Algebra 2

2023 Pacing Guide

Unit	Topic	2023 SOL	Pacing
1ˢᵗ Nine Weeks			
Function Families and Transformations Chapter 1.1 Page 5 (Incorporate additional Resources)	• Introduce by Graphing "10 Best Friends" or Algebra 2's 10 Favorite Functions 1) Constant　　2) Linear 3) Absolute Value　4) Quadratic 5) Square Root　　6) Cubic 7) Cube Root　　8) Rational 9) Exponential　　10) Logarithmic • General Shape of Function Families / Parent Graphs • Transformations • Domain, Range, Increasing, Decreasing in both interval and set notation • End Behavior • Connections between 10 Best Friends Using Verbal Descriptions, Tables, Equations and Graphs • Intercepts • Values in Function for Elements in its Domain and Function Notation	A2.F.1 A2.F.2	2 weeks
Solving Absolute Value Equations and Inequalities and Graphing Absolute Value Functions Continue Chapter 1.1 & Chapter 1.2 Page 13 (Incorporate additional Resources)	• Solve Absolute Value Equations • Solve Absolute Value Inequalities • Graph Absolute Value Functions • Revisit Domain, Range, Increasing, Decreasing Relating to Absolute Value Equations and Inequalities and Transformations • Revisit multiple representations of absolute value functions-relationship between verbal descriptions, tables, equations and graphs • Examine relationship between zeros on the graph and solution of absolute value functions	A2.EI.1 A2.F.2	1.5 weeks
Radical Expressions, Rational Exponents & Complex Numbers Chapters: 5.1 Page 239 2.5 Page 95 (Incorporate additional Resources)	• Simplify Radical Expressions • Add & Subtract Radical Expressions • Multiply Radical Expressions • Divide Radical Expressions • Convert Between Radical and Rational Notation and Vice Versa • Simplify and Express Expressions Containing Negative Rational Numbers in a+bi Form • Add, Subtract, and Multiply Complex Numbers • Revisit multiple representations of radicals-relationship between verbal descriptions, tables, equations and graphs • Revisit Domain and Range	A2.EO.2 A2.EO.4 A2.F.2 A2.EI.5	1.5 weeks
Factoring Polynomials in 1- or 2-variables Chapter: 3.3 Page 143	• GCF/Difference of Squares • Sum and Difference of Cubes • Trinomials • Grouping	A2.EO.3	2 weeks

(Incorporate additional Resources)			
Solving/Graphing Quadratic Equations and Functions Chapters: 2.1 Page 73 2.6 Page 110 (Incorporate additional Resources)	• Solving Graphically • Solving Algebraically • Revisit Characteristics, Transformations, Increasing, Decreasing, Domain, Range	A2.EI.1 A2.EI.2 A2.F.1 A2.F.2 A2.EI.6	1 week
Systems of Non-Linear Equations	• Solve Graphically • Solve Algebraically	A2.EI.3	1 week
2nd Nine Weeks			
Higher Order Polynomial Functions Chapters: 3.1 Page 132 3.6 Page 171 (Incorporate additional Resources)	• Characteristics and Transformations of Linear, Quadratics, Cubic, 4th Degree, 5th Degree, 6th Degree, Etc. • Solving 3rd degree polynomial equations with a common factor of x • Continue to Investigate Relationship among solutions, zeros, x-intercepts, and factors of a polynomial • Revisit multiple representations of polynomials – relationship between verbal descriptions, tables, equations and graphs • Examine relationship between zeros on the graph and solution of polynomial • Extrema – Maxima and Minima of a Function	A2.F.1 A2.F.2 A2.EI.6	1.5 weeks
Radical Equations and Functions Chapter: 3.7 Page 179 (Incorporate additional Resources)	• Solve Radical Equations • Characteristics • Transformations • Continue to Investigate Relationship among solutions, zeros, x-intercepts or radicals • Revisit multiple representations of radicals-relationship between verbal descriptions, tables, equations and graphs • Examine relationship between zeros on the graph and solution of the radical equation	A2.EI.2 A2.EI.1 A2.F.1	1.5 weeks
Rational Expressions and Equations Chapters: 4.4 Page 217 4.3 Page 210 4.5 Page 224 4.2 Page 201 (Incorporate additional Resources)	• Simplify Rational Expressions • Add & Subtract Rational Expressions • Multiply & Divide Rational Expressions • Solve Rational Equations • Domain, Range and Continuity • Holes and vertical and horizontal asymptotes and their relationship to continuity, asymptotes, domain and range • Revisit multiple representations of Rationals - relationship between verbal descriptions, tables, equations and graphs • Examine relationship between zeros and x-intercepts on the graph and solution of Rationals	A2.EO.1 A2.EI.4 A2.F.2	1.5 weeks
More with Functions	• Inverse Functions	A2.F.2	1.5 weeks

Chapters: 3.1 Page 131 3.7 Page 179 5.5 Page 273 (Incorporate additional Resources)	o Algebraically and/or Graphically o Domain and Range • Composition of Functions o Algebraically and/or Graphically o Values of Function for Elements in its Domain		
Exponential and Logarithmic Functions Chapters: 6.1 Page 297 3.1 Page 131 4.2 Page 201 3.7 Page 179 6.6 Page 333 (Incorporate additional Resources)	• Revisit Characteristics and Transformations • Revisit Domain, Range, Continuity, Increasing, Decreasing, Intercepts • Vertical and/or Horizontal Asymptotes and End Behavior • Inverse Relationship as it applies to Exponential and Logarithmic Functions • Revisit multiple representations of exponentials and logs - relationship between verbal descriptions, tables, equations and graphs	A2.F.1 A2.F.2	1 weeks
Statistics Chapters: 11.4 Page 573 12.3 Page 621 (Incorporate additional Resources)	• Curve of Best Fit • Normal Distribution & Standard Deviation • Z-Scores • Permutations and Combinations	A2.ST.2 A2.ST.1 A2.ST.3	0.5 weeks
SOL Review			1.5 weeks

Deletions from Algebra II (2016 SOL)	Additions to Algebra 2 (2023 SOL)
• AII.2 [EKS] – Simplify powers of i [Deleted] • AII.3a - Absolute value linear equations and inequalities [Moved to A.EI.3] • AII.5 – Investigate and apply properties of arithmetic and geometric series; evaluate formulas in summation notation [Included in MA.FR.3] • AII.6 – Recognize the general shape of the absolute value function families and use transformations to convert between equations and graphs [Moved to A.F.2] • AII.6 – Recognize the general shape of the cube root function family and use transformations to convert between equations and graphs [Deleted] • AII.7 – Investigate and analyze cube root functions [Deleted] • AII.10 [EKS] – Solve problems involving joint variation and a combination of direct and inverse variation [Deleted] • AII.11 – [EKS] Determine probabilities associated with areas under the standard normal curve [Included in AFDA.DA.4 and PS.P.3]	• A2.EO.3 – Determine sums, differences, and products of polynomials in one and two variables; determine the quotient of polynomials in one and two variables, using monomial, binomial, and factorable trinomial divisors • A2.EI.1 – Create an absolute value equation and inequality in one variable to model a contextual situation • A2.EI.2 – Create a quadratic equation or inequality in one variable to model a contextual situation; determine the solution to a quadratic inequality in one variable over the set of real numbers algebraically • A2.EI.6 – Solve a polynomial equation over the set of complex numbers; verify solutions to polynomial equations of degree three or higher, algebraically, graphically, and with technology to justify answers; explain the solution method and interpret solutions in context • A2.F.2 - Investigate and analyze piecewise-defined functions • A2.ST.1 and A2.ST.2 – Includes data cycle process of collecting and acquiring data and formulating investigative questions that require the collection of the data • A2.ST.1 - Examine the shape of a data set that can be represented by a histogram and sketch a smooth curve to model the distribution; analyze measures of center and spread of a univariate data set represented by a smooth curve • A2.ST.2 - Use the correlation coefficient to designate goodness of fit of a linear function using technology

KEY: EO = Expressions and Operations; EI = Equations and Inequalities; F = Functions; ST = Statistics; EKS = Essential Knowledge and Skills (2016); KS = Knowledge and Skills (2023); US = Understanding the Standard