GRADE LEVEL: HIGH SCHOOL   **SUBJECT: ANALYTICAL ALGEBRA 2**   **DATE: 2023 – 2024**

GRADING PERIOD: QUARTER 1   **MASTER COPY**

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
DATA ANALYSIS, STATISTICS,AND PROBABILITY					
• RANDOM SAMPLING • SAMPLING BIAS	**AA.DSP.1:** Make inferences and justify conclusions from sample surveys, experiments, and observational studies. Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization and possible sources of bias relate to each.	• Recognize differences between sample surveys, experiments, and observational studies. • Identify possible sources of bias in sampling.	• Teacher Observation • Daily assignments • Quiz/Test over Chapter 11	• Random Sampling Methods • Sampling Bias	CRITICAL
• DATA SUMMERIZATION	**AA.DSP.3:** Read, interpret and make decisions about data summarized numerically using measures of center and spread, in tables, and in graphical displays (line graphs, bar graphs, scatterplots, and histograms), e.g., explain why the mean may not represent a typical salary; critique a graphical display by recognizing that the choice of scale can distort information.	• Read interpret make decisions about data using measures of center and spread in tables and graphical displays. • Explain why mean may not represent data accurately. • Recognize scale of a graphical display may distort data.	• Teacher Observation • Daily assignment • Quiz/Test over Chapter 11	• Measures of Center • Bar graph • Scatterplots • Histograms • Line Graphs	CRITICAL

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
DATA ANALYSIS, STATISTICS, AND PROBABILITY					
• DATA ANALYSIS	**AA.DSP.4:** Analyze and compare univariate data of two or more different data sets using measures of center (mean, median, and mode), shape, and spread (range, interquartile range, standard deviation, percentiles, and variance) making use of technology. Understand the effects of outliers on the statistical summary of the data.	• Interpret and compare univariate data using measures of center (mean, median, and mode) shape, and spread (range, interquartile range, standard deviation, percentiles, and variance). • Understand the effects of outliers on the statistical summary of the data.	• Teacher Observation • Daily Assignments • Quiz/Test over Chapter 11	• Univariate Data • Mean • Median • Mode • Range • Interquartile Range • Standard Deviation • Percentiles • Variance	CRITICAL
• LAW OF LARGE NUMBERS • SIMULATION • THEORETICAL MODEL • EMPIRICAL MODEL	**AA.DSP.5:** Record multiple observations (or simulated samples) of random events and construct empirical models of the probability distributions. Construct a theoretical model and apply the law of large numbers to show the relationship between the two models.	• Use simulations to compare empirical models and theoretical models. • Use law of large numbers to show the relationship between the two models.	• Teacher Observation • Daily Assignments • Quiz/Test over Chapter 11	• Law of large numbers • Simulation • Empirical model • Theoretical model	CRITICAL

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
DATA ANALYSIS, STATISTICS, AND PROBABILITY					
• EMPIRICAL PROBAILITIES • THEORETICAL PROBABILITIES	**AA.DSP.6:** Evaluate the validity of claims based on empirical probabilities and theoretical probabilities, including those derived from dependent and independent events. Draw conclusions and make decisions in various probabilistic contexts. Make use of different representations of data including two-way tables and tree diagrams.	• Evaluate validity of claims based on empirical probabilities and theoretical probabilities • Draw conclusions and make decisions in various probabilistic contexts. • Use different representations of data including two-way tables and tree diagrams.	• Teacher Observation • Daily Assignments • Quiz/Test over Chapter 11	• Empirical probabilities • Theoretical probabilities • Two-way tables • Tree diagrams	CRITICAL
• FUNDAMENTAL COUNTING PRINCIPLE	**AA.DSP.7:** Determine the nature and number of elements in a finite sample space to model the outcomes of real-world events using the Fundamental Counting Principle, permutations, and combinations.	• Find the number of outcomes of events using permutations, combinations and the fundamental counting principle.		• Finite Sample Space • Combinations • Permutations • Fundamental Counting Principle	CRITICAL

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
LINEAR FUNCTIONS AND BEYOND					
• LINEAR EQUATIONS • REGRESSIONS EQUATIONS	**AA.DSP.2:** Choose, create, and critique, with technology, mathematical models (linear, quadratic and exponential) for bivariate data sets. Use the models to interpolate and/or extrapolate, to answer questions, and to draw conclusions or make decisions, addressing limitations and long-term ramifications. Recognize when a change in model is needed. Interpret the correlation coefficient for linear model.	• Use technology to find a linear function that models a relationships between bivariate data (regressions equations). • Use the function to make predictions. • Interpret the correlation coefficient.	• Teacher Observation • Daily Assignments • Quiz/Test over Chapter 2	• Linear equations • Bivariate data • Regression equation • Correlation coefficient	CRITICAL
• TRANSFORMATIONS OF LINEAR FUNCTIONS	**AA.LF.5:** Explore and describe the effect on the graph of f(x) by replacing f(x) with f(x) + k, k f(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, k f(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 over Chapter 2	• Transformations	CRITICAL

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
LINEAR FUNCTIONS AND BEYOND					
• GRAPH EQUATIONS	**AA.R.3:** Graph real-world functions including polynomial, rational, square root, step functions, absolute value functions, and piecewise-defined functions with technology. Identify and describe features, such as intercepts, domain and range, end behavior, asymptotic behavior, and/or lines of symmetry	• Graph functions with technology including: polynomial, rational, square root, step function, absolute value, and piecewise-defined. • Identify and describe features, such as intercepts, domain and range, end behavior, asymptotic behavior, and/or lines of symmetry.	• Teacher Observation • Daily Assignments • Quiz/Test over Chapter 2	• Square root functions • Step functions • Absolute value functions • Piecewise-defined functions • Domain • Range • End behavior • Asymptotic behavior • Lines of symmetry	CRITICAL

GRADE LEVEL: HIGH SCHOOL   **SUBJECT: ANALYTICAL ALGEBRA 2**   **DATE: 2023 – 2024**

GRADING PERIOD: QUARTER 2   **MASTER COPY**

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
LINEAR FUNCTIONS AND BEYOND					
• SYSTEMS OF EQUATIONS • SYSTEMS OF INEQUALITIES • REAL WORLD PROBLEMS	**AA.LF.6:** Represent and solve real-world problems using a system of equations and/or inequalities consisting of a linear equation and a quadratic equation in two variables with technology.	• Solve real-world problems using a system of equations using substitution and elimination methods. • Solve systems of equations using technology.	• Teacher Observation • Daily assignments • Quiz/Test over chapter 3	• System of equations • Substitution method • Elimination method	CRITICAL

• SYSTEMS OF EQUATIONS
• SYSTEMS OF INEQUALITIES
• REAL WORLD PROBLEMS
• MATRICES
	AA.LF.7: Represent real-world problems using a system of linear equations and/or inequalities in two or three variables. Solve such systems graphically or with matrices, appropriate to the system, with technology. Interpret the solution and determine whether it is reasonable.	• Solve systems of equations/inequalities using the following
		     methods:
		     Substitution
		     Elimination
		     Graphing with
		     technology
		• Write and solve systems of linear
		     equations in two and
		     three variables to
		     represent real-world
		     problems.
		• Solve systems using matrices when appropriate.
		• Determine if solutions are reasonable.
			• Teacher Observation
			• Daily assignments
			• Quiz/Test over chapter 3
				• Matrices	CRITICAL

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
QUADRATIC AND OTHER POLYNOMIAL FUNCTIONS					
• REAL-WORLD PROBLEMS • QUADRATIC EQUATIONS	**AA.QP.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 technology. Interpret the solutions and determine whether they are reasonable.	• Solve quadratic equations with technology. • 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 over chapter 4	• Quadratic Equations	CRITICAL
• STANDARD FORM • INTERCEPT FORM	**AA.QP.2:** Understand that different forms of a quadratic equation can provide different information. Identify and interpret within a given context the vertex, intercepts, zeros, domain and range, and lines of symmetry.	• Translate quadratic equations between standard, vertex and intercept form. • Identify intercepts, zeros, domain, range, and lines of symmetry.	• Teacher Observations • Daily assignments • Quiz/Test over chapter 4	• Vertex • Intercepts • Zeros • Domain • Range • Lines of symmetry	CRITICAL
• POLYNOMIAL EQUATIONS	**AA.QP.3:** Represent real-world problems that can be modeled with polynomial functions using graphs and equations. Solve such problems with technology. Interpret the solutions and determine whether they are reasonable.	• Solve polynomial equations by factoring. • Solve polynomial equations using technology. • Solve real-world problems modeled by polynomial equations and determine if the solutions are reasonable.	• Teacher Observation • Daily assignments • Quiz/Test over chapter 5		CRITICAL

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
QUADRATIC AND OTHER POLYNOMIAL FUNCTIONS					
	AA.QP.4 Graph polynomial functions that model a real-world situation with technology. Identify, describe, and interpret key features in the context of the situation, such as intercepts, zeros, domain and range, end behavior, maxima and minima, and lines of symmetry.	• Graph polynomial functions modeled by real-world situations with technology. • Identify, describe and interpret features in the context such as: intercepts, zeros, domain and range, end behavior, maxima and minima, and lines of symmetry.	• Teacher Observations • Daily assignments • Quiz/Test over chapter 5	• Polynomial Functions • Intercepts • Zeros • Domain and range • End behavior • Maxima • Minima • Lines of symmetry	CRITICAL
LINAR FUNCTIONS AND BEYOND					
• POLYNOMIAL FUNCTIONS	**AA.LF.3:** Recognize functional relationships in real world contexts. Translate fluently among multiple representations (graphs, tables, equations, and verbal descriptions).	• Recognize functions given real-world scenarios, graphs, tables, and equations.	• Teacher Observations • Daily assignments • Quiz/Test over chapter 5		CRITICAL
• COMPOSITION OF FUNCTIONS	**AA.LF.4:** Within real world contexts, understand composition of functions and combine functions by composition.	• Find the sum, difference, product, and quotient of functions. • Be able to combine two or more functions together using composition of functions.	• Teacher Observations • Daily assignments • Quiz/Test over chapter 6	• Composition of Functions	CRITICAL

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GRADING PERIOD: QUARTER 3   **MASTER COPY**

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
EXPONENTIAL AND LOGARITHMIC FUNCTIONS					
• EXPONENTIAL FUNCTION	**AA.EL.3:** Represent real-world problems using exponential functions in one or two variables and solve such problems with technology. Interpret the solutions and determine whether they are reasonable.	• Solve one or two variable exponential functions using technology. • Interpret solutions and determine if feasible.	• Teacher Observations • Daily Assignment • Quiz/Test chapter 7	• Exponential Function	CRITICAL
• EXPONENTIAL FUNCTION • INTERCEPTS • ZEROS • DOMAIN AND RANGE • ASYMPTOTES • END BEHAVIOR	**AA.EL.4:** Graph exponential functions that model real-world situations with technology. Identify, describe, and interpret key features, such as intercepts, zeros, domain, range, asymptotic and end behavior.	• Graph exponential functions that model real-world situations with technology. • Identify and describe intercepts, zeros, domain and range, asymptotes and end behavior.	• Teacher Observation • Daily Assignments • Quiz/Test chapter 7	• Intercepts • Zeros • Domain and Range • Asymptotes • End Behavior	CRITICAL
• PERCENT RATE OF CHANGE • EXPONENTIAL GROWTH AND DECAY	**AA.EL.5:** Given real-world contexts, identify the percent rate of change in exponential functions. Classify them as representing exponential growth or decay.	• Classify exponential equations as growth or decay. • Identify the percent rate of change of exponential equations.	• Teacher Observation • Daily Assignments • Quiz/Test chapter 7	• Percent Rate of Change • Exponential Growth • Exponential Decay	CRITICAL

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
EXPONENTIAL AND LOGARITHMIC FUNCTIONS					
• ABSOLUTE DIFFERENCE • RELATIVE DIFFERENCE	**AA.EL.6:** Analyze growth and decay using absolute and relative change and make comparisons using absolute and relative difference.	• Make comparisons about growth and decay using absolute and relative differences.	• Teacher Observations • Daily Assignment • Test chapter 7	• Absolute Change • Relative Change	CRITICAL
• INVERSES OF EXPONENTAIL FUNCTIONS • LOGARITHMIC FUNCTIONS	**AA.EL.7:** Know that the inverse of an exponential function is a logarithmic function. Represent exponential and logarithmic functions that model real-world situations using graphing technology and describe their inverse relationship. Use the inverse relationship between exponential functions and logarithms to evaluate expressions and solve equations in one variable.	• Graph exponential equations and their inverses(Logarithmic equations) with technology. • Describe the relationships between the two graphs. • Use inverse relationships between exponential and logarithms to evaluate and solve equations in one variable.	• Teacher Observation • Daily Assignments • Test chapter 7	• Inverses of Exponential Functions • Logarithmic Functions	CRITICAL

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GRADING PERIOD: QUARTER 4   **MASTER COPY**

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
RATIONAL, RADICAL, AND OTHER FUNCTIONS					
• RATIONAL FUNCTIONS • INTERCEPTS • ZEROS • DOMAIN AND RANGE • END BEHAVIOR • ASYMPTOTES	**AA.R.1:** Represent and solve real-world problems that can be modeled with rational functions using tables, graphs, and equations. Graph rational functions with technology. Identify, describe, and interpret features, such as intercepts, zeros, asymptotes, domain and range, and end behavior.	• Solve and graph rational functions that represent real-world problems using tables, graphs , and equations. • Graph rational functions with technology. • Describe and interpret such as intercepts, zeros, asymptote, domain and range and end behavior.	• Teacher Observations • Daily Assignments • Quiz/Test chapter 8	• Rational Function • Intercepts • Domain and Range • Asymptotes • End Behavior	CRITICAL
• RADICAL FUNCTIONS • INTERCEPTS • ZEROS • DOMAIN AND RANGE • END BEHAVIOR • ASYMPTOTES	**AA.R.2:** Represent and solve real-world problems that can be modeled with radical functions using tables, graphs, and equations. Graph radical functions with technology. Identify, describe, and interpret features, such as intercepts, zeros, asymptotes, domain and range, and end behavior.	• Solve and graph radical functions that represent real-world problems using tables, graphs , and equations. • Graph radical functions with technology. • Describe and interpret such as intercepts, zeros, asymptote, domain and range and end behavior.	• Teacher Observations • Daily Assignments • Quiz/Test chapter 8	• Square Root Functions • Intercepts • Domain and Range • Asymptotes • End Behavior	CRITICAL

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
LINEAR FUNCTIONS AND BEYOND					
• ARITHMETIC SEQUENCES	**AA.LF.1:** Model real world situations involving arithmetic sequences and understand that they can be defined both recursively and with an explicit formula.	• Model real-world situations involving arithmetic sequences. • Understand they can be defined with both recursive and explicit formulas.	• Teacher Observations • Daily Assignments • Quiz/Test chapter 10	• Recursive Formula • Explicit Formula	CRITICAL
• PARTIAL SUMS OF ARITHMETIC SEQUENCES	**AA.LF.2:** Find partial sums of arithmetic series that model real world situations.	• Be able to find the partial sum of an arithmetic sequence given real-world situations.	• Teacher Observation • Daily Assignments • Quiz/Test chapter 10	• Arithmetic Sequence • Partial Sum	CRITICAL
EXPONENTIAL AND LOGARTHMIC FUNCTIONS					
• GEOMETRIC SEQUENCES • EXPLICIT FORMULA • RECURSIVE FORMULA	**AA.EL.1:** Model real world situations involving geometric sequences and understand that they can be defined both recursively and with an explicit formula.	• Write geometric sequences both recursively and with an explicit formula.	• Teacher Observations • Daily assignment • Quiz/Test chapter 10	• Geometric Sequences • Explicit Formula • Recursive Formula	CRITICAL
• GEOMETRIC SERIES • PARTIAL SUMS	**AA.EL.2:** Find partial sums of geometric series that model real world situations.	• Find the sums of geometric series. • Model real –world situations using geometric series.	• Teacher Observations • Daily assignment • Quiz/Test chapter 10	• Geometric Series • Partial Sums	CRITICAL