# Hamilton-Wenham Regional School District

# HWRHS Common Core Standards Algebra 1 – 9th grade

## Algebra 1 Units

Theme 1: Foundational Skills and Thinking

Unit 1 Arithmetic Expressions

Unit 2 Relationships

Unit 3 Functions

Theme 2: Linear Functions

Unit 4 Linear Functions

Unit 5 Linear Equations

Unit 6 Linear Systems

Unit 7 Linear Inequalities

Theme 3: Quadratics

Unit 8 Monomials

Unit 9 Polynomials

Unit 10 Quadratics

Unit 11 Statistics

## Algebra 1 Overview

The common core asks for an Algebra 1 experience that is deeply rooted in the concept of functions. The year will start with a necessary review of arithmetic skills paired with modeling bivariate relationships pairing both units with exposure to a wide range of functions to help students understand what algebra is about. The start of the year is heavy with rich visualization of the graphical representation therefore as the skills in the two remaining major themes (Linear and Quadratic functions) are studied they will first begin with the graphical interpretation followed by the algebraic manipulation model.

We have intentionally used this vocabulary to describe each of the different representations:

|  |  |  |  |
| --- | --- | --- | --- |
| Algebraic representation / function notation | Graphical representation | Tabular representation | Descriptive model |
| 3x + 7 = 2x – 3  f(x) = 2x2 + 2 |  | |  |  | | --- | --- | | x | y | | -1 | 5 | | 0 | 7 | | 1 | 9 | | 2 | 11 | | The cost of a plumber is $25 per hour plus $50 to come to your house |

The emphasis in the Algebra 1 year is to

* make sense of the mathematics – be able to answer *how* and *why* we have certain procedures
* gain fluency with arithmetic processes – by not balancing the whole year on poor arithmetic skills, students have the ability to develop fluency and flexibility with their arithmetic skills
* gain fluency and flexibility with algebraic processes – by pairing the graphical and algebraic representations together, students should develop multiple ways of reasoning whether a process makes sense
* increase math-esteem – help students use and develop good mathematical reasoning skills and through practice and social navigation gain fluency and confidence with their mathematical skills.

Mathematics is a community activity, we will give students opportunities to share their mathematical reasoning with their peers and their teacher. In response to a current society where facts are so readily available at your fingertips, memorization will be de-emphasized and thinking strategically and analytically will be emphasized. Students should leave their Algebra 1 experience with a useful reference section that will help hold onto what has been studied this year as well as strategies for looking up and using the sought information.

## Algebra 1 Prerequisites

With some exception, students not taking Algebra 1 in 8th grade will take Algebra 1 in 9th grade, so the prerequisite for this course includes completion of 8th grade mathematics. Students should have a conceptual sense of arithmetic operations and fluency with these operations is helpful. Students also should have had some experience solving one and two step linear equations with a basic understanding of inverse operations.

# Common Core (CC) Standards Curriculum Map Algebra 1

## Jenn Sauriol and Michelle Polys Quarter 1

## Conceptual Category

Number and Quantity

### Unit 1 Arithmetic Expressions 17 days running concurrently with Unit 2

|  |  |  |  |
| --- | --- | --- | --- |
| CC Standard and Content | Mathematical Practices and Essential Questions | Prior Learning | Instructional Activities(IA)  Formative Assessments(FA)  Summative Assessments(SA) |
| Real Number System  N-RN 3  N-Q 1 | SMP 7 8  What are operations? How does notation of these operations vary? | This unit is designed to fill in gaps from prior math experiences | (FA) Arithmetic Processes  (IA) Description of different number systems. Initial description of “closure”  (IA) Voting for best number system description – using clickers/socrative |
| Addition  N-RN 3 | SMP 1 2 6 8  What does “You can only add things that are alike” mean and how does it apply to different types of numbers? |  | (FA/IA) Notes/Discussion “You can only add things that are alike” and its application to different types of numbers  (IA) independent guided practice |
| Subtraction  N-RN 3  A-SSE 2  Opposite | SMP 1 2 6 8  What does “Subtraction is like adding the opposite” mean and how does it apply to different types of numbers? |  | (FA/IA) Notes/Discussion – what is opposite? “Subtraction is like adding the opposite”, discussion of “terms”  (IA) independent guided practice  (FA) Short Quiz on addition/subtraction/number systems |
| Multiplication  N-RN 3  A-SSE 2 | SMP 1 2 6 7 8  In multiplication, why is there no restriction on what you can multiply? |  | (IA) Multiplication’s relationship to distributive property – 3(81) = 3(80 + 1)  (IA) comparing processes for multiplication to those for addition (different/similar)  (IA) prime factorization  (IA) independent guided practice |
| Division  N-RN 3  A-SSE 2 | SMP 1 2 6 7 8  How are fractions like division? |  | (IA) Division and its relationship to fraction – “how do I put 1/3 into my calculator?” – what does the fraction bar mean? How does long division work?  (IA) independent guided practice  (FA) Short Quiz on multiplication and division and statement interpretation (unit 2) |
| Language of operations  N-Q 3 | SMP 1 2 4 6 7  Which operation is appropriate? |  | (IA) brainstorming a list of words that we use to describe different operations  (IA) Solving word problems – rewriting descriptive statements as an arithmetic expression… and taking an arithmetic expression and creating a descriptive statement |
| Exponents  N-RN 1  N-RN 2 | SMP 1 2 6 7  How are exponents like multiplication? |  | (IA) expanded form and exponent form of expressions  (IA) discussion and practice with negatives and exponents (-5)2 vs -52  (IA) perfect squares, cubes…  (IA) a little nod to variables and exponents |
| Order of Operations  Terms  Absolute value (grouping symbol)  A-SSE 1  A-SSE 2 | SMP 1 2 3 6 7  Why do we have an order of operations? |  | (IA) The basics – the order and some practice  (IA) pushing students to really think about the “order” and what that means given different situations – how can we use “terms” to help us?  Some examples to include:  -(-2)2;  (FA) Quiz on order of operations from simple to complex – include multiple choice (MCAS) |
| Roots  Perfect squares  Estimating roots Simplifying radicals  N-RN 1  N-RN 2  A-SSE 1  A-SSE 2  A-SSE 3 | SMP 1 2 3 5 7  How are roots and exponents related? |  | (IA) How are roots and exponents related arithmetically (graphically?)  (IA) Estimating roots (square, cube, 4th…) using list of perfect squares, cubes…  (IA) Factor Trees  (IA) Equivalent Expression of Roots – what does 2sqrt(7) mean, how is it related to sqrt(28).  (SA) of arithmetic processes and relationships |

# Common Core (CC) Standards Curriculum Map Algebra 1

## Jenn Sauriol and Michelle Polys Quarter 1

## Conceptual Category

Statistics

### Unit 2 Relationships 17 days running concurrently with Unit 1

|  |  |  |  |
| --- | --- | --- | --- |
| CC Standard and Content | Mathematical Practices and Essential Questions | Prior Learning | Instructional Activities(IA)  Formative Assessments(FA)  Summative Assessments(SA) |
| Identifying Relationships`  N-Q 1  N-Q 2  F-IF 4  F-IF 6 | SMP 1 3 4 7  What variables are being related? | This unit designed to give all students access to reading and interpreting the graphical representation  Students need to have seen a coordinate plane | (FA) pre-test  (IA) ppt guided discussion looking at graphs and interpreting what they are seeing  (IA) discuss descriptions and pull out variables  (IA) Use rate to help create statements and to think about dependent vs. independent variables.  (IA) data collection (in excel? Can it be transferred into autograph) about different qualities of students – height, shoe size, wrist size, hand length, miles from school, …) |
| Sketching a graph  N-Q 1  N-Q 2  A-CED 2  F-IF 4  F-IF 5  F-IF 6 | SMP 1 3 4 7  Which variable depends on the other?  What is the rate of change?  Is the relationship positive, negative, or is there no relationship? |  | (IA) develop statements about variables and independent vs. dependent variables  (IA) label axes and use statements to develop sketches of graphs  (IA) discuss positive, negative, no relationships  (IA) discuss rate of change – constant, variable (faster and faster, slower and slower)  (IA) given stories create graphs |
| Interpreting  Ranger  N-Q 1  F-IF 4  F-IF 5  F-IF 6  S-ID 9 | SMP 1 3 4 5 7  What is this graph telling me? |  | (IA) interpret given graphs and create stories  (IA) Use ranger to move body to match graph and discuss “speed”  (SA) redo pre-test  (SA) with arithmetic operations |

# Common Core (CC) Standards Curriculum Map Algebra 1

## Jenn Sauriol and Michelle Polys Quarter 1

## Conceptual Category

Functions

### Unit 3 Functions 8 days

|  |  |  |  |
| --- | --- | --- | --- |
| CC Standard and Content | Mathematical Practices and Essential Questions | Prior Learning | Instructional Activities(IA)  Formative Assessments(FA)  Summative Assessments(SA) |
| Function Exploration Coordinate Plane  A-SSE 3  F-IF 1  F-IF 7  F-IF 8  F-IF 9  F-BF 3 | SMP 1 2 3 5 7 8  Does the algebraic notation impact the graphical representation? | Plotting points on a coordinate plane | (IA) sort cards – functions – document on paper what they found… Include language from representation unit (positive, negative relationships, rate of change…)  (IA) computer explore – can you make a graph that looks like this? (ipad cart) |
| Equivalent expressions  A-SSE 3  F-IF 8  F-IF 9 | SMP 1 2 5 6 7  What does it mean to be an equivalent expression? | “combine like terms”  “distribute” | Running throughout the unit from start to end  (IA) Review of combining like terms and distributive property  (IA) continued practice through warm-ups and instruction. |
| Function Notation  F-IF 2  F-IF 8  F-BF 1 | SMP 1 2 5 6 7  How can I use the algebraic notation to be more succinct? | Order of operations  evaluating expressions | (IA) Exploring function notation as short hand for “evaluate … for x = …” Include: substituting a function into a function (f(x + 3) )  (FA) Quiz on function recognition, simplifying expressions and using function notation |
| Graphing input/output graphs  A-SSE 3  F-IF 1  F-IF 7  F-IF 8  F-IF 9 | SMP 1 2 5 6 7 8  How are the three representations (algebraic, graphical, tabular) related? |  | (IA) Putting together, the function notation, into a table, onto a graph – lots of practice – is the graph what you expected it to look like?  (FA) Have students make graphs of different functions that can be hung together as a group with “parent” function – given a function provided |
| Reading function graphs  F-IF 1  F-IF 7  F-IF 8  F-IF 9 | SMP 1 2 3 4 6  How do I get information from the graph? |  | (IA) Using the graph to read the other representations – gaining fluency moving through the different representations.  (SA) Unit Test |

# Common Core (CC) Standards Curriculum Map Algebra 1

## Jenn Sauriol and Michelle Polys Quarter 2

## Conceptual Category

Functions

### Unit 4 Linear Functions 14 days

|  |  |  |  |
| --- | --- | --- | --- |
| CC Standard and Content | Mathematical Practices and Essential Questions | Prior Learning | Instructional Activities(IA)  Formative Assessments(FA)  Summative Assessments(SA) |
| Intro  3 representations Linear function sorting  A-REI 10  S-ID 7 | SMP 1 2 3 5 6 7 8  How are the three representations (algebraic, graphical, tabular) related? | Be able to interpret graphical, tabular and algebraic representations | (IA) What are the salient features of a linear function?  (IA) Sort activity – calculator graphing into 4 different categories based on slope and y-intercept  (IA) How are the features represented in the different representations? Table, graph, function notation |
| Slope Formula  S-ID 7 | SMP 1 2 3 6 7  What does “steeper” mean in terms of slope? | Order of operations, operations on integers | (IA) Explore the idea of slope – does it make sense that a steeper line has a slope with larger magnitude?  (IA) Introduce slope formula both graphically and algebraically.  (FA) Quiz |
| Slope/intercept form of a line  Reading graphs  Graphing lines  A-REI 10  S-ID 7 | SMP 1 2 3 5 6 8  In a linear function, what effect on the relationship does the slope have?  In a linear function, what effect on the relationship does the y-intercept have? | Simplify algebraic expressions | (IA) Explore how slope and y-intercept effect the line – really push how these features come out in the three different representations.  (IA) Practice graphing a line  (IA) Practice finding equation given the graph |
| Writing Equation of a line given: graph, slope/y-intercept ; 2 points; point and slope  A-REI 10  S-ID 7 | SMP 1 2 3 5 6 7  What information is needed to create an equation of a line? | 1 step equations, substitution | (IA) Discuss how to generate and equation of a line given different pieces (slope and y-intercept, 2 points…)  (IA) How much information do you need to make a line?  (IA) tic-tac-toe practice  (FA) Quiz |
| Parallel / Perpendicular  F-IF 4 | SMP 1 2 5 6 7  What does it mean for lines to be parallel or perpendicular? | Vocab: parallel and perpendicular | (IA) What do parallel (perpendicular) lines have in common? Use strategies from above to generate equations and graphs |
| Linear Modeling Line of Best Fit  From scatter plot  A-CED 2  A-REI 10  S-ID 6  S-ID 8  S-ID 9 | SMP 1 2 3 4 5 6  What are applications of linear functions?  What does it mean to be a line of best fit? |  | (IA) Given data – learn to input data into some format (calculator? Autograph? )  (IA) Sketch a line of best fit and generate an equation to make predictions  (IA) Do formal linear regression discuss correlation coefficient. Look at other regression if time permits.  (SA) Unit Test |

# Common Core (CC) Standards Curriculum Map Algebra 1

## Jenn Sauriol and Michelle Polys Quarter 2

## Conceptual Category

Algebra

### Unit 5 Linear Equations 11 days

|  |  |  |  |
| --- | --- | --- | --- |
| CC Standard and Content | Mathematical Practices and Essential Questions | Prior Learning | Instructional Activities(IA)  Formative Assessments(FA)  Summative Assessments(SA) |
| Graphically Solve Equations  No solution  All real numbers  1 solution  A-REI 3  A-REI 6  A-REI 11 | SMP 1 3 5 7  What is meant by equality? | Graph a linear function | (IA) Discussion about the cognitive shift between 3x + 5x = 8x and 3x = 7x + 2 – how is the equal sign used differently? What does it mean? How many solutions? “WHEN is 3x equal to 7x + 2?” (not equivalent expressions)  (IA) Have students graphically solve equations (not all linear) with computers.  (IA) Have students graphically solve linear equations – how many solutions are possible? |
| Solving Equations Algebraically –  1step  2 step  Variable on both sides  Simplify first  A-REI 1  A-REI 3 | SMP 1 2 3 5 6 7 8  How is solving an equation different than simplifying an expression? | Inverse operations  Arithmetic skills | (IA) Give students a reason for solving algebraically – namely points aren’t easy to read.  (IA) Build on what they know about solving 1 and 2 step equations… check answers with graph… use these 2 representations as checks for each other.  (IA) independent guided practice  \*make sure to include equations that give: no solution and all real numbers as answers  (IA) tic-tac toe |
| Using Formulas  Given Volume, find height  Plug in what you know, solve for what you don’t Using Formulas – solve for different variables  Solve for y  A-CED 4  A-REI 3 | SMP 1 2 4 6 7  How can I use my ability to solve equations to expand the use of formulas? | Exposure to formulas  Graphing linear functions | (IA) Review using formulas – area, volume…  (IA) push them to solve for other variables for example find height when given volume  Can you create a new formula solved for a different variable – for instance give a lot of problems for volume of cylinder given volume and radius – if we are going to do same process again and again can we create a new formula? Engineers do this… need an example here… choose the most helpful version of the formula  (IA) relate back to graphing linear functions – give in standard form and students have to solve for y to be able to find slope and y-intercept |
| (Ratios and Proportions  Review and application)  A-REI 1 | SMP 1 4 6 7 8  ???? | Fraction sense | Timing??? |

MidYear….

# Common Core (CC) Standards Curriculum Map Algebra 1

## Jenn Sauriol and Michelle Polys Quarter 3

## Conceptual Category

Algebra

### Unit 6 Linear Systems 10 days

|  |  |  |  |
| --- | --- | --- | --- |
| CC Standard and Content | Mathematical Practices and Essential Questions | Prior Learning | Instructional Activities(IA)  Formative Assessments(FA)  Summative Assessments(SA) |
| Solving Graphically  1, 0, all solutions  A-REI 6 | SMP 1 3 5  How many solutions does a system of two linear equations have? | Graph a linear function | (IA) How many solutions does a system of 2 linear equations have? |
| Substitution Method  A-REI 6 | SMP 1 2 6 7  What is an algebraic way to solve a system of linear equations? | Substituting an expression into a function |  |
| Elimination Method / Linear Combination  A-REI 5  A-REI 6 | SMP 1 2 6 7  Which method of solving a system of linear equations will work best for this problem? | Combining like terms |  |
| Applications  A-CED 3  A-REI 6 | SMP 1 2 3 4 5  What is the usefulness of creating a system of linear equations? | Language for different operations |  |

# Common Core (CC) Standards Curriculum Map Algebra 1

## Jenn Sauriol and Michelle Polys Quarter 3

## Conceptual Category

Algebra

### Unit 7 Linear Inequalities 11 days

|  |  |  |  |
| --- | --- | --- | --- |
| CC Standard and Content | Mathematical Practices and Essential Questions | Prior Learning | Instructional Activities(IA)  Formative Assessments(FA)  Summative Assessments(SA) |
| Graphically  Coordinate plane  F-IF 4  A-REI 12 | SMP 1 3  How is solving an inequality similar and different from solving an equation? | Graphing lines | (IA) looking at the graph of 2 linear functions, identify the solution, see that as a breaking point in the graph, look to the left of that point and right and compare the two functions. Make statements about those areas 2x + 3 < 3x – 4  (IA) Identify the x values that would make an inequality true  (FA) Practice problems that show whether students can graph inequality statements (x < 10) |
| Included if necessary:  Review graphing inequalities on a number line  Read the statement  Open / closed  Shaded left or right | SMP 1 3 7 8  How is solving an inequality similar and different from solving an equation? | Numberline;  <, > vocabulary | (IA) Discussion, what values of x could I put into this expression to make it true? (x < 10) go around the room and have students give you a value different from those previously stated that would make this true, on a numberline, estimate where each number would be and put a dot, go around a few times until they see that you are filling in one half of the numberline. This is the visual representation of the algebraic statement  (IA) through a sort activity match algebraic and numberline representations of inequality statements  (IA) fold and pass warm-up practice  (FA) need to get 100% of the graphing correct to truly own the knowledge – must develop their own personal graphing strategy and be able to verbalize it |
| Solving Linear Inequalities  \*mult/division  A-REI 1  A-REI 3  A-CED 1  A-CED 3 | SMP 1 2 3 6 7 8  How is solving an inequality similar and different from solving an equation? | Solving equations | (IA) brief exploration of how solving equations is different than solving inequalities – start with true statement, 4 < 10 then add, subtract, multiply, divide different numbers from each side to show that it maintains (or doesn’t) the same relationship  (IA) independent guided practice)  (IA) tic-tac-toe  (FA) Quiz |
| And  And/or  Numberline  A-CED 3 | SMP 1 2 3 6 7  What is the mathematical effect of “and” vs. “or”? |  | (IA) Discuss the different ways we use and/or in our natural vocabulary (do you want pie and ice cream/ pie or ice cream)  (IA) And first – as an exclusion  (IA) And/or comparison – include the 4 different types of problems and how they are interpreted via and/or.  (SA) Quiz |
| Absolute Value Graphs – 2 linear functions (reason for why you flip the sign)  A-REI 3 | SMP 1 2 3 6 7  How can you solve equations with absolute value? | Recognize the graph of a linear function  opposite | (IA) Review graphing absolute value functions and discover how it is a piecewise function of a linear function and its opposite.  (IA) Look at number of solutions of an absolute value equation graphically. (0? 1? 2? More?) |
| Absolute Value Equations  A-REI 3 | SMP 1 2 3 6 7 8  How can you solve equations with absolute value? | Absolute value | (IA) discuss different ways to think about how to solve – there should be 2 solutions!! X + 3 = 7 or –(x + 3) = 7 vs. x + 3 = 7 or x + 3 = -7  (IA) guided independent practice |
| Absolute Value Inequalities  A-REI 3 | SMP 1 2 3 6 7 8  How can you solve inequalities with absolute value? |  | (IA) discuss the implication for absolute value inequalities graphically and then algebraically  (IA) guided independent practice  (FA) Quiz |
| Graphing Linear Inequalities  A-REI 6  A-CED 3  A-REI 12 | SMP 1 2 3 6 7  How is the graph of a function altered when it is an inequality? | Graphing lines | (IA) go back to the coordinate plane and look at the implications for y<3x + 7 … use check points to make sure you have shaded correctly.  (IA) look at inequalities of other functions (than linear) and think about shading  (IA) Explore systems of linear inequalities - feasible region, corner points… model problems to solve  (SA) Test |

# Common Core (CC) Standards Curriculum Map Algebra 1

## Jenn Sauriol and Michelle Polys Quarter 3

## Conceptual Category

Algebra

### Unit 8 Monomials 8 days

|  |  |  |  |
| --- | --- | --- | --- |
| CC Standard and Content | Mathematical Practices and Essential Questions | Prior Learning | Instructional Activities(IA)  Formative Assessments(FA)  Summative Assessments(SA) |
| Multiplying monomials  A-SSE 1  A-SSE 2 | SMP 1 2 3 6 7 8  How do you generalize operations on monomials? | Exponents, language – base, exponent, coefficient | (IA) Discuss commutative and associative properties of multiplications, Explore and generalize rules  (IA) guided independent practice |
| Raising to a power  A-SSE 1  A-SSE 2  A-SSE 3 | SMP 1 2 3 6 7 8  How are exponents like multiplication? |  | (IA) Explore and generalize rules  (IA) guided independent practice  (FA) Quick Quiz |
| Division  A-SSE 1  A-SSE 2  A-SSE 3 | SMP 1 2 3 6 7 8  How do you generalize operations on monomials? | Simplifying fractions | (IA) Explore and generalize rules  (IA) guided independent practice |
| Zero and Negative  A-SSE 1  A-SSE 2  A-SSE 3 | SMP 1 2 3 6 7 8  Why is x0 = 1?  Why does a negative exponent imply fractions/division? |  | (IA) Explore and generalize rules  (IA) guided independent practice  (FA) Quiz |
| Scientific notation  A-SSE 1  A-SSE 2  A-SSE 3 | SMP 1 2 3 5 6 7 8  How does working with scientific notation preserve the properties of operations on monomials? |  | (IA) See how multiplying and dividing numbers in scientific notation follows same rules as discussed  (IA) Practice multiplying and dividing by powers of 10  (IA) see that addition and subtraction work differently… like terms… |
| Exponential Functions and Power function discussion of differences  A-SSE 1  F-IF 8  F-LE 1  F-LE 3 | SMP 1 2 3 4 5 7 8  What is the difference between a variable in the base vs. a variable in the exponent? | Interpret graphs | (IA)Explore the differences in power and exponential functions (where the variable is in the function makes a big difference).  (IA) Explore growth and decay as ways to classify exponential functions (with an emphasis on graphs)  (IA) Explore leading term as a way to classify power functions (with an emphasis on graphs)  (SA) Make notecards and a long quiz/test |

# Common Core (CC) Standards Curriculum Map Algebra 1

## Jenn Sauriol and Michelle Polys Quarter 4

## Conceptual Category

Algebra

### Unit 9 Polynomials 11 days

|  |  |  |  |
| --- | --- | --- | --- |
| CC Standard and Content | Mathematical Practices and Essential Questions | Prior Learning | Instructional Activities(IA)  Formative Assessments(FA)  Summative Assessments(SA) |
| Adding and subtracting  A-SSE 2  A-APR 1 | SMP 1 2 3 5 6 7  How is adding and subtracting monomials different than adding monomials? | Combine like terms | (IA) Explore and generalize rules – “like terms” “adding the opposite” ; opposite of polynomial what does that mean?  (IA) guided independent practice |
| Multiplying by a monomial  A-SSE 2  A-APR 1 | SMP 1 2 3 6 7  How is adding and subtracting monomials different than adding monomials? | Distributive property | (IA) Explore and generalize rules  (IA) guided independent practice |
| Factoring out a monomial (gcf)  A-SSE 2 | SMP 1 2 3 6 7  Am I able to create equivalent expressions with polynomials? | Division  “factor” | (IA) Review factors (matching like expressions) – greatest common factor  (IA) Explore and generalize rules for reversing distribution  (IA) guided independent practice (fold and pass)  (FA) Quiz |
| Double distributive (foil)  And more distributive  A-SSE 2  A-APR 1 | SMP 1 2 3 6 7 8  Am I able to create equivalent expressions with polynomials? |  | (IA) Explore and generalize rules  (IA) guided independent practice |
| Factoring into 2 binomials (unfoil)  Coeff of 1 and  Coeff of a  Difference of 2 perfect squares  A-SSE 2 | SMP 1 2 3 6 7 8  Am I able to create equivalent expressions with polynomials? | “Product” and “sum”  “standard form” | (IA) Matching Cards pairing factored and trinomial form - Explore and generalize rules for 1 as leading coefficient  (IA) guided independent practice  (FA) quiz  (IA) factor by grouping  (IA) AC method for leading coefficients other than 1  (IA) guided independent practice |
| Multiple Factoring methods  A-SSE 2  A-SSE 3 | SMP 1 2 3 6 7 8  How does pulling out the *greatest* common factor make factoring easier? |  | (IA) guided independent practice  (SA) Test of polynomials |

# Common Core (CC) Standards Curriculum Map Algebra 1

## Jenn Sauriol and Michelle Polys Quarter 4

## Conceptual Category

Algebra

### Unit 10 Solving Quadratic Equations 7 days

|  |  |  |  |
| --- | --- | --- | --- |
| CC Standard and Content | Mathematical Practices and Essential Questions | Prior Learning | Instructional Activities(IA)  Formative Assessments(FA)  Summative Assessments(SA) |
| Graphically  A-REI 7  A-REI 4  F-IF 9 | SMP 1 3 5 7  How many possible solutions? | Interpret graphs | (IA) Graphically explore polynomial equations  (IA) How many possible solutions? (0, 1, 2, many?) |
| Zero product property  Algebraic and graphically  A-SSE 2  A-SSE 3  A-REI 4  A-REI 7  F-IF 8 | SMP 1 2 3 5 6 7 8  What are the zeros of a quadratic? | Factor  Solve equations | (IA) Explore and generalize rules – check by graphing  (IA) guided independent practice    (FA) Quiz |
| Quadratic formula  A-SSE 2  A-SSE 3  A-REI 4  A-REI 7  F-IF 8 | SMP 1 2 3 5 6 7 8  Which method for solving a quadratic is best for the given information? | Simplify arithmetic expressions | (IA) Given the formula, practice solving, check by graphing  (IA) Round Robin (each person does one step in solution process)  (IA) guided independent practice |
| Applications:  Using formulas  Gravity  Area and perimeter  A-REI 4  A-CED 2  A-CED 3 | SMP 1 2 3 4 5 6  What is the usefulness of solving a quadratic? |  | (IA) look at applications of polynomial functions – gravity, volume formulas…  (SA) Test |

# Common Core (CC) Standards Curriculum Map Algebra 1

## Jenn Sauriol and Michelle Polys Quarter 4

## Conceptual Category

Statistics

### Unit 11 Statistics 5 days

|  |  |  |  |
| --- | --- | --- | --- |
| CC Standard and Content | Mathematical Practices and Essential Questions | Prior Learning | Instructional Activities(IA)  Formative Assessments(FA)  Summative Assessments(SA) |
| ??? |  |  |  |
| Dot plots, histograms, box plots |  |  |  |
| Measures of Central Tendency  Mean  Median  Mode |  |  |  |
| Measures of Dispersion  Range, interquartile range, standard deviation, outliers |  |  |  |
| ? normal distribution – z-scores? |  |  |  |
| ? Frequency tables |  |  |  |