Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
SAT Preview Days 1 – 2	❖ Introduction to course ❖ Test break down	➢ What exactly is the SAT? ➢ How and when can I sign up for the test? ➢ How many times can I take the test? ➢ Can I use a calculator? If so, how can I use it effectively? ➢ What subjects are covered in the Math portion of the test? ➢ How many and what types of questions are on the SAT? ➢ How long do I have to take the test?	**Test taking skills:** • **Making sure to answer the question asked.** • **Eliminating multiple choice answers that are not (cannot) be correct.** • **Time management in a time sensitive exam.** **Question types:** • **Multiple choice questions** • **Grid in questions** **Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 1 – 42)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessment:** **Diagnostic Test**	**CC.2.1.HS.F.2** **CC.2.1.HS.F.3** **CC.2.1.HS.F.4**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Category 1: Heart of Algebra Lesson 1: Representing Relationships Between Quantities and Creating Algebraic Expressions Days 3 – 4	❖ Algebraic Expressions ❖ Absolute Value ❖ Algebraic Language ❖ Equivalent Expressions	➢ Does math have a language? If so how do we use it? ➢ What is an expression? ➢ How do you simplify an expression? ➢ What are equivalent expressions? How do we use them?	• **Simplifying and Evaluating Algebraic Expressions** • **Formulas and Absolute Value** • **Representing Relationships Using Algebraic Language** • **Finding Equivalent Expressions** **Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 43 – 56)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Mid-unit quiz and Unit Test**	**CC.2.1.HS.F.2** **CC.2.1.HS.F.3** **CC.2.1.HS.F.4** **CC.2.2.HS.D.1** **CC.2.2.HS.D.2** **CC.2.2.HS.D.3** **CC.2.2.HS.D.6** **CC.2.2.HS.D.9**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Category 1: Heart of Algebra Lesson 2: Creating and Solving Linear Equations and Inequalities; Literal Equations and More on Absolute Value Days 5 - 6	❖ Creating and solving equations ❖ Creating and solving inequities	➢ What is the difference between expressions and equations? ➢ How can you solve different equations for a given variable? ➢ Are the steps in solving different between basic equations, literal equations and absolute value equations? ➢ When solving inequalities versus equations, how are the steps different? How are the steps the same?	• **Creating and Solving Equations** • **Literal Equations** • **Absolute Value Equations** • **Creating and Solving Linear Inequalities** • **Solving Absolute Value Inequalities** **Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 57 - 80)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Mid-unit quiz and Unit Test**	**CC.2.1.HS.F.2** **CC.2.2.HS.F.4** **CC.2.1.HS.F.5** **CC.2.2.HS.D.1** **CC.2.2.HS.D.2** **CC.2.2.HS.D.3** **CC.2.2.HS.D.8** **CC.2.2.HS.D.9**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Category 1: Heart of Algebra Lesson 3: Linear Functions Days 7 - 8	❖ Working with Linear functions ❖ Slope, parallel lines, and perpendicular lines	➢ What is a linear function? What is the difference between an equation and a function? ➢ What are and how do we use domain and range? ➢ What is the slope of a linear function and how do we use it? ➢ What is the difference between perpendicular and parallel lines? How do we use this information?	• **Creating, Evaluating, and Interpreting Linear Functions** • **Slope, Parallel Lines, and Perpendicular Lines** **Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 81 - 97)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Mid-unit quiz and Unit Test**	**CC.2.1.HS.F.2** **CC.2.1.HS.F.3** **CC.2.2.HS.F.4** **CC.2.1.HS.F.5** **CC.2.2.HS.C.2** **CC.2.2.HS.D.1** **CC.2.2.HS.D.2** **CC.2.2.HS.D.3** **CC.2.2.HS.D.4** **CC.2.2.HS.D.7** **CC.2.2.HS.D.8** **CC.2.2.HS.D.9** **CC.2.2.HS.D.10**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Category 1: Heart of Algebra Lesson 4: Systems of Equations and Systems of Inequalities Days 9 – 10	❖ Solving systems of equations ❖ Solving systems of inequalities	➢ What is a system of equations? ➢ What is a system of inequalities? ➢ Is there always a solution? If not, what does it mean when there is no solution?	• **Solving Systems of Linear Equations in Two Variables** • **Solving Systems of Linear Inequalities in Two Variables** **Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 98 - 111)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Mid-unit quiz and Unit Test**	**CC.2.1.HS.F.2** **CC.2.1.HS.F.3** **CC.2.2.HS.F.4** **CC.2.1.HS.F.5** **CC.2.2.HS.C.2** **CC.2.2.HS.D.1** **CC.2.2.HS.D.2** **CC.2.2.HS.D.3** **CC.2.2.HS.D.4** **CC.2.2.HS.D.7** **CC.2.2.HS.D.8** **CC.2.2.HS.D.9** **CC.2.2.HS.D.10**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Category 1: Heart of Algebra Lesson 5: Direct and Inverse Variation Day 11	➢ Constant of proportionality ➢ Constant of variation	➢ How do we work with proportions when they relate to variables? ➢ When dealing with 2 or more variables is there a pattern to the solutions based upon the initial change?	• **Direct and Inverse Variation Equations and Computation** **Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 112 - 119)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Mid-unit quiz and Unit Test**	**CC.2.1.HS.F.2** **CC.2.1.HS.F.3** **CC.2.2.HS.F.4** **CC.2.1.HS.F.5** **CC.2.2.HS.C.2** **CC.2.2.HS.D.1** **CC.2.2.HS.D.2** **CC.2.2.HS.D.3** **CC.2.2.HS.D.4** **CC.2.2.HS.D.7** **CC.2.2.HS.D.8** **CC.2.2.HS.D.9** **CC.2.2.HS.D.10** **CC.2.4.HS.B.1** **CC.2.4.HS.B.2**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Category 1: Heart of Algebra Lesson 6: Understanding and Interpreting the Algebraic Connections Between Linear Equations and Their Graphical Representations Day 12	❖ Distance and Midpoint formulas on the xy-plane ❖ Various non-linear graphical representations	➢ What is the distance formula? How do you use it? ➢ What is the mid-point formula? How do you use it? ➢ What do non-linear functions and non-functions look like graphically?	• **The xy-plane; Distance and Midpoint Formulas** • **More on Functions; Other Graphical Representations** **Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 120 - 138)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Mid-unit quiz and Unit Test**	**CC.2.1.HS.F.2** **CC.2.1.HS.F.3** **CC.2.2.HS.F.4** **CC.2.1.HS.F.5** **CC.2.2.HS.C.2** **CC.2.2.HS.C.5** **CC.2.2.HS.C.6** **CC.2.2.HS.D.1** **CC.2.2.HS.D.2** **CC.2.2.HS.D.3** **CC.2.2.HS.D.4** **CC.2.2.HS.D.7** **CC.2.2.HS.D.8** **CC.2.2.HS.D.9** **CC.2.2.HS.D.10**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Category 1: Heart of Algebra Review and Test Days 13 – 14	❖ Review and test on items in category 1 in the SAT	➢ Can you show understanding in the items in category 1 and do it under SAT test conditions (timed test)?	**Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 139 - 156)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Mid-unit quiz and Unit Test**	**CC.2.1.HS.F.2** **CC.2.1.HS.F.3** **CC.2.2.HS.F.4** **CC.2.1.HS.F.5** **CC.2.2.HS.C.2** **CC.2.2.HS.D.1** **CC.2.2.HS.D.2** **CC.2.2.HS.D.3** **CC.2.2.HS.D.4** **CC.2.2.HS.D.7** **CC.2.2.HS.D.8** **CC.2.2.HS.D.9** **CC.2.2.HS.D.10** **CC.2.4.HS.B.1** **CC.2.4.HS.B.2**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Category 2: Problem Solving and Data Analysis Lesson 1: Solving Problems Using Ratios, Proportions, and Percent Days 15 - 16	❖ Ratios ❖ Proportions ❖ Percent	➢ How do you solve problems using ratios, proportions and/or percentages?	• **Ratios** • **Proportions** • **Percent** **Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 157 - 176)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Mid-unit quiz and Unit Test**	**CC.2.1.HS.F.2** **CC.2.1.HS.F.4** **CC.2.4.HS.B.1** **CC.2.4.HS.B.2** **CC.2.4.HS.B.3** **CC.2.4.HS.B.4** **CC.2.4.HS.B.5** **CC.2.4.HS.B.6** **CC.2.4.HS.B.7**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Category 2: Problem Solving and Data Analysis Lesson 2: Solving Measurement, Unit Rate, and Density Problems Day 17	❖ Measurements ❖ Unit Rates ❖ Density	➢ How do we use measurements in problems? ➢ How do we convert measurements? To the greater? To the lesser?	• **Measurement** • **Unit Rates** • **Density** **Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 177 - 187)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Mid-unit quiz and Unit Test**	**CC.2.1.HS.F.2** **CC.2.1.HS.F.4** **CC.2.4.HS.B.1** **CC.2.4.HS.B.2** **CC.2.4.HS.B.3** **CC.2.4.HS.B.4** **CC.2.4.HS.B.5** **CC.2.4.HS.B.6** **CC.2.4.HS.B.7**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Category 2: Problem Solving and Data Analysis Lesson 3: Describing and Interpreting Scatterplots Days 18	❖ Scatterplots (Linear and non-linear behaviors) ❖ Line of best fit	➢ What is a scatterplot? How do we use it? ➢ What is the line of best fit? How do we interpret it linearly? ➢ Can we interpret a scatterplot if there is a non-linear behavior?	• **Scatterplots** • **Linear Patterns in Scatterplots, Lines of Best Fit, and Correlation** • **Non-linear Behavior in Scatterplots** **Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 188 - 200)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Mid-unit quiz and Unit Test**	**CC.2.1.HS.F.2** **CC.2.1.HS.F.4** **CC.2.2.HS.C.2** **CC.2.2.HS.C.6** **CC.2.2.HS.D.10** **CC.2.4.HS.B.1** **CC.2.4.HS.B.2** **CC.2.4.HS.B.3** **CC.2.4.HS.B.4** **CC.2.4.HS.B.5** **CC.2.4.HS.B.6** **CC.2.4.HS.B.7**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Category 2: Problem Solving and Data Analysis Lesson 4: Comparing Linear Growth and Exponential Growth Day 19	❖ Linear behavior of growth in data analysis ❖ Exponential behavior of growth in data analysis	➢ How do we interpret linear graphs? ➢ How do we interpret exponential growth? How do they differ from linear graphs?	• **Linear Behavior** • **Exponential Behavior** **Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 201 - 214)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Mid-unit quiz and Unit Test**	**CC.2.1.HS.F.2** **CC.2.1.HS.F.4** **CC.2.2.HS.C.2** **CC.2.2.HS.C.6** **CC.2.4.HS.B.1** **CC.2.4.HS.B.2** **CC.2.4.HS.B.3** **CC.2.4.HS.B.4** **CC.2.4.HS.B.5** **CC.2.4.HS.B.6** **CC.2.4.HS.B.7**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Category 2: Problem Solving and Data Analysis Lesson 5: Summarizing Categorical Data and Relative Frequencies; Calculating Conditional Probability Day 20	❖ Frequency Tables ❖ Association and Independence	➢ What is a frequency table? How do we apply it to different types of data? ➢ How do we use association and independence in conjunction to conditional relative frequencies?	• **Two-Way Frequency Tables** • **Two-Way Relative Frequency Tables** • **Completing a Two-Way Frequency Table** • **Association and Independence** **Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 215 - 230)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Mid-unit quiz and Unit Test**	**CC.2.1.HS.F.2** **CC.2.1.HS.F.4** **CC.2.4.HS.B.1** **CC.2.4.HS.B.2** **CC.2.4.HS.B.3** **CC.2.4.HS.B.4** **CC.2.4.HS.B.5** **CC.2.4.HS.B.6** **CC.2.4.HS.B.7**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Category 2: Problem Solving and Data Analysis Lesson 6: Working with Measures of Center and Spread Day 21	❖ Charts and graphs to represent data ❖ Measures of Center ❖ Measures of Spread	➢ What is the best way to represent various types of data? Why? ➢ How do we represent various types of data? Frequency table? Histogram? Dot plot? Pie graph (circle graph)? ➢ What the difference between the different measures of center? Mean? Median? Mode? ➢ What is the difference between the different measures of spread? Range? Standard Deviation?	• **Charts and Graphs to Represent Data** • **Measures of Center** • **Measures of Spread** **Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 231 - 245)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Mid-unit quiz and Unit Test**	**CC.2.1.HS.F.2** **CC.2.1.HS.F.4** **CC.2.4.HS.B.1** **CC.2.4.HS.B.2** **CC.2.4.HS.B.3** **CC.2.4.HS.B.4** **CC.2.4.HS.B.5** **CC.2.4.HS.B.6** **CC.2.4.HS.B.7**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Category 2: Problem Solving and Data Analysis Lesson 7: Making Inferences About Population Parameters Based on Sample Data Day 22	❖ Confidence Level and interval ❖ Margin of Error	➢ What is an inference in data? ➢ How do we use inferences to predict population?	• **Population Parameters and Sample Statistics** • **Confidence Level** • **Confidence Interval** • **Margin of Error** **Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 246 - 251)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Mid-unit quiz and Unit Test**	**CC.2.1.HS.F.2** **CC.2.1.HS.F.4** **CC.2.4.HS.B.1** **CC.2.4.HS.B.2** **CC.2.4.HS.B.3** **CC.2.4.HS.B.4** **CC.2.4.HS.B.5** **CC.2.4.HS.B.6** **CC.2.4.HS.B.7**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Category 2: Problem Solving and Data Analysis Lesson 8: Data Collection, Justifying Conclusions, and Making Inferences Day 23	❖ Data collection methods ❖ Justifying conclusions ❖ Evaluating reports to make inferences	➢ How do we analyze our data collection methods? ➢ How do we justify the conclusions that we make? ➢ What inferences can be made from the data we collect?	• **Analyzing Data Collection Methods** • **Justifying Conclusions** • **Evaluating Reports to Make Inferences** **Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 252 - 264)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Mid-unit quiz and Unit Test**	**CC.2.1.HS.F.2** **CC.2.1.HS.F.4** **CC.2.4.HS.B.1** **CC.2.4.HS.B.2** **CC.2.4.HS.B.3** **CC.2.4.HS.B.4** **CC.2.4.HS.B.5** **CC.2.4.HS.B.6** **CC.2.4.HS.B.7**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Category 2: Problem Solving and Data Analysis Review and Test Day 24 – 25	❖ Review and test on items in category 2 in the SAT	➢ Can you show understanding in the items in category 2 and do it under SAT test conditions (timed test)?	**Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 265 - 279)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Mid-unit quiz and Unit Test**	**CC.2.1.HS.F.2** **CC.2.1.HS.F.4** **CC.2.2.HS.C.2** **CC.2.2.HS.C.6** **CC.2.2.HS.D.10** **CC.2.4.HS.B.1** **CC.2.4.HS.B.2** **CC.2.4.HS.B.3** **CC.2.4.HS.B.4** **CC.2.4.HS.B.5** **CC.2.4.HS.B.6** **CC.2.4.HS.B.7**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Category 3: Passport to Advanced Math Lesson 1: Creating Equivalent Expressions Involving Rational Exponents and Radicals Day 26 - 27	❖ Exponential and radical rules ❖ Equivalent expressions with exponents. ❖ Equivalent expressions and operations with radicals	➢ What are the rules for working with exponents and radicals? Are there similarities and differences? ➢ Are the operations with radicals the same as operations with variables? Where do they differ?	• **Integer Exponents and Rules for Operations** • **Radicals and Fractional Exponents** • **Operations on Terms with Radicals** **Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 280- 297)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Mid-unit quiz and Unit Test**	**CC.2.1.HS.F.1** **CC.2.1.HS.F.2** **CC.2.1.HS.F.4** **CC.2.2.HS.C.6** **CC.2.2.HS.D.1** **CC.2.2.HS.D.2** **CC.2.2.HS.D.3** **CC.2.2.HS.D.6** **CC.2.2.HS.D.8** **CC.2.2.HS.D.9**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Category 3: Passport to Advanced Math Lesson 2: Operating on Polynomial and Rational Expressions Day 28	❖ Working with rational expressions.	➢ What are the steps involved in simplifying a rational expression? ➢ How do I find where a rational expression does not exist, in a graph? ➢ What are the rules for adding and subtracting rational expressions? Are they similar to the traditional arithmetic rules? ➢ What are the rules for multiplying and dividing rational expressions? Are they similar to the traditional arithmetic rules?	• **Simplifying Rational Expressions** • **Adding and Subtracting Polynomial Expressions with Rational Coefficients** • **Multiplying Polynomial Expressions with Rational Coefficients** • **Dividing Polynomial Expressions with Rational Coefficients** • **Adding and Subtracting Rational Expressions** • **Multiplying and Dividing Rational Expressions** **Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 298 - 315)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Mid-unit quiz and Unit Test**	**CC.2.1.HS.F.1** **CC.2.1.HS.F.2** **CC.2.1.HS.F.4** **CC.2.2.HS.C.6** **CC.2.2.HS.D.1** **CC.2.2.HS.D.2** **CC.2.2.HS.D.3** **CC.2.2.HS.D.4** **CC.2.2.HS.D.6** **CC.2.2.HS.D.8** **CC.2.2.HS.D.9**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Category 3: Passport to Advanced Math Lesson 3: Solving Radical and Rational Equations Day 29	❖ Solve radical and rational equations using the rules learned about radical and rational expressions	➢ How can I apply the rules learned about radical expressions to solve radical equations? ➢ How can I apply the rules learned about rational expressions to solve rational equations?	• **Solving Radical Equations** • **Solving Radical Equations with Extraneous Roots** • **Solving Rational Equations** **Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 316 - 326)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Mid-unit quiz and Unit Test**	**CC.2.1.HS.F.1** **CC.2.1.HS.F.2** **CC.2.1.HS.F.4** **CC.2.2.HS.C.6** **CC.2.2.HS.D.1** **CC.2.2.HS.D.2** **CC.2.2.HS.D.3** **CC.2.2.HS.D.4** **CC.2.2.HS.D.6** **CC.2.2.HS.D.8** **CC.2.2.HS.D.9**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Category 3: Passport to Advanced Math Lesson 4: Creating, Analyzing, Interpreting, and Solving Nonlinear Equations Day 30	❖ Solving quadratic equations ❖ Solving exponential equations	➢ What are the steps involved in factoring? ➢ Can I solve a quadratic equation without factoring? ➢ What is meant by "solving" a quadratic equation? ➢ What is meant by an exponential equation? ➢ What steps are involved in solving an exponential equation?	• **Solving Quadratic Equations** • **Creating, Analyzing, and Interpreting Quadratic Equations** • **Creating, Analyzing, and Interpreting Exponential Equations** **Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 327 - 342)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Mid-unit quiz and Unit Test**	**CC.2.1.HS.F.1** **CC.2.1.HS.F.2** **CC.2.1.HS.F.4** **CC.2.2.HS.C.6** **CC.2.2.HS.D.1** **CC.2.2.HS.D.2** **CC.2.2.HS.D.3** **CC.2.2.HS.D.4** **CC.2.2.HS.D.6** **CC.2.2.HS.D.8** **CC.2.2.HS.D.9**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Category 3: Passport to Advanced Math Lesson 5: The Meaning of the Terms in Nonlinear Expressions; Relationships Between the Polynomial Zeros and Factors Day 31	❖ Quadratic Functions and their behaviors ❖ Exponential functions and their behaviors	➢ **What is the vertex and what is meant by the vertex form?** ➢ **What does the formula of the function tell me about its graph?** ➢ **What is the relationship between the zeroes of the graph and their factors?**	• **Quadratic Definitions and End Behavior** • **End Behavior for Exponential Functions** • **Relationship Between Zeros and Factors of a Polynomial Function** **Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 343 - 358)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Mid-unit quiz and Unit Test**	**CC.2.1.HS.F.1** **CC.2.1.HS.F.2** **CC.2.1.HS.F.4** **CC.2.2.HS.C.2** **CC.2.2.HS.C.3** **CC.2.2.HS.C.6** **CC.2.2.HS.D.1** **CC.2.2.HS.D.2** **CC.2.2.HS.D.3** **CC.2.2.HS.D.4** **CC.2.2.HS.D.6** **CC.2.2.HS.D.8** **CC.2.2.HS.D.9**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Category 3: Passport to Advanced Math Lesson 6: Solving Systems of Equations Involving One linear and at Least One Higher-Order equation Day 32	❖ Quadratic-Linear systems of equations ❖ Higher order systems of equations	➢ **How do I solve systems of equations that are not solely linear? Can they be solved algebraically? Can they be solved graphically? Is there always a solution?** ➢ **How do I solve systems of equations that are higher order (neither equation is linear)?** ➢ **Can a system be solved that has more than two equations? How?**	• **Graphic Solutions to Quadratic-Linear Systems** • **Algebraic Solutions to Quadratic-Linear Systems** • **Solutions for Higher Order Systems** **Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 359 - 373)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Mid-unit quiz and Unit Test**	**CC.2.1.HS.F.1** **CC.2.1.HS.F.2** **CC.2.1.HS.F.4** **CC.2.2.HS.C.2** **CC.2.2.HS.C.3** **CC.2.2.HS.C.5** **CC.2.2.HS.C.6** **CC.2.2.HS.D.1** **CC.2.2.HS.D.2** **CC.2.2.HS.D.3** **CC.2.2.HS.D.4** **CC.2.2.HS.D.6** **CC.2.2.HS.D.8** **CC.2.2.HS.D.9**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Category 3: Passport to Advanced Math Lesson 7: Transformation and Composition of Functions Day 33	❖ Transformation of functions ❖ Composition of functions	➢ What is the difference between the graphs of functions when the constants and/or coefficients change? ➢ What is meant by the composition of functions? How do we use them?	• **Transformations** • **Composition of Functions** • **Transformations and Composition of Functions** **Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 374 - 388)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Mid-unit quiz and Unit Test**	**CC.2.1.HS.F.1** **CC.2.1.HS.F.2** **CC.2.1.HS.F.4** **CC.2.2.HS.C.2** **CC.2.2.HS.C.3** **CC.2.2.HS.C.5** **CC.2.2.HS.C.6** **CC.2.2.HS.D.1** **CC.2.2.HS.D.2** **CC.2.2.HS.D.3** **CC.2.2.HS.D.4** **CC.2.2.HS.D.6** **CC.2.2.HS.D.8** **CC.2.2.HS.D.9**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Category 3: Passport to Advanced Math Review and Test Day 34 - 35	❖ Review and test on items in category 3 in the SAT	➢ Can you show understanding in the items in category 3 and do it under SAT test conditions (timed test)?	**Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 389 - 405)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Mid-unit quiz and Unit Test**	**CC.2.1.HS.F.1** **CC.2.1.HS.F.2** **CC.2.1.HS.F.4** **CC.2.2.HS.C.2** **CC.2.2.HS.C.3** **CC.2.2.HS.C.5** **CC.2.2.HS.C.6** **CC.2.2.HS.D.1** **CC.2.2.HS.D.2** **CC.2.2.HS.D.3** **CC.2.2.HS.D.4** **CC.2.2.HS.D.6** **CC.2.2.HS.D.8** **CC.2.2.HS.D.9**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Category 4: Additional Topics in Math Lesson 1: Using Formulas to Calculate Side Length, Area, and Volume Day 36	❖ **SAT Formula sheet** ❖ **Surface Area and Volume**	➢ What is the best use for the formula sheet on the SAT? What other formulas do I need to help me be most successful on the SAT? ➢ What is surface area? How do I find it in a Prism or in other three dimensional figures? ➢ What is volume? How do I find it in prisms and other three dimensional figures?CC.2.1.HS.F.2CC.2.3.HS.A.3	• **The SAT Formula Sheet and Additional Formulas and Relationships to Know** • **Prism Surface Area and Volume** • **Surface Area and Volume of Other Shapes** **Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 12 – 42, 407 - 425)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Mid-unit quiz, Diagnostic Test, and Unit Test**	**CC.2.1.HS.F.2** **CC.2.3.HS.A.3** **CC.2.3.HS.A.13** **CC.2.3.HS.A.14**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Category 4: Additional Topics in Math Lesson 2: Using Formulas to Calculate Side Length, Area, and Volume Lesson 3: Using Circle Theorems to Find Arc Lengths, Angle Measures, Chord Lengths, and Sector Areas Day 37 - 38	❖ Angles ❖ Lines ❖ Triangles ❖ Pythagorean Theorem ❖ Quadrilaterals ❖ Circles ❖ Sectors ❖ Chords	➢ What are the different names of angles? What determines their names? What are the relationships between angles? ➢ What are the different types of triangles? How do we determine their names/differences? ➢ What is the Pythagorean Theorem? How do we use it? ➢ How do we apply the rules of special right triangles (found on the formula sheet)? ➢ What are the properties of quadrilaterals? ➢ What are the terms of circles? How do they interact? ➢ How do we use the area of a circle and the sector?	• **Computations Involving Angles and Lines** • **Computations Involving Triangles** • **Determining Lengths and Angles for Special Right Triangles** • **Computing Polygon Line Lengths and Angle Measures** • **Basic Circle Terms** • **Angles in a Circle** • **Area Sectors** • **Angles Formed by Chords, Tangents, and Secants** • **Lengths of Chords, Tangents, and Secants** • **Intersection of Circles** **Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 426 - 473)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Mid-unit quiz and Unit Test**	**CC.2.1.HS.F.2** **CC.2.3.HS.A.3** **CC.2.3.HS.A.7** **CC.2.3.HS.A.8** **CC.2.3.HS.A.9** **CC.2.3.HS.A.14**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Category 4: Additional Topics in Math Lesson 4: Derivation and Application of Trigonometric Ratios and the Pythagorean Theorem; Solving Right Triangles Lesson 5: Degree and Radian Measure, Trigonometric Functions, and the Unit Circle Day 39	❖ Trigonometric ratios ❖ Pythagorean Theorem ❖ Radian measures ❖ Unit circle	➢ What are the formulas and the applications of trigonometric ratios (sine, cosine, and tangent)? ➢ How do I use the Pythagorean Theorem and its corollary? ➢ What s the difference between radians and degrees in a circle? How and where do I use them? ➢ How do I use trigonometric ratios within unit circles?	• **Derivation and Application of Trigonometric Ratios** • **The Pythagorean Theorem** • **Degrees, Radians, and Arc lengths** • **The unit Circle and Trigonometric Functions with Radian Measure** **Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 474 - 501)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Mid-unit quiz and Unit Test**	**CC.2.1.HS.F.2** **CC.2.3.HS.A.3** **CC.2.3.HS.A.7** **CC.2.3.HS.A.8** **CC.2.3.HS.A.9** **CC.2.3.HS.A.14**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Category 4: Additional Topics in Math Lesson 6: Circles in the Coordinate Plan Lesson 7: Simplifying and Performing Arithmetic Operations on Complex Numbers Day 40	❖ Coordinate Plane ❖ Circles ❖ Imaginary numbers ❖ Complex numbers	➢ What is the circle formula for a circle in the coordinate plane? How do we use it? ➢ What is an imaginary number? How do we use them mathematically?	• **Circle Definitions and Equations** • **Simplification of Imaginary Monomial Expressions** • **Arithmetic Operations on Complex Numbers** **Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 502 - 513)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Mid-unit quiz and Unit Test**	**CC.2.1.HS.F.2** **CC.2.1.HS.F.6** **CC.2.1.HS.F.7** **CC.2.2.HS.D.2** **CC.2.2.HS.D.3** **CC.2.2.HS.D.6** **CC.2.3.HS.A.1** **CC.2.3.HS.A.2** **CC.2.3.HS.A.8** **CC.2.3.HS.A.11**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Category 4: Additional Topics in Math Review and Test Day 41 - 42	❖ Review and test on items in category 4 in the SAT	➢ Can you show understanding in the items in category 4 and do it under SAT test conditions (timed test)?	**Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 514 - 535)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Mid-unit quiz and Unit Test**	**CC.2.1.HS.F.2** **CC.2.1.HS.F.6** **CC.2.1.HS.F.7** **CC.2.2.HS.D.2** **CC.2.2.HS.D.3** **CC.2.2.HS.D.6** **CC.2.3.HS.A.1** **CC.2.3.HS.A.2** **CC.2.3.HS.A.3** **CC.2.3.HS.A.7** **CC.2.3.HS.A.8** **CC.2.3.HS.A.9** **CC.2.3.HS.A.11** **CC.2.3.HS.A.13** **CC.2.3.HS.A.14**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
SAT Practice Test Day 43	❖ SAT sample test	➢ Can you show understanding in the items in the SAT with SAT test conditions (timed test)?	**Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 537 - 654)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Final Exam**	**CC.2.1.HS.F.1** **CC.2.1.HS.F.2** **CC.2.1.HS.F.3** **CC.2.1.HS.F.4** **CC.2.1.HS.F.5** **CC.2.1.HS.F.6** **CC.2.1.HS.F.7** **CC.2.2.HS.C.2** **CC.2.2.HS.C.3** **CC.2.2.HS.C.5** **CC.2.2.HS.C.6** **CC.2.2.HS.D.1** **CC.2.2.HS.D.2** **CC.2.2.HS.D.3** **CC.2.2.HS.D.4** **CC.2.2.HS.D.6** **CC.2.2.HS.D.7** **CC.2.2.HS.D.8** **CC.2.2.HS.D.9** **CC.2.2.HS.D.10** **CC.2.3.HS.A.1** **CC.2.3.HS.A.2** **CC.2.3.HS.A.3** **CC.2.3.HS.A.7** **CC.2.3.HS.A.8** **CC.2.3.HS.A.9** **CC.2.3.HS.A.11** **CC.2.3.HS.A.13** **CC.2.3.HS.A.14** **CC.2.4.HS.B.1** **CC.2.4.HS.B.2** **CC.2.4.HS.B.3** **CC.2.4.HS.B.4** **CC.2.4.HS.B.5** **CC.2.4.HS.B.6** **CC.2.4.HS.B.7**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Final Exam Review Day 44 - 45	❖ SAT sample test ➢		**Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 537 - 654)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Final Exam**	**CC.2.1.HS.F.1** **CC.2.1.HS.F.2** **CC.2.1.HS.F.3** **CC.2.1.HS.F.4** **CC.2.1.HS.F.5** **CC.2.1.HS.F.6** **CC.2.1.HS.F.7** **CC.2.2.HS.C.2** **CC.2.2.HS.C.3** **CC.2.2.HS.C.5** **CC.2.2.HS.C.6** **CC.2.2.HS.D.1** **CC.2.2.HS.D.2** **CC.2.2.HS.D.3** **CC.2.2.HS.D.4** **CC.2.2.HS.D.6** **CC.2.2.HS.D.7** **CC.2.2.HS.D.8** **CC.2.2.HS.D.9** **CC.2.2.HS.D.10** **CC.2.3.HS.A.1** **CC.2.3.HS.A.2** **CC.2.3.HS.A.3** **CC.2.3.HS.A.7** **CC.2.3.HS.A.8** **CC.2.3.HS.A.9** **CC.2.3.HS.A.11** **CC.2.3.HS.A.13** **CC.2.3.HS.A.14** **CC.2.4.HS.B.1** **CC.2.4.HS.B.2** **CC.2.4.HS.B.3** **CC.2.4.HS.B.4** **CC.2.4.HS.B.5** **CC.2.4.HS.B.6** **CC.2.4.HS.B.7**

Academy Park High School: SAT Prep Mathematics

Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards
Final Exam Day 46	❖ Review and test on items in all categories in the SAT	➢ Can you show understanding in the items in all categories and do it under SAT test conditions (timed test)?	**Resources:** **AMSCO: "Preparing for the New SAT Mathematics" (pages 537 - 654)** **Barron's: "Math Workbook for the New SAT"** **"College Board the Official SAT Study Guide"** **https://collegereadiness.collegeboard.org/** **https://www.khanacademy.org/sat** **TI-84 Calculators** **Assessments:** **Daily timed warmup, Final Exam**	**CC.2.1.HS.F.1** **CC.2.1.HS.F.2** **CC.2.1.HS.F.3** **CC.2.1.HS.F.4** **CC.2.1.HS.F.5** **CC.2.1.HS.F.6** **CC.2.1.HS.F.7** **CC.2.2.HS.C.2** **CC.2.2.HS.C.3** **CC.2.2.HS.C.5** **CC.2.2.HS.C.6** **CC.2.2.HS.D.1** **CC.2.2.HS.D.2** **CC.2.2.HS.D.3** **CC.2.2.HS.D.4** **CC.2.2.HS.D.6** **CC.2.2.HS.D.7** **CC.2.2.HS.D.8** **CC.2.2.HS.D.9** **CC.2.2.HS.D.10** **CC.2.3.HS.A.1** **CC.2.3.HS.A.2** **CC.2.3.HS.A.3** **CC.2.3.HS.A.7** **CC.2.3.HS.A.8** **CC.2.3.HS.A.9** **CC.2.3.HS.A.11** **CC.2.3.HS.A.13** **CC.2.3.HS.A.14** **CC.2.4.HS.B.1** **CC.2.4.HS.B.2** **CC.2.4.HS.B.3** **CC.2.4.HS.B.4** **CC.2.4.HS.B.5** **CC.2.4.HS.B.6** **CC.2.4.HS.B.7**

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Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards

Math Standards

Numbers and quantity

CC.2.1.HS.F.1: Apply and extend the properties of exponents to solve problems with rational exponents.

CC.2.1.HS.F.2: Apply properties of rational and irrational numbers to solve real world or mathematical problems.

CC.2.1.HS.F.3: Apply quantitative reasoning to choose and interpret units and scales in formulas, graphs, and data displays.

CC.2.1.HS.F.4: Use units as a way to understand problems and to guide the solution of multi-step problems.

CC.2.1.HS.F.5: Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

CC.2.1.HS.F.6: Extend the knowledge of arithmetic operations and apply to complex numbers.

CC.2.1.HS.F.7: Apply concepts of complex numbers in polynomial identities and quadratic equations to solve problems.

Algebra

CC.2.2.HS.D.1: Interpret the structure of expressions to represent a quantity in terms of its context.

CC.2.2.HS.D.2: Write expressions in equivalent forms to solve problems.

CC.2.2.HS.D.3: Extend the knowledge of arithmetic operations and apply to polynomials.

CC.2.2.HS.D.4: Understand the relationship between zeros and factors of polynomials to make generalizations about functions and their graphs.

CC.2.2.HS.D.5: Use polynomial identities to solve problems.

CC.2.2.HS.D.6: Extend the knowledge of rational functions to rewrite in equivalent forms.

CC.2.2.HS.D.7: Create and graph equations or inequalities to describe numbers or relationships.

CC.2.2.HS.D.8: Apply inverse operations to solve equations or formulas for a given variable.

CC.2.2.HS.D.9: Use reasoning to solve equations and justify the solution method.

CC.2.2.HS.D.10: Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically.

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Unit of Study (days)	Big Idea	Essential Question(s)	Topics / Resources / Assessments	Standards

Functions

CC.2.2.HS.C.1: Use the concept and notation of functions to interpret and apply them in terms of their context.

CC.2.2.HS.C.2: Graph and analyze functions and use their properties to make connections between the different representations.

CC.2.2.HS.C.3: Write functions or sequences that model relationships between two quantities.

CC.2.2.HS.C.4: Interpret the effects transformations have on functions and find the inverses of functions.

CC.2.2.HS.C.5: Construct and compare linear, quadratic, and exponential models to solve problems.

CC.2.2.HS.C.6: Interpret functions in terms of the situations they model.

CC.2.2.HS.C.7: Apply radian measure of an angle and the unit circle to analyze the trigonometric functions.

CC.2.2.HS.C.8: Choose trigonometric functions to model periodic phenomena and describe the properties of the graphs. CC.2.2.HS.C.9 Prove the Pythagorean identity and use it to calculate trigonometric ratios.

Geometry

CC.2.3.HS.A.1: Use geometric figures and their properties to represent transformations in the plane.

CC.2.3.HS.A.2: Apply rigid transformations to determine and explain congruence.

CC.2.3.HS.A.3: Verify and apply geometric theorems as they relate to geometric figures.

CC.2.3.HS.A.4: Apply the concept of congruence to create geometric constructions.

CC.2.3.HS.A.5: Create justifications based on transformations to establish similarity of plane figures.

CC.2.3.HS.A.6: Verify and apply theorems involving similarity as they relate to plane figures.

CC.2.3.HS.A.7: Apply trigonometric ratios to solve problems involving right triangles.

CC.2.3.HS.A.8: Apply geometric theorems to verify properties of circles.

CC.2.3.HS.A.9: Extend the concept of similarity to determine arc lengths and areas of sectors of circles.

CC.2.3.HS.A.10: Translate between the geometric description and the equation for a conic section.

CC.2.3.HS.A.11: Apply coordinate geometry to prove simple geometric theorems algebraically.

CC.2.3.HS.A.12: Explain volume formulas and use them to solve problems.

CC.2.3.HS.A.13: Analyze relationships between two-dimensional and three-dimensional objects.

CC.2.3.HS.A.14: Apply geometric concepts to model and solve real world problems.

Statistics and Probability

CC.2.4.HS.B.1: Summarize, represent, and interpret data on a single count or measurement variable.

CC.2.4.HS.B.2: Summarize, represent, and interpret data on two categorical and quantitative variables.

CC.2.4.HS.B.3: Analyze linear models to make interpretations based on the data.

CC.2.4.HS.B.4: Recognize and evaluate random processes underlying statistical experiments.

CC.2.4.HS.B.5: Make inferences and justify conclusions based on sample surveys, experiments, and observational studies.

CC.2.4.HS.B.6: Use the concepts of independence and conditional probability to interpret data.

CC.2.4.HS.B.7: Apply the rules of probability to compute probabilities of compound events in a uniform probability model.