matrices	**Technology:** Use TI-83 to add, subtract, and multiply matrices. Give students real-world examples. Discuss why the transformation matrices contain 1's and 0's and the significance of their positions in the transformation matrix.	AII.1 AII.11
8	4-5 2×2 Matrices, Determinants, and Inverses 4-6 3×3 Matrices, Determinants, and Inverses 4-7 Inverse Matrices and Systems (Use 3-6 for additional practice with matrix equations, if desired)	**Technology:** Use TI-83 to find inverses and determinants of matrices **Technology:** Use TI-83 to verify solutions to matrix equations. ($X = A^{-1} C$ where A is the coefficient matrix and C is the constant matrix.)	AII.11 AII.12
9	5-1 Modeling Data with Quadratic Functions 5-2 Properties of Parabolas 5-3 Translating Parabolas	Use real-world situations to model quadratic functions. **Technology:** Explore families of parabolas using calculator. Have students discover how the values of *a*, *h*, and *k* affect the graph.	AII.8 AII.9 AII.15 AII.19
10	5-4 Factoring Quadratic Expressions	**Technology:** Verify students' factoring on the TI-83 using the TEST menu.	AII.5

11	5-5 Quadratic Equations 5-5 Extension – Quadratic Inequalities	**Technology:** Use TI-83 to verify roots of quadratic equations.	AII.6 AII.9 AII.10 AII.14
12	5-6 Complex Numbers	**Technology:** Generate patterns of *i* on the TI-83. Verify operations on the complex number system using the TI-83.	AII.1 AII.6 AII.17
13	5-7 Completing the Square 5-8 The Quadratic Formula	Use manipulatives to demonstrate the meaning of completing the square. **Technology:** Use TI-83 to evaluate the quadratic formula and compare the roots to the graph of the corresponding quadratic.	AII.6 AII.17
14	6-1 Polynomial Functions 6-2 Polynomials and Linear Factors	**Technology:** Model real-world data using TI-83 and the appropriate regression. Verify roots of polynomial functions using the TABLE and graph on the TI-83.	AII.8 AII.9 AII.15 AII.19
15	6-2 Continue 6-3 Dividing Polynomials	**Technology:** Check division using the TEST menu on the TI-83 Use manipulatives to demonstrate division of polynomials.	AII.5 AII.9 AII.10 AII.15 AII.2
16	6-4 Solving Polynomial Equations 6-5 Theorems: Roots of Polynomial Equations 6-6 The Fundamental Theorem of Algebra	**Technology:** Use TABLE and/or GRAPH on TI-83 to verify roots of polynomial equations. Also the 2nd CALC root may be used.	AII.5 AII.6 AII.9 AII.10 AII.15
17	*Review*		
18	*EXAMS*		

19	7-1 Roots and Radical Expressions 7-2 Multiplying/Dividing Radical Expressions	**Technology:** Use calculator to verify equivalent statements using the TEST feature.	AII.3a
20	7-3 Binomial Radical Expressions 7-4 Rational Exponents 7-5 Solving Radical Equations 7-6 Function Operations		AII.3a AII.3b
21	9-1 Inverse Variation 9-2 Graphing Inverse Variation 9-3 Rational Functions and Their Graphs 9-4 Rational Expressions	**Technology:** Compare graph of inverse variation to direct variation. **Technology:** Use TABLE to determine the location of the asymptotes.	AII.8 AII.9 AII.20
22	9-5 Adding and Subtracting Rational Expr. 9-6 Solving Rational Equations	**Technology:** Verify answers using the TEST menu on the TI-83 **Technology:** Verify solutions on the TI-83.	AII.2 AII.7
23	10-1 Exploring Conic Sections 10-2 Parabolas 10-3 Circles 10-4 Ellipses	**Technology:** Use "gizmos" to demonstrate the graphs of the conic sections. www.explorelearning.com	AII.18
24	10-5 Hyperbolas 10-6 Translating Conic Sections (optional)	www.explorelearning.com	AII.18 AII.14
25	11-1 Mathematical Patterns 11-2 Arithmetic Sequences 11-4 Arithmetic Series 11-3 Geometric Sequences 11-5 Geometric Series	**Technology:** Verify that the graph of an arithmetic sequence is a line. **Technology:** Demonstrate how a geometric sequence relates to an exponential function.	AII.16

26	8-1 Exploring Exponential Models 8-2 Properties of Exponential Functions	**Technology:** Use graphing calculator to explore properties of exponential functions.	AII.9 AII.8 AII.15 AII.19
27	1-1 Patterns and Inductive Reasoning 1-2 Points, Lines, and Planes 1-3 Segments, Rays, Parallel Lines and Planes 1-4 Measuring Segments and Angles		G.1 G.3 G.4 G.11
28	1-6 The Coordinate Plane 1-7 Perimeter, Circumference, and Area		G.2a G.11
29	2-1 Conditional Statements 2-2 Biconditionals and Definitions 2-3 Deductive Reasoning		G.1
30	5-4 Inverses, Contrapositives, and Indirect Reasoning 2-4 Reasoning in Algebra 2-5 Proving Angles Congruent		G.1 G.3
31	3-1 Properties of Parallel Lines 3-2 Proving Lines Parallel 3-3 Parallel Lines and the Triangle Sum Thm. 3-4 The Polygon Angle-Sum Theorem		G.1 G.3 G.4 G.9
32	4-1 Congruent Figures 4-2 Triangle Congruence by SSS and SAS		G.1 G.5a,b
33	4-3 Triangle Congruence by ASA and AAS 4-4 Using Congruent Triangles: CPCTC		G.1 G.5a,b
APPROXIMATE WEEK OF ALGEBRA II SOL TEST			
34	4-5 Isosceles and Equilateral Triangles 4-6 Congruence of Right Triangles 4-7 Using Corresponding Parts of Congruent Triangles		G.1 G.5a,b G.7
35	*Review for Exams*		
36	*EXAMS*		

(The School Calendar contains 37 weeks.)