Title: CP Algebra I

Unit:	**Solving One- Variable Equations**
Big Ideas:	Mathematical relationships among numbers can be represented, compared, and communicated Mathematical relationships can be represented as expression, equations and inequalities in mathematical situations. Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools
Unit Essential Questions:	How can expressions and equations be used to quantify, solve, model and or/analyze mathematical situations? What makes a strategy appropriate for a given task?

Concept & Pacing	Pa Core Standard	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
Algebraic Properties 1 day	CC.2.2.HS.D.9 CC2.1.8.E.1	inverse identity commutative distributive associative irrational number rational number	How are algebraic properties utilized to write equivalent expressions?	Identify properties as they are used in mathematical statements Compare and order real numbers Locate and use calculator functions to simplify arithmetic expressions	clothesline math	Notes Practice problems Keystone formula sheet scientific calculators	Homework
Solving Multistep equations 3 days	CC.2.2.8.B.3 CC.2.2.HS.D.8 CC.2.2.HS.D.9		How are algebraic properties used to solve one variable equations?	Apply algebraic properties in order to calculate solutions to multi-step equations	Find and fix the errors worksheet	Notes Practice problems	Homework Quiz
Applications of One Variable Equations 2 days	CC.2.2.7.B.3 CC.2.2.HS.F.4		How are one variable equations used to represent real world situations?	Construct one variable equations for a given situation and interpret the solution		Notes Practice Problems	Homework
Equations with Variables on Both Sides 2 days	CC.2.2.8.B.3 CC.2.2.HS.D.8 CC.2.2.HS.D.9		How are algebraic properties used to solve one variable equations? What makes a strategy appropriate for a given task?	Utilize algebraic properties to solve complex equations. Understand special cases where an equation has no solutions or an infinite number of solutions	riddle activity worksheet	Notes practice problems	Homework
Solving absolute value equations 2 days	CC.2.2.8.B.3 CC.2.2.HS.D.9	absolute value	How are algebraic properties used to solve one variable equations that involve absolute value?	Evaluate absolute value equations to determine feasible solutions	Fall collect and find Google Doc	Notes practice problems	Homework
Additional Practice or Activities 2 days	All of the above		All of the above	All of the above			
Chapter Review and Assessment 2 days	All of the above		All of the above	All of the the above	Chapter Review	Study Guide	Chapter test

Chapter days:14 + 2 intro days

Cumulative days:16

Title: CP Algebra I

Unit:	**Solving One-Variable Inequalties**
Big Ideas:	Mathematical relationships among numbers can be represented, compared, and communicated Mathematical relationships can be represented as expression, equations and inequalities in mathematical situations. Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools
Unit Essential Questions:	How can inequalities be used to quantify, solve, model and or/analyze mathematical situations? What makes a strategy appropriate for a given task?

Concept & Pacing	Pa Core Standard	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
Solve and Graph Inequalities 2 days	CC.2.2.HS.D. 7	inequality	How are algebraic properties utilized to solve one-variable inequalities?	Apply algebraic properties in order to determine solutions to inequalities		Notes Practice problems	Homework
Applications of One-Variable Inequalities 2 days	CC.2.2.HS.D.7 CC.2.2.HS.D.10		How are one variable inequalities used to represent real world situations?	Construct one variable algebraic inequalities for a given situation and interpret the solution		Notes Practice problems	Homework Quiz
Compound Inequalities 3 days	CC.2.2.HS.D.7 CC.2.2.HS.D.10	compound inequality conjunction disjunction	How are algebraic properties utilized to solve one-variable inequalities?	Apply algebraic properties to solve compound inequalities and determine feasible solutions	Compound inequalities stations maze	Notes Practice Problems	Homework
Absolute Value Inequalities 2 days	CC.2.2.HS.D.7 CC.2.2.HS.D.10		What makes a strategy appropriate for a given task?	Determine solutions to an absolute value inequality using a compound inequality Apply algebraic properties to solve compound inequalities and determine feasible solutions		Notes practice problems	Homework
Additional Practice or Activities 2 days	All of the above		All of the above	All of the above			
Chapter Review and Assessment 2 days	All of the above		All of the above	All of the the above	Chapter Review	Study Guide	Chapter test

Chapter days: 13

Cumulative days: 29

Title: CP Algebra I

Unit:	**Relations and Functions**
Big Ideas:	Mathematical relationships among numbers can be represented, compared, and communicated Patterns exhibit relationships that can be extended, described, and generalized. Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions
Unit Essential Questions:	How is mathematics used to quantify, compare, represent, and model numbers?

Concept & Pacing	Pa Core Standard	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
The Coordinate Plane 1 day	CC.2.2.HS.C.2	coordinate plane x-axis y-axis origin quadrants ordered pairs relation	How is the coordinate plane used to represent sets of ordered pairs?	Identify key components of the coordinate plane Plot points on the coordinate plane Construct a relation from two sets Determine the domain and range of a relation written as the set of ordered pairs		Notes Practice problems graph paper/coordinate plane	Homework
Domain and Range 2 days	CC.2.2.HS.C.2	domain range interval notation	How are the domain and range identified in a given relation?	Determine the domain and range of a relation given a set or ordered pairs, a mapping, a graph		Notes Practice problems	Homework
Functions 2 days	CC.2.2.HS.C.1	function vertical line test	How are functions represented in mathematics?	Determine if a relation is a function given a set of ordered pairs, a mapping or a graph	progress learning function review	Notes Practice Problems	Homework Quiz
Linear Equations 2 days	CC.2.2.HS. C.2 CC.2.2.HS.D.10	solutions linear	How are solutions to a two-variable equation identified? What makes an equation linear?	Determine if an ordered pair is a solution to a given equation Categorize an equation as linear or non-linear		Notes practice problems	Homework
Function Notation 2 days	CC.2.2.HS.C.1	function notation	How do we represent mathematical relationships using function notation?	Evaluate functions for specific values	Mystery sum group card activity	Notes practice problems	Homework
Additional Practice or Activities 2 days	All of the above		All of the above	All of the above			
Chapter Review and Assessment 2 days	All of the above		All of the above	All of the the above	Chapter Review	Study Guide	Chapter test

Chapter days: 13 days

Cumulative days: 42 days

Title: CP Algebra I

Unit:	**Writing Linear Functions**
Big Ideas:	Mathematical relationships among numbers can be represented, compared, and communicated Mathematical relationships can be represented as expression, equations and inequalities in mathematical situations. Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools
Unit Essential Questions:	How can expressions and equations be used to quantify, solve, model and or/analyze mathematical situations? How are relationships represented mathematically? What makes a strategy appropriate for a given task?

Concept & Pacing	Pa Core Standard	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
Slope 2 days	CC.2.2.HS.C.2	slope	How can the slope of a line be determined?	Calculate the slope of a line through two given points Evaluate a graphed line in order to determine its slope		Notes Practice problems	Homework
Rate of Change 2 days	CC.2.2.HS.C.2 CC.2.2.HS.C.6	rate of change	How can a rate of change be represented mathematically?	Find the rate of change of two quantities given a set of ordered pairs, a table, a diagram, and a graph		Notes Practice problems	Homework
Point Slope Form 3 days	CC.2.2.HS.C.3	point slope form	How are relationships represented with an equation in point slope form?	Construct the point slope form of a linear equation given the slope and a point, two points, or the graph Identify key components of a linear equation in point slope form	Progress learning assignment	Notes Practice Problems	Homework
Slope Intercept Form 3 days	CC.2.2.HS.C.3	intercepts	How are relationships represented with an equation in slope intercept form?	Write the slope intercept form of a line given the slope and the y-intercept, the graph, the slope and a point	Identify linear equations worksheet - standardized test practice	Notes practice problems	Homework Quiz
Applications of Linear Equations 3 days	CC.2.2.8.C.2 CC.2.2.HS.C.6		How are relationships represented mathematically?	Construct linear equations to represent given situations and utilize that equation to further analyze the situation		Notes practice problems	Homework
Standard Form 3 days	CC.2.2.HS.D.3 CC.2.2.HS.C.3	standard form	How are relationships represented with an equation in standard form?	Construct an equation in standard form when given a slope and a point, two points, or a linear equation in another format		Notes practice problems	Homework
Additional Practice or Activities 2 days	All of the above		All of the above	All of the above			
Chapter Review and Assessment 2 days	All of the above		All of the above	All of the the above	Activity to summarize all forms of equations Chapter Review	Study Guide	Chapter test

Chapter days: 20

Cumulative days: 62 days

Title: CP Algebra I

Unit:	**Graphing Linear Functions**
Big Ideas:	Mathematical relationships among numbers can be represented, compared, and communicated Mathematical relationships can be represented as expression, equations and inequalities in mathematical situations.
Unit Essential Questions:	How is mathematics used to represent relationships between quantities? What makes a strategy appropriate for a given task?

Concept & Pacing	Pa Core Standard	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
Introduction to Graphing 1 day	CC.2.2.HS.C.2		How can we represent the relationship between two quantities using a graph?	Construct the graph of a linear relation given a table of values Construct a table of solutions and use that to graph a linear relation		Notes Practice problems Graph paper	Homework Quiz
Graphing with Slope Intercept and Point Slope Forms 3 days	CC.2.2.HS.C.2		How is the algebraic form of a line related to its graphical representation?	Construct the graph of a line of an equation in slope intercept form Construct the graph of a line of an equation in point slope form	Flow chart graphic on WS Multiple Representations Musical Chairs activity (slope intercept only)	Notes Practice problems	Homework Quiz
Graphing with Standard Form 3 days	CC.2.2.HS.C.2		How is the algebraic form of a line related to its graphical representation?	Construct the graph of a line of an equation in standard form using intercepts. Construct the graph of a line of an equation in standard form by converting it to slope intercept form	Graphing methods review activity Old Math Guy card game	Notes Practice Problems	Homework Quiz
Interpreting Graphs of Linear Functions 2 days	CC.2.2.8.B.2 CC.2.2.HS.C.3 CC.2.2.HS.C.6 CC.2.2.HS.F.3		How can we use linear functions to represent real world relationships?	Represent real-life situations by a linear equation and/or graph	Extra word problem practice worksheet	Notes practice problems	Homework
Scatter Plots 2 days	CC.2.4.HS.B.2 CC.2.4.HS.B.3	scatter plot line of best fit	How can we use scatter plots and lines of best fit to interpret real world relationships?	Draw conclusions from a given scatter plot Identify the equation that represents the line of best fit and use it to make predictions	Progress learning assignment	Notes practice problems	Homework
Linear Inequalities 2 days	CC.2.2.HS.D.7		How can we represent an inequality relationship using a graph?	Graph the solution to a linear inequality Construct a linear inequality for a given graph	Drag and drop google sheet puzzle	Notes practice problems	Homework
Interpreting Graphs of Linear Inequalities 2 days	CC.2.2.HS.F.3 CC.2.2.HS.C.3 CC.2.2.HS.C.6		How can we use linear inequalities to represent real world relationships?	Create inequalities to represent real life situations Construct the graphs of real-life inequalities		Notes practice problems	Homework
Additional Practice or Activities 3 days	All of the above		All of the above	All of the above			
Chapter Review and Assessment 2 days	All of the above		All of the above	All of the the above	Chapter Review	Study Guide	Chapter test

Chapter days: 20

Cumulative days: 73 days

Title: CP Algebra I

Unit:	**Systems of Equations and Inequalities**
Big Ideas:	Mathematical relationships among numbers can be represented, compared, and communicated Mathematical relationships can be represented as expression, equations and inequalities in mathematical situations. Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools
Unit Essential Questions:	How is mathematics used to quantify, compare, represent, and model numbers? What makes a strategy appropriate for a given task?

Concept & Pacing	Pa Core Standard	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
Solving Systems by Graphing 2 days	CC.2.2.HS.D.10	system of equations inconsistent dependent	How can the graph of a system of equations be used to determine the solution?	Identify the solution to a system of linear equations by constructing the graph	desmos activity for special cases	Notes Practice problems	Homework
Solving Systems by Substitution 2 days	CC.2.2.HS.D.10		How can we use substitution to determine the solution to a system?	Apply the substitution method to evaluate a system of equations	Find and fix the errors worksheet	Notes Practice problems	Homework
Solving Systems by Elimination 3 days	CC.2.2.HS.D.10		How can we use elimination to determine the solution to a system?	Construct one variable equations for a given situation and interpret the solution	Boom Cards Systems Tree Activity	Notes Practice Problems	Homework Quiz
Applications of Systems of Equations 2 days	CC.2.2.HS.D.10 CC.HS.D.7		How can a system of equations be used to represent a real-life situation?	Construct, solve, and interpret solutions to a situation with two unknown quantities.		Notes practice problems	Homework
Systems of Linear Inequalities with Applications 4 days	CC.2.2.HS.D.10 CC.2.2.HS.D.7		How can we determine solutions to a system of linear inequalities?	Graph and determine solutions for the system of two or more inequalities Construct a system of inequalities for a real world situation	Mad Math digital activity	Notes practice problems	Homework Graded application assignment
Additional Practice or Activities 3 days	All of the above		All of the above	All of the above			
Chapter Review and Assessment 2 days	All of the above		All of the above	All of the the above	Chapter Review	Study Guide	Chapter test

Chapter days:18

Cumulative days: 91

Midterm Review and Exam days: 3

Cumulative days: 94

Title: CP Algebra I

Unit:	**Exploring Polynomials**
Big Ideas:	Mathematical relationships among numbers can be represented, compared, and communicated Mathematical relationships can be represented as expression, equations and inequalities in mathematical situations
Unit Essential Questions:	How is mathematics used to quantify, compare, represent, and model numbers? What makes a strategy appropriate for a given task?

Concept & Pacing	Pa Core Standard	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
Classify Polynomials 1 days		monomial polynomial binomial trinomial coefficient degree leading term	What is the terminology used to discuss polynomials?	Classify polynomials based on length and degree	cross word puzzle	Notes Practice problems Keystone formula sheet scientific calculators	Homework
Multiplying Polynomials 2 days	CC.2.2.8.B.1 CC.2.2.HS.D.2 CC.2.2.HS.D.3		How can we simplify an expression involving exponents?	Apply properties of exponents in order to simplify expressions multiplying polynomials	Exponent Battleship digital activity	Notes Practice problems	Homework Quiz
Dividing Polynomials 2 days	CC.2.2.HS.D.2 CC.2.2.HS.D.3		How can we simplify an expression involving exponents?	Apply properties of exponents in order to simplify expressions dividing polynomials		Notes Practice Problems	Homework
Adding and Subtracting Polynomials 2 days	CC.2.2.HS.D.2 CC.2.2.HS.D.3 CC.2.2.7.B.3		How can we simplify an expression involving the addition or subtraction of polynomials?	Add or subtract polynomials by combining like terms Simplify the addition/subtraction of polynomials that represent real-life and geometric situations		Notes practice problems	Homework
Multiply Polynomials 2 days	CC.2.2.HS.D.2 CC.2.2.HS.D.3 CC.2.2.7.B.3		How can we simplify an expression involving the multiplication of polynomials?	Multiply polynomials by distributing Simplify the multiplication of polynomials that represent real-life and geometric situations		Notes practice problems	Homework
Special Products 2 day	CC.2.2.HS.D.2 CC.2.2.HS.D.3	difference of two squares perfect square trinomials	How can we notice special products that are a result of multiplying certain polynomials?	Know formats of products that give difference of two squares and perfect square trinomials	Multiplying Polynomials Task Cards	Notes practice problems	Homework
Additional Practice or Activities 3 days	All of the above		All of the above	All of the above			
Chapter Review and Assessment 2 days	All of the above		All of the above	All of the the above	Chapter Review	Study Guide	Chapter test

Chapter days:16

Cumulative days: 110

Title: CP Algebra I

Unit:	**Factoring Polynomials**
Big Ideas:	Mathematical relationships among numbers can be represented, compared, and communicated Mathematical relationships can be represented as expression, equations and inequalities in mathematical situations.
Unit Essential Questions:	How is mathematics used to quantify, compare, represent, and model numbers? What makes a strategy appropriate for a given task?

Concept & Pacing	Pa Core Standard	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
GCF and LCM 2 days	CC.2.1.6.E.3 CC.2.2.HS.D.3	least common multiple greatest common factor	How can we extend arithmetic concepts like LCM and GCF to algebraic expressions?	Identify the LCM and GCF of two or more monomials		Notes Practice problems	Homework
Factoring using GCF 2 days	CC.2.2.HS.D.2 CC.2.2.HS.D.3		How can we write a polynomial in a factored form using a GCF?	Write a polynomial in an equivalent factored form	Kahoot	Notes Practice problems	Homework
Factoring Trinomials 2 days	CC.2.2.HS.D.2 CC.2.2.HS.D.3		How can we write a trinomial in a factored form?	Write a trinomial with a leading coefficient of 1 in an equivalent factored form	sum and product puzzles discovery activity	Notes Practice Problems	Homework Quiz 1
DIfference of Squares 2 days	CC.2.2.HS.D.2 CC.2.2.HS.D.3	perfect squares	How can we write a difference of two squares in a factored form?	Write a difference of two squares in an equivalent factored form		Notes practice problems	Homework Quiz 2
Rational Expressions 2 days	CC.2.2.HS.D.2 CC.2.2.HS.D.3 CC.2.2.HS.D.6	rational expression	How can we write a rational expression with polynomials in simplified form?	Write a rational expression in a simplified form by factoring. Understand restrictions that result when simplifying rational expressions		Notes practice problems	Homework
Additional Practice or Activities 3 days	All of the above		All of the above	All of the above	Extra Cumulative Practice		
Chapter Review and Assessment 2 days	All of the above		All of the above	All of the the above	Chapter Review Extra Cumulative Practice	Study Guide	Chapter test

Chapter days:15

Cumulative days: 125

Title: CP Algebra I

Unit:	**Radical Expressions**
Big Ideas:	Mathematical relationships among numbers can be represented, compared, and communicated Mathematical relationships can be represented as expression, equations and inequalities in mathematical situations. Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools
Unit Essential Questions:	How is mathematics used to quantify, compare, represent, and model numbers? How are relationships represented mathematically? What makes a strategy appropriate for a given task?

Concept & Pacing	Pa Core Standard	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
Pythagorean Theorem 1 day	CC.2.2.HS.C.3	square root irrational Pythagorean Theorem	How can we apply the Pythagorean Theorem?	Apply the Pythagorean Theorem to find the third side of a right triangle when given two side lengths.	discovery activity	Notes Practice problems	Homework
Simplifying Radicals 2 days	CC.2.2.8.B.1 CC.2.2.HS.D.3	radical	How can radicals be simplified?	Construct the simplified form of radicals	Boom cards	Notes Practice problems	Homework Quiz
Adding and Subtracting Radicals 2 days	CC.2.2.8.B.1 CC.2.2.HS.D.3		How can radical expressions be simplified?	Construct the simplified form of radicals		Notes Practice Problems	Homework
Multiplying and Dividing Radicals 3 days	CC.2.2.8.B.1 CC.2.2.HS.D.3		How can radical expressions be simplified? How can we extend arithmetic processes to expressions with radicals	Construct the product of radical expressions. Rationalize the denominator of radical expressions.		Notes practice problems	Homework
Additional Practice or Activities 3 days	All of the above		All of the above	All of the above	Mixed Review/Wrap up		
Chapter Review and Assessment 2 days	All of the above		All of the above	All of the the above	Chapter Review	Study Guide	Chapter test

Chapter days:13

Cumulative days: 138

Title: CP Algebra I

Unit:	**Data Analysis and Probability**
Big Ideas:	Mathematical relationships among numbers can be represented, compared, and communicated Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools Data can be modeled and used to make inferences
Unit Essential Questions:	How can we use univariate data to analyze relationships among quantities and make predictions?

Concept & Pacing	Pa Core Standard	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
Measures of Central Tendency 2 days	CC.2.4.HS.B.1	mean median mode measure of central tendency	How can we summarize and represent data accurately?	Calculate the mean,median, and mode of sets of data Compare measures of central tendency for a set of data	group “average” activity	Notes Practice problems	Homework
5 number summary and range 2 days	CC.2.4.HS.B.1	range quartile IQR outlier	How can we summarize and represent data accurately?	Calculate the range and 5 number summary of a set of data Understand the effect of an outlier on a set of data		Notes Practice problems	Homework Quiz 1
Plots 2 days	CC.2.4.HS.B.1 CC.2.4.HS.B.2	box and whisker stem and leaf scatter	How can we summarize and represent data accurately?	Interpret Box and Whisker, Stem and Leaf, and Scatter plots Create these plots to appropriately show data		Notes practice problems	Homework Graphing project
Interpret Circle, Line and Bar Graphs 1 day	CC.2.4.HS.B.1 CC.2.4.HS.B.2	circle graph line graph bar graph	How can we summarize and represent data accurately?	Interpret circle, line and bar graphs of data		Notes Practice Problems	Homework
Single Event and Compound Probability 2 days	CC.2.4.7.B.3 CC.2.4.HS.B.4 CC.2.4.HS.B.7	probability simple event compound event mutually exclusive	How can we determine the probability of an event?	Calculate probabilities for simple and compound events		Notes practice problems	Homework Quiz 2
Additional Practice or Activities 3 days	All of the above		All of the above	All of the above			
Chapter Review and Assessment 2 days	All of the above		All of the above	All of the the above	Chapter Review	Study Guide	Chapter test

Chapter days:14

Cumulative days:152

Title: CP Algebra I

Unit:	**Additional Topics**
Big Ideas:	Mathematical relationships among numbers can be represented, compared, and communicated Mathematical relationships can be represented as expression, equations and inequalities in mathematical situations. Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools
Unit Essential Questions:	How can expressions and equations be used to quantify, solve, model and or/analyze mathematical situations? How is mathematics used to quantify, compare, represent, and model numbers?

Concept & Pacing	Pa Core Standard	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
Compare and order real numbers 1 day	CC.2.1.8.E.1 CC.2.1.8.E.4	irrational number rational number integer	How are mathematical operations used to symbolize numbers?	Order real numbers Classify numbers based on the set of real numbers they belong to Understand the effect of mathematical operations on an unknown quantity	clothesline math	Notes Practice problems	Homework
Evaluating Expressions 1 days	CC.2.2.8.C.1 CC.2.1.HS.F.1		How can we express a number in an equivalent form?	Evaluate expressions with various mathematical operations. Understand how to write expressions with negative exponents		Notes Practice problems	Homework
Estimation 1 day	CC.2.2.7.B.3 CC.2.2.HS.D.9 CC.2.2.HS.F.4		How can we use estimation to answer mathematical questions?	Understand when estimation is necessary. Utilize estimation in various mathematical situations		Notes Practice Problems	Homework

Chapter days:3
Cumulative days:155

Keystone Prep and Test Days: 9
Cumulative days: 164

Title: CP Algebra I

Unit:	**Non-linear Equations**
Big Ideas:	Mathematical relationships among numbers can be represented, compared, and communicated Mathematical relationships can be represented as expression, equations and inequalities in mathematical situations.
Unit Essential Questions:	How can expressions and equations be used to quantify, solve, model and or/analyze mathematical situations?

Concept & Pacing	Pa Core Standard	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
Solving Exponential Equations 1 day	CC.2.2.HS.D.2 CC.2.2.HS.D.10	exponential equations	How are algebraic properties utilized to solve exponential equations?	Rewrite exponential equations with the same bases so as to be able to solve for an unknown value	Kahoot practice	Notes Practice problems	Homework
Graphing Exponential Functions 1 day	CC.2.2.HS.D.10 CC.2.2.HS.C.5	exponential growth exponential decay	How are exponential equations identified and graphed?	Graph exponential functions Identify data that displays exponential behavior		Notes Practice problems	Homework Quiz
Arithmetic and Geometric Sequences 1 day	CC.2.2.HS.C.3	Arithmetic sequence Geometric sequence	How can we model a sequence with a mathematical function?	Recognize arithmetic and geometric sequences Relate the sequences to linear and geometric functions		Notes Practice Problems	Homework
Graphing Quadratic Functions 1 day	CC.2.2.HS.D.1 CC.2.2.HS.D.7 CC.HS.C.2	Quadratic Parabola Axis of symmetry vertex	How can we model a quadratic function with a graph?	Analyze the characteristics of a graph of a quadratic function Graph a quadratic function Use the graph of a quadratic function to identify solutions		Notes practice problems	Homework
Solving Quadratic Equations 1 day	CC.2.2.HS.D.2 CC.2.2.HS.D.9		How are algebraic properties used to solve quadratic equations?	Solve quadratic equations by factoring Solve quadratic equations by using the quadratic formula	Group activity	Notes practice problems	Homework Quiz
Graphing Other Non-Linear Functions 2 days	CC.2.2.HS.D.8	piece-wise function greatest integer function	How are other non-linear relationships represented mathematically?	Graph the graph of absolute value equations, piece-wise equations, and step functions			
Additional Practice or Activities 2 days	All of the above		All of the above	All of the above			
Chapter Review and Assessment 2 days	All of the above		All of the above	All of the the above	Chapter Review	Study Guide	Chapter test

Chapter days: 11

Cumulative days: 175

FInal Review and Exam days: 5

Cumulative days: 180