GRADE LEVEL: HIGH SCHOOL **SUBJECT: ALGEBRA 2** **DATE: 2021 - 2022**

GRADING PERIOD: QUARTER 1 **MASTER COPY 12/15/2021**

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
DATA ANALYSIS, STATISTICS, AND PROBABILITY					
• LINEAR EQUATIONS • REGRESSION EQUATIONS	**AII.DSP.3:** Use technology to find a linear, quadratic, or exponential function that models a relationship for a bivariate data set to make predictions; Interpret the correlation coefficient for linear models.	• Use technology to find a linear function that models a relationship for a bivariate data set (regression equations). • Use the function to make predictions. • Determine and interpret the correlation coefficient.	• Teacher Observation • Daily assignments • Quiz/Test	• Linear equations • Bivariate data set • Regression equation • Correlation coefficient	CRITICAL
FUNCTIONS					
• TRANSFORMATONS OF LINEAR FUNCTIONS	**AII.F.4:** Explore and describe the effect on the graph of f(x) by replacing f(x) with f(x) + k, kf(x), f(kx), and f(x + k) for specific values of k (both positive and negative) with and without technology. Find the value of k given the graph of f(x) and the graph of f(x) + k, k f(x), f(kx), or f(x + k).	• Transform the graphs of linear equations by replacing f(x) with f(x) + k, kf(x), f(kx), and f(x + k) for specific values of k (both positive and negative) with and without technology. • Find the value of k given the graph of f(x) and the graph of f(x) + k, k f(x), f(kx), or f(x + k).	• Teacher Observation • Daily assignments • Quiz/Test	• Transformations	CRITICAL

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
SYSTEMS OF EQUATIONS AND INEQUALITIES					
• SYSTEM OF EQUATIONS	**AII.SEI.1:** Solve a system of equations consisting of a linear equation and a quadratic equation in two variables algebraically and graphically with and without technology.	• Solve systems of equations using the substitution and elimination method. • Graph systems of equations with and without technology.	• Teacher Observation • Daily assignments • Quiz/Test	• System of Equations • Substitution Method • Elimination Method	CRITICAL
• SYSTEMS OF EQUATIONS • SYSTEM OF INEQUALITIES • REAL-WORLD PROBLEMS	**AII.SEI.2:** Represent and solve real-world systems of linear equations and inequalities in two or three variables algebraically and using technology. Interpret the solution set and determine whether it is reasonable.	• Solve systems of equations using the following methods: – Substitution – Elimination – Graphing (with & w/o tech) • Write and solve systems of linear equations in two and three variables to represent real-world problems. • Use the Linear Programming process to determine the feasible region and the maximum and minimum values of a system of inequalities. • Determine if solutions are reasonable in the context of the problem.	• Teacher Observation • Daily assignments • Quiz/Test	• Linear Programming	CRITICAL

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
SYSTEMS OF EQUATIONS AND INEQUALITIES					
• REAL-WORLD PROBLEMS	**AII.SEI.3:** Represent real-world problems using a system of linear equations in three variables. Understand that the algebraic steps to solve a two variable system can be extended to systems of equations in three variables.	• Write systems of equations in three variables and solve them using: – Elimination – Cramer's Rule – Matrices	• Teacher Observation • Daily assignments • Quiz/Test	• Cramer's Rule • Matrices	CRITICAL
POLYNOMIAL, RATIONAL, AND OTHER EQUATIONS AND FUNCTIONS					
• GRAPH ABSOLUTE VALUE FUNCTIONS • PIECEWISE FUNCTIONS	**AII.PR.2:** Graph mathematical functions including: a. polynomial functions; b. rational functions; c. square root functions; d. absolute value functions; e. piecewise-defined functions with technology. Identify and describe features, such as intercepts, domain and range, end behavior, and lines of symmetry.	• Graph absolute value functions w & w/o tech. • Graph Piece-wise defined functions w & w/o tech. • Identify and describe features, such as intercepts, domain and range, end behavior, and lines of symmetry.	• Teacher Observation • Daily assignments • Quiz/Test	• Absolute value functions • Piecewise functions • Intercepts • Domain • Range • End behavior • Lines of symmetry	CRITICAL
• ABSOLUTE VALUE EQUATIONS • ABSOLUTE VALUE INEQUALITITES	**AII.PR.4:** Solve absolute value linear equations and inequalities in one variable.	• Solve absolute value equations in one variable. • Solve absolute value inequalities in one variable.	• Teacher Observation • Daily assignments • Quiz/Test		CRITICAL

GRADE LEVEL: HIGH SCHOOL **SUBJECT: ALGEBRA 2** **DATE: 2021 - 2022**

GRADING PERIOD: QUARTER 2 **MASTER COPY 12/15/2021**

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
DATA ANALYSIS, STATISTICS, AND PROBABILITY					
• QUADRATIC EQUATIONS	**AII.DSP.3:** Use technology to find a linear, quadratic, or exponential function that models a relationship for a bivariate data set to make predictions; Interpret the correlation coefficient for linear models.	• Use technology to find a quadratic function that models a relationship for a bivariate data set. • Make predictions using these equations. • Determine and interpret the correlation coefficient.	• Teacher observation • Daily assignments • Quiz/Test	• Quadratic equations • Bivariate data set • Correlation coefficient	CRITICAL
ARITHMETIC AND STRUCTURE OF EXPRESSIONS					
• RATIONAL EXPRESSIONS • POLYNOMIALS	**AII.ASE.4:** Rewrite rational expressions in different forms; write a(x)/b(x) in the form q(x) + r(x)/b(x), where a(x), b(x), q(x), and r(x) are polynomials with the degree of r(x) less than the degree of b(x).	• Divide polynomials using long division and synthetic division.	• Teacher observation • Daily assignments • Quiz/Test	• Rational expressions • Polynomials	IMPORTANT

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY	
FUNCTIONS						
• TRANSFORMATIONS	**AII.F.4:** Explore and describe the effect on the graph of f(x) by replacing f(x) with f(x) + k, kf(x), f(kx), and f(x + k) for specific values of k (both positive and negative) with and without technology. Find the value of k given the graph of f(x) and the graph of f(x) + k, k f(x), f(kx), or f(x + k).	• Transform graphs of quadratic equations on the coordinate plane.	• Teacher observation • Daily assignments • Quiz/Test	• Transformations	IMPORTANT	
QUADRATIC EQUATIONS AND FUNCTIONS						
• REAL-WORLD PROBLEMS • QUADRATIC EQUATIONS	**AII.Q.1:** Represent real-world problems that can be modeled with quadratic functions using tables, graphs, and equations; translate fluently among these representations. Solve such problems with and without technology. Interpret the solutions and determine whether they are reasonable.	• Solve quadratic equations w & w/o tech. • Represent real-world problems that can be modeled by quadratic equations using tables, equations and graphs. • Interpret solutions of quadratic equations and determine if they are reasonable.	• Teacher observation • Daily assignments • Quiz/Test		CRITICAL	
• COMPKLETE THE SQUARE • VERTEX FORM	**AII.Q,2:** Use completing the square to rewrite quadratic functions in vertex form and graph these functions with and without technology.	• Write quadratic equations in vertex form by completing the square. • Graph quadratic equations w & w/o tech.	• Teacher observation • Daily assignments • Quiz/Test	• Complete the square • Vertex form	CRITICAL	

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY	
QUADRATIC EQUATIONS AND FUNCTIONS						
• STANDARD FORM • INTERCEPT FORM	**AII.Q,3:** Understand that different forms of a quadratic equation can provide different information. Use and translate quadratic functions between standard, vertex, and intercept form to graph and identify key features, including intercepts, vertex, line of symmetry, end behavior, and domain and range.	• Translate quadratic equations between standard, vertex and intercept form. • Identify intercepts, vertex, axis of symmetry, end behavior, and domain and range.	• Teacher observation • Daily assignments • Quiz/Test	• Standard form • Intercept form • Vertex • x and y intercepts • Axis of symmetry • End behavior • Domain • Range	CRITICAL	
• DISCRIMINANT • COMPLEX SOLUTIONS	**AII.Q.4:** Use the discriminant to determine the number and type of solutions of a quadratic equation. Find all solutions and write complex solutions in the form of a ± bi for real numbers a and b.	• Find and use the discriminant to determine the number and type of solutions of a quadratic equation. • Find all solutions and write complex solutions in the form of a ± bi.	• Teacher observation • Daily assignments • Quiz/Test	• Discriminant • Complex solutions	IMPORTANT	

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY	
POLYNOMIAL, RATIONAL, AND OTHER EQUATIONS AND FUNCTIONS						
• POLYNOMIAL EQUATIONS	**AII.PR.1:** Solve real-world and other mathematical problems involving polynomial equations with and without technology. Interpret the solutions and determine whether the solutions are reasonable.	• Solve polynomial equations by factoring. • Solve polynomial equations using technology. • Solve real-world problems modeled by polynomial functions and determine if the solutions are reasonable.	• Teacher observation • Daily assignments • Quiz/Test	• Polynomial equations	CRITICAL	
• GRAPHS OF POLYNOMAL FUNCTIONS	**AII.PR.2:** Graph mathematical functions including: a. polynomial functions; b. rational functions; c. square root functions; d. absolute value functions; and, e. piecewise-defined functions with technology. Identify and describe features, such as intercepts, domain and range, end behavior, and lines of symmetry.	• Graph polynomial functions,	• Teacher observation • Daily assignments • Quiz/Test		CRITICAL	

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GRADING PERIOD: QUARTER 3 **MASTER COPY 12/15/2021**

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
DATA ANALYSIS, STATISTICS, AND PROBABILITY					
• EXPONENTIAL FUNCTIONS	**AII.DSP.3:** Use technology to find a linear, quadratic, or exponential function that models a relationship for a bivariate data set to make predictions; Interpret the correlation coefficient for linear models.	• Use technology to find an exponential function that models a relationship for a bivariate data set. • Make predictions using these regression equations. • Find and interpret the correlation coefficient.	• Teacher observation • Daily assignments • Quiz/Test	• Exponential functions	CRITICAL
ARITHMETIC AND STRUCTURE OF EXPRESSIONS					
• RADICAL EXPRESSIONS • RATIONAL EXPONENTS	**AII.ASE.1:** Explain how extending the properties of integer exponents to rational numbers allows for a notation for radicals in terms of rational exponents (e.g. $5^{1/3}$) is defined to be the cube root of 5 because we want $(5^{1/3})^3 = 5^{(1/3)3}$ to hold, so $(5^{1/3})^3$ must equal 5.	• Write radical expressions with rational exponents.	• Teacher observation • Daily assignments • Quiz/Test	• Radical expressions • Rational exponents	IMPORANT
• RADICAL EXPRESSIONS • RATIONAL EXPONENTS	**AII.ASE.2:** Rewrite expressions involving radicals and rational exponents using the properties of exponents.	• Write radical expressions with rational exponents.	• Teacher observation • Daily assignments • Quiz/Test		CRITICAL

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
FUNCTIONS					
• COMPOSITON OF FUNCTIONS	**AII.F.1:** Understand composition of functions and combine functions by composition.	• Combine functions by composition.	• Teacher observation • Daily assignments • Quiz/Test	• Composite functions	CRITICAL
• INVERSE FUNCTIONS	**AII.F.2:** Define and find the inverse of a function. Verify functions are inverses algebraically and graphically.	• Find the inverse of a function algebraically. and by graphing. • Verify functions are inverses of each other.	• Teacher observation • Daily assignments • Quiz/Test	• Inverse functions	CRITICAL
• PROPERTIES OF INVERSE FUNCTIONS	**AII.F.3:** Understand that if the graph of a function contains a point (a, b), then the graph of the inverse relation of the function contains the point (b, a); the inverse is a reflection over the line y = x.	• Understand that with inverse functions, the domain and range are switched. • Understand that the graph of an inverse functions is a reflections of the function over the line y = x.	• Teacher observation • Daily assignments • Quiz/Test		CRITICAL

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
EXPONENTIAL AND LOGARITHMIC EQUATIONS AND FUNCTIONS					
• EXPONENTIAL FUNCTIONS • LOGARITHMIC FUNCTIONS	**AII.EL.1:** Graph exponential and logarithmic functions with and without technology. Identify and describe key features, such as intercepts, domain and range, asymptotes and end behavior. Know that the inverse of an exponential function is a logarithmic function.	• Graph exponential and logarithmic functions w & w/o tech. • Identify intercepts, domain and range, asymptotes and end behavior of exponential and logarithmic functions. • Know that exponential functions and logarithmic functions are inverses of each other.	• Teacher observation • Daily assignments • Quiz/Test	• Exponential functions • Logarithmic functions	CRITICAL
• EXPONENTIAL GROWTH • EXPONENTIAL DECAY • PERCENT RATE OF CHANGE	**AII.EL.2:** Identify the percent rate of change in exponential functions. Classify them as representing exponential growth or decay.	• Classify exponential functions as representing growth or decay. • Identify the percent rate of change in exponential functions.	• Teacher observation • Daily assignments • Quiz/Test	• Exponential growth • Exponential decay • Percent rate of change	IMPORANT
• TRANSFORMATIONS OF EXPONENTIAL FUNCTIONS	**AII.EL.3:** Use the properties of exponents to rewrite expressions to describe transformations of exponential functions.	• Use the properties of exponents to rewrite expressions to describe transformations of exponential functions.	• Teacher observation • Daily assignments • Quiz/Test		IMPORANT

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
EXPONENTIAL AND LOGARITHMIC EQUATIONS AND FUNCTIONS					
• PROPERTIES OF LOGARITHMS	**AII.EL.4:** Use the properties of exponents to derive the properties of logarithms. Evaluate exponential and logarithmic expressions.	• Evaluate exponential and logarithmic expressions. • Use the properties of exponents to derive the properties of logarithms.	• Teacher observation • Daily assignments • Quiz/Test		CRITICAL
• EXPONENTIAL EQUATIONS • LOGARITHMIC EQUATIONS	**AII.EL.5:** Solve exponential and logarithmic equations in one variable.	• Solve exponential equations in one variable. • Solve logarithmic equations in one variable.	• Teacher observation • Daily assignments • Quiz/Test		CRITICAL
EXPONENTIAL AND LOGARITHMIC EQUATIONS AND FUNCTIONS					
• REAL-WORLD PROBLEMS	**AII.EL.6:** Represent real-world problems using exponential and logarithmic functions and solve such problems with technology. Interpret the solutions and determine whether they are reasonable.	• Represent real-world problems using exponential and logarithmic functions and solve such problems with technology. • Interpret the solutions and determine whether they are reasonable.	• Teacher observation • Daily assignments • Quiz/Test		CRITICAL

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
POLYNOMIAL, RATIONAL, AND OTHER EQUATIONS AND FUNCTIONS					
• GRAPH SQUARE ROOT FUNCTIONS	**AII.PR.2:** Graph mathematical functions including: a. polynomial functions; b. rational functions; c. square root functions; d. absolute value functions; and, e. piecewise-defined functions with technology. Identify and describe features, such as intercepts, domain and range, end behavior, and lines of symmetry.	• Graph square root functions w & w/o tech. • Identify and describe features, such as intercepts, domain and range, end behavior, and lines of symmetry.	• Teacher observation • Daily assignments • Quiz/Test	• Graph square root functions	CRITICAL
• REAL-WORLD PROBLEMS • RADICAL EQUATIONS	**AII.PR.3:** Solve real-world and other mathematical problems involving radical and rational equations. Give examples showing how extraneous solutions may arise.	• Solve real-world and other mathematical problems involving radical equations. • Give examples showing how extraneous solutions may arise.	• Teacher observation • Daily assignments • Quiz/Test	• Radical equations	CRITICAL

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GRADING PERIOD: QUARTER 4 **MASTER COPY 12/15/2021**

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
DATA ANALYSIS, STATISTICS, AND PROBABILITY					
• RANDOM SAMPLING METHODS • NON-RANDOM SAMPLING METHODS • SAMPLING BIAS • GOOD SURVEYS	**AII.DSP.1:** Distinguish between random and non-random sampling methods, identify possible sources of bias in sampling, describe how such bias can be controlled and reduced, evaluate the characteristics of a good survey and well-designed experiment, design simple experiments or investigations to collect data to answer questions of interest, and make inferences from sample results.	• Distinguish between random and non-random sampling methods. • Identify possible sources of bias in sampling, describe how such bias can be controlled and reduced. • Evaluate the characteristics of a good survey and well-designed experiment. • Design simple experiments or investigations to collect data.	• Teacher observation • Daily assignments • Quiz/Test	• Random sampling methods • Non-random sampling methods • Sampling bias • Good surveys	CRITICAL
• DATA ANALYSIS	**AII.DSP.2:** Interpret and compare univariate data using measures of center (mean and median) and spread (range, inter-quartile range, standard deviation, and variance). Understand the effects of outliers on the statistical summary of the data.	• Interpret and compare univariate data using measures of center (mean and median) and spread (range, inter-quartile range, standard deviation, and variance). • Understand the effects of outliers on the statistical summary of the data.	•Teacher Observation • Daily assignments • Quiz/Test	• Univariate data • Mean • Median • Mode • Range • Inter-quartile range • Standard deviation • outliers	CRITICAL

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
DATA ANALYSIS, STATISTICS, AND PROBABILITY					
• LAW OF LARGE NUMBERS • SIMULATION • THEORETICAL MODEL	**AII.DSP.4:** Using the results of a simulation, decide if a specified model is consistent to those results. Construct a theoretical model and apply the law of large numbers to show the relationship between the two models.	• Use simulations to compare theoretical probabilities to experimental probabilities. • Use the Law of Large Numbers to show the relationship between the two.	•Teacher Observation • Daily assignments • Quiz/Test	• Law of large numbers • Simulation • Theoretical model	CRITICAL
• DEPENDENT EVENTS • INDEPENDENT EVENTS • CONDITIONAL PROBABILITIES	**AII.DSP.5:** Understand dependent and independent events, and conditional probability; apply these concepts to calculate probabilities.	• Distinguish between independent and dependent event. • Calculate the probability of independent and dependent events. • Calculate conditional probabilities.	•Teacher Observation • Daily assignments • Quiz/Test	• Dependent events • Independent events • Conditional probabilities	CRITICAL
• FUNDAMENTAL COUNTING PRINCIPLE • PERMUTATIONS • COMBINATIONS • PROBABILITY	**AII.DSP.6:** Understand the Fundamental Counting Principle, permutations, and combinations; apply these concepts to calculate probabilities.	• Find the number of outcomes of events using permutations, combinations and the Fundamental Counting Principle.	•Teacher Observation • Daily assignments • Quiz/Test	• Fundamental counting principle • Permutations • Combinations • Probability	CRITICAL

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
ARITHMETIC AND STRUCTURE OF EXPRESSIONS					
• RATIONAL FUNCTIONS	**AII.ASE.3:** Rewrite algebraic rational expressions in equivalent forms (e.g., using properties of exponents and factoring techniques). Add, subtract, multiply, and divide algebraic rational expressions.	• Add, subtract, multiply and divide rational expressions.	•Teacher Observation • Daily assignments • Quiz/Test	• Rational functions	CRITICAL
POLYNOMIAL, RATIONAL, AND OTHER EQUATIONS AND FUNCTIONS					
• GRAPHS OF RATIONAL FUNCTIONS	**AII.PR.2:** Graph mathematical functions including: a. polynomial functions; b. rational functions; c. square root functions; d. absolute value functions; and, e. piecewise-defined functions with technology. Identify and describe features, such as intercepts, domain and range, end behavior, and lines of symmetry.	• Graph rational functions w & w/o tech. • Identify and describe features of rational functions, such as intercepts, domain and range, end behavior, and lines of symmetry.	•Teacher Observation • Daily assignments • Quiz/Test		CRITICAL
• REAL-WORLD PROBLEMS	**AII.PR.3:** Solve real-world and other mathematical problems involving radical and rational equations. Give examples showing how extraneous solutions may arise.	• Solve real-world and other mathematical problems involving rational equations. • Give examples showing how extraneous solutions may arise.	•Teacher Observation • Daily assignments • Quiz/Test	• Extraneous solutions	CRITICAL