ALGEBRA 2 (Common Core Standards:Iowa)
Hamann: Ed-Co Community High School

4.0	Demonstrates in-depth application of the standard and relates material beyond what was taught such as: Write and solve equations given real-world scenarios Write compound inequalities from real-world problems
3.5	In addition to 3.0 success, there is partial success with 4.0 content
3.0	Working knowledge of all 2.0 content and connects concepts as needed to demonstrate success with Creating Equations: Create equations that describe numbers or relationships (**target**) A-CED.A *(Part 1)*
2.5	Minor errors/omissions regarding 2.0 content and partial success with 3.0 content
2.0	Student demonstrates partial success of: Write and solve equations Write compound inequalities Solve and graph compound inequalities Write direct variation equations Interpret direct variation equations Write linear equations Graph linear equations Graph two-variable inequalities
1.0	With assistance, student can achieve success at 2.0 content
0.0	Even with assistance, student cannot achieve success with 2.0 content

ALGEBRA 2 (Common Core Standards:Iowa)
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4.0	Demonstrates in-depth application of the standard and relates material beyond what was taught such as: Write and solve absolute value equations/inequalities given real-world scenarios Find special factors of quadratic expressions Find factors of non-quadratic expressions
3.5	In addition to 3.0 success, there is partial success with 4.0 content
3.0	Working knowledge of all 2.0 content and connects concepts as needed to demonstrate success with Seeing Structure in Expressions: Interpret the structure of expressions (**target**) A-SSE.A
2.5	Minor errors/omissions regarding 2.0 content and partial success with 3.0 content
2.0	Student demonstrates partial success of: Write equations involving absolute value Write inequalities involving absolute value Solve equations involving absolute value Solve inequalities involving absolute value Find common factors of quadratic expressions Find binomial factors of quadratic expressions Find nth roots Multiply and divide radical expressions Add and subtract radical expressions
1.0	With assistance, student can achieve success at 2.0 content
0.0	Even with assistance, student cannot achieve success with 2.0 content

ALGEBRA 2 (Common Core Standards:Iowa)
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4.0	Demonstrates in-depth application of the standard and relates material beyond what was taught such as: Write polynomial functions given zeros Graph non-square radical functions Model exponential growth/decay
3.5	In addition to 3.0 success, there is partial success with 4.0 content
3.0	Working knowledge of all 2.0 content and connects concepts as needed to demonstrate success with Interpreting Functions: Analyze functions using different representations (**target**) F-IF.C
2.5	Minor errors/omissions regarding 2.0 content and partial success with 3.0 content
2.0	Student demonstrates partial success of: Write linear equations given slope and a point Classify polynomials Graph polynomial functions Describe end behavior of polynomial functions Analyze factored polynomials to find zeros Graph square roots Explore properties of functions in the form $y=ab^x$ Graph exponentials base e
1.0	With assistance, student can achieve success at 2.0 content
0.0	Even with assistance, student cannot achieve success with 2.0 content

ALGEBRA 2 (Common Core Standards:Iowa)
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4.0	Demonstrates in-depth application of the standard and relates material beyond what was taught such as: Solve systems of quadratic equations including empty set problems Solve real-world linear programming problems in order to determine maximum/minimum values
3.5	In addition to 3.0 success, there is partial success with 4.0 content
3.0	Working knowledge of all 2.0 content and connects concepts as needed to demonstrate success with Creating Equations: Create equations that describe numbers or relationships (**target**) A-CED.A *(Part 2)*
2.5	Minor errors/omissions regarding 2.0 content and partial success with 3.0 content
2.0	Student demonstrates partial success of: Solve a linear system using a graph or a table Solve problems using linear programming given contraints Graph quadratic functions written in standard form Solve quadratic equations by factoring/graphing Solve systems of linear equations Solve systems of linear/quadratic inequalities by graphing
1.0	With assistance, student can achieve success at 2.0 content
0.0	Even with assistance, student cannot achieve success with 2.0 content

ALGEBRA 2 (Common Core Standards:Iowa)
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4.0	Demonstrates in-depth application of the standard and relates material beyond what was taught such as: Fit data to cubic or quartic models Determine the best model to fit real-world data and use the model to make predictions and inferences
3.5	In addition to 3.0 success, there is partial success with 4.0 content
3.0	Working knowledge of all 2.0 content and connects concepts as needed to demonstrate success with Interpreting Functions: Interpret functions that arise in applications in terms of the context (**target**) F-IF.B
2.5	Minor errors/omissions regarding 2.0 content and partial success with 3.0 content
2.0	Student demonstrates partial success of: Write linear equations that model real-world data Use linear equations that model real-world data to make predictions Model data with quadratic functions Fit data to linear models Fit data to quadratic models
1.0	With assistance, student can achieve success at 2.0 content
0.0	Even with assistance, student cannot achieve success with 2.0 content

ALGEBRA 2 (Common Core Standards:Iowa)
Hamann: Ed-Co Community High School

4.0	Demonstrates in-depth application of the standard and relates material beyond what was taught such as: Find the inverse of a function formally Evaluate logarithmic functions
3.5	In addition to 3.0 success, there is partial success with 4.0 content
3.0	Working knowledge of all 2.0 content and connects concepts as needed to demonstrate success with Building Functions: Build new functions from existing functions (**target**) F-BF.B
2.5	Minor errors/omissions regarding 2.0 content and partial success with 3.0 content
2.0	Student demonstrates partial success of: Analyze transformatinos of functions Graph absolute value functions Identify quadratic functions Graph quadratic functions Apply transformations to graphs of polynomials Find the inverse of a relation or function informally Write logarithmic functions Graph logarithmic functions
1.0	With assistance, student can achieve success at 2.0 content
0.0	Even with assistance, student cannot achieve success with 2.0 content

ALGEBRA 2 (Common Core Standards:Iowa)
Hamann: Ed-Co Community High School

4.0	Demonstrates in-depth application of the standard and relates material beyond what was taught such as: Solve systems in three variables by choosing an appropriate method Solve a system of linear equations using matrices
3.5	In addition to 3.0 success, there is partial success with 4.0 content
3.0	Working knowledge of all 2.0 content and connects concepts as needed to demonstrate success with Reasoning with Equations & Inequalities: Solve systems of equations (**target**) A-REI.C
2.5	Minor errors/omissions regarding 2.0 content and partial success with 3.0 content
2.0	Student demonstrates partial success of: Solve linear systems algebraically Solve systems in three variables using elimination or substitution Represent a system of linear equations using matrices
1.0	With assistance, student can achieve success at 2.0 content
0.0	Even with assistance, student cannot achieve success with 2.0 content

ALGEBRA 2 (Common Core Standards:Iowa)
Hamann: Ed-Co Community High School

4.0	Demonstrates in-depth application of the standard and relates material beyond what was taught such as: Explain what the discriminant of a quadratic tells you about its answers Use the quadratic formula to solve quadratics that have complex roots Use the quadratic formula to solve functions that act like quadratics
3.5	In addition to 3.0 success, there is partial success with 4.0 content
3.0	Working knowledge of all 2.0 content and connects concepts as needed to demonstrate success with Reasoning with Equations & Inequalities: Solve equations and inequalities in one variable (**target**) A-REI.B
2.5	Minor errors/omissions regarding 2.0 content and partial success with 3.0 content
2.0	Student demonstrates partial success of: State/write the quadratic formula Identify the discriminant of a quadratic function Given a discriminant, I can determine the number of roots Solve quadratics using the quadratic formula
1.0	With assistance, student can achieve success at 2.0 content
0.0	Even with assistance, student cannot achieve success with 2.0 content

ALGEBRA 2 (Common Core Standards:Iowa)
Hamann: Ed-Co Community High School

4.0	Demonstrates in-depth application of the standard and relates material beyond what was taught such as: Solve systems of equations using matrix inverses and multiplication Determine determniants and inverses of square matrices bigger then 2X2
3.5	In addition to 3.0 success, there is partial success with 4.0 content
3.0	Working knowledge of all 2.0 content and connects concepts as needed to demonstrate success with Vector & Matrix Quantities: Perform operations on matrices and use matrices in applications (**target**) N-VM.C
2.5	Minor errors/omissions regarding 2.0 content and partial success with 3.0 content
2.0	Student demonstrates partial success of: Add and subtract matrices Solve matrix equations Multiply matrices using scalar multiplication Multiply matrices using matrix multiplication Find the inverse of a matrix
1.0	With assistance, student can achieve success at 2.0 content
0.0	Even with assistance, student cannot achieve success with 2.0 content

ALGEBRA 2 (Common Core Standards:Iowa)
Hamann: Ed-Co Community High School

4.0	Demonstrates in-depth application of the standard and relates material beyond what was taught such as: Graph complex numbers Perform operations using complex numbers in quadratics
3.5	In addition to 3.0 success, there is partial success with 4.0 content
3.0	Working knowledge of all 2.0 content and connects concepts as needed to demonstrate success with Complex Number System: Perform arithmetic operations with complex numbers (**target**) N-CN.A
2.5	Minor errors/omissions regarding 2.0 content and partial success with 3.0 content
2.0	Student demonstrates partial success of: Identify complex numbers Perform operations using complex numbers
1.0	With assistance, student can achieve success at 2.0 content
0.0	Even with assistance, student cannot achieve success with 2.0 content

ALGEBRA 2 (Common Core Standards:Iowa)
Hamann: Ed-Co Community High School

4.0	Demonstrates in-depth application of the standard and relates material beyond what was taught such as: Compare and analyze the various theorems used to solve equations and discuss their strengths/weaknesses Solve higher-order polynomials using appropriate theorems
3.5	In addition to 3.0 success, there is partial success with 4.0 content
3.0	Working knowledge of all 2.0 content and connects concepts as needed to demonstrate success with Complex Number System: Use polynomial numbers in polynomial identities and equations (**target**) N-CN.C
2.5	Minor errors/omissions regarding 2.0 content and partial success with 3.0 content
2.0	Student demonstrates partial success of: Solve equations using the Rational Root Theorem Solve equations using the Conjugate Root Theorem Use the Fundamental Theorem of Algebra to solve complex polynomials
1.0	With assistance, student can achieve success at 2.0 content
0.0	Even with assistance, student cannot achieve success with 2.0 content

ALGEBRA-Creating Equations

***Create equations that describe numbers or relationships (A-CED.A)** *PART 1*

Write and solve equations
(**A-CED.A.1**, A-CED.A.4)

Write, solve, and graph compound inequalities
(**A-CED.A.1)**

Write and interpret direct variation equations
(**A-CED.A.2**, F-BF.A.1)

Write and graph linear equations
(**A-CED.A.2**, F-IF.B.4, F-LE.B.5)

Graph two-variable inequalities
(**A-CED.A.2**, F-IF.C.7b)

ALGEBRA-Seeing Structure in Expressions

***Interpret the structure of expressions (A-SSE.A)**

Write and solve equations/inequalities involving absolute value
(**A-SSE.A.1b**, A-CED.A.2)

Find common, binomial, and special factors of quadratic expressions
(**A-SSE.A.2)**

Find nth roots
(**A-SSE.A.2)**

Multiply and divide radical expressions
(**A-SSE.A.2)**

Add and subtract radical expressions
(**A-SSE.A.2)**

FUNCTIONS-Interpreting Functions

***Analyze functions using different representations (F-IF.C)**

Write linear equations given slope and a point
(F-IF.C.9, F-IF.A.2, F-IF.C.8, A-CED.A.2, F-LE.B.5)

Classify polynomials and graph polynomial functions describing end behavior
(**F-IF.C.7c)**

Analyze factored polynomials and write polynomial functions given zeros
(**F-IF.C.7c**, A-APR.B.3)

Graph square root and other radical functions
(**F-IF.C.7b**, **F-IF.C.8**)

Model exponential growth and decay
(**F-IF.C.7e**, A-SSE.A.1b, A-CED.A.2, F-IF.C.8)

Explore the properties of functions $y=ab^x$ and graph exponentials base e
(**F-IF.C.8**, F-IF.C.7e, F-BF.A.1b, A-CED.A.2, A-SSE.A.1b)

ALGEBRA-Creating Equations

***Create equations that describe numbers or relationships (A-CED.A)** *PART 2*

Solve a linear system using a graph or a table
(**A-CED.A.2**, A-REI.C.6, A-CED.D.11, A-CED.A.3)
Solve problems using linear programming
(**A-CED.A.3)**
Graph quadratic functions written in standard form
(**A-CED.A.2**, F-IF.B.4, F-IF.B.6, F-IF.C.8, F-IF.C.9)
Solve quadratic equations by factoring/graphing
(**A-CED.A.1**, A-SSE.A.1a, A-APR.B.3, A-SSE.B.3a)
Solve/graph systems of linear/quadratic equations and inequalities
(**A-CED.A.3**, A-REI.C.7, A-REI.D.11)

FUNCTIONS-Interpreting Functions

***Interpret functions that arise in applications in terms of the context (F-IF.B)**

Write linear equations that model real-world data and use them to make predictions
(**F-IF.B.4**, A-CED.A.2, F-IF.B.6)
Model data with quadratic functions
(**F-IF.B.5**, F-IF.B.4)
Fit data to linear, quadratic, cubic, or quartic models
(**F-IF.B.5**, F-IF.B.4, F-IF.B.6)

FUNCTIONS-Building Functions

***Build new functions from existing functions (F-BF.B)**

Analyze transformations of functions
(**F-BF.B.3)**
Graph absolute value functions
(**F-BF.B.3**, F-IF.C.7b)
Identify and graph quadratic functions
(**F-BF.B.3**, A-CED.A.1, F-IF.B.4, F-IF.B.6)
Apply transformations to graphs of polynomials
(**F-BF.B.3**, F-IF.C.7c, F-IF.C.8, F-IF.C.9)
Find the inverse of a relation or function
(**F-BF.B.4a**, F-BF.B.4c)
Write, evaluate, & graph logarithmic functions
(**F-BF.B.4a**, A-SSE.A.1b, F-IF.C.7e, F-IF.C.8, F-IF.C.9)

ALGEBRA-Reasoning with Equations & Inequalities

***Solve systems of equations (A-REI.C)**

Solve linear systems algebraically
(**A-REI.C.6**, A-REI.C.5, A-CED.A.2)
Solve systems in three variables using elimination/substitution
(**Extends A-REI.C.6)**
Represent and solve a system of linear equations using matrices
(**A-REI.C.8)**

ALGEBRA-Reasoning with Equations & Inequalities

Represent and solve equations and inequalities graphically (A-REI.D)

Solve systems of linear inequalities
(**A-REI.D.12**, A-REI.C.6, A-CED.A.3)

Solve polynomial equations by factoring/graphing
(**A-REI.D.11**, A-SSE.A.2)

ALGEBRA-Reasoning with Equations & Inequalities:

***Solve equations and inequalities in one variable (A-REI.B)**

Solve quadratics using the discriminant and Quadratic Formula
(**A-REI.B.4b)**

ALGEBRA-Reasoning with Equations & Inequalities

Understand solving equations as a process of reasoning and explain the reasoning (A-REI.A)

Solve square root and other radical equations
(**A-REI.A.2**, A-CED.A.4)

FUNCTIONS-Building Function

Build a function that models a relationship between two quantities (F-BF.A.1b)

Add, subtract, multiply, divide, and compose functions
(**F-BF.A.1b**, F-BF.A.1c)

NUMBER & QUANTITY-Vector & Matrix Quantities

***Perform operations on matrices and use matrices in applications (N-VM.C)**

Add and subtract matrices & solve matrix equations
(**N.VM.C.8**, N-VM.C.10)

Multiply matrices using scalar & matrix multiplication
(**N-VM.C.6,7**, N-VM.C.8, N-VM.C.9)

Find the inverse of a matrix
(**N-VM.C.10,12)**

Solve systems of equations using matrix inverses and multiplication
(**N-VM.C.8)**

NUMBER & QUANTITY-Vector & Matrix Quantities

Perform operations on vectors (N-VM.B)

Use basic vector operations and the dot product
(**N-VM.B.5a**, N-VM.A.2,3, N-VM.B.4, 5b)

GEOMETRY-Congruence

Experiment with transformations in the plane (G-CO.A)

Transform geometric figures using matrix operations
(**G-CO.A.5**, G-CO.A.2, N-VM.C.6,7,8)

NUMBER & QUANTITY -Complex Number System

***Perform arithmetic operations with complex numbers (N-CN.A)**

Identify, graph and perform operations using complex numbers (including quadratics)
(**N-CN.A.1**, N-CN.A.2, N-CN.C.7, N-CN.C.8)

NUMBER & QUANTITY -Complex Number System

***Use polynomial numbers in polynomial identities and equations (N-CN.C)**

Solve equations using the Rational Root Theorem and Conjugate Root Theorem
(**N-CN.C.7**, N-CN.C.8)

Use the Fundamental Theorem of Algebra to solve complex polynomials
(**N-CN.C.7**, N-CN.C.8, N-CN.C.9, A-APR.B.3)

ALGEBRA-Arithmetic with Polynomials/Rational Expressions

Understand the relationship between zeros and factors of polynomials (A-APR.B

Divide polynomials using long/synthetic division
(**A-APR.B.2**, A-APR.A.1, A-APR.D.6)

ALGEBRA-Arithmetic with Polynomials/Rational Expressions

Use polynomial identities to solve problems (A-APR.C)

Expand a binomial using Pascal's Triangle and the Binomial Theorem
(**A-APR.C.5)**

FUNCTIONS-Linear, Quadratic, and Exponential Models

Construct and compare linear, quadratic, and exponential models and solve problems (F-LE.A)

Solve exponential & logarithmic equations
(**F-LE.A.4**, A-REI.D.11)

Evaluate, simplify, & solve natural logarithms
(**F-LE.A.4)**