New Mexico Instructional Scope

Algebra 1 Reasoning with Equations and Inequalities Guide

The purpose of this tool is to help educators understand each of the grade level standards and how those standards connect to the students' overall preparation for college and career readiness.

The NMIS is a teacher-influenced tool, designed to provide instructional planning support at the programmatic level for districts and instructional level for teachers. Its foundation stems from the vision and mission of the PED and came into existence to assure that students in NM will be engaged in a culturally and linguistically responsive educational system that meets the social, emotional, and academic needs of ALL students. This is also rooted in the belief that all students must have access to on-grade-level standards, focusing on acceleration. The purpose of this tool is to help educators understand each of the grade level standards and how those standards connect to the students' overall preparation for college and career readiness.

Standards are defined as the most critical prerequisite skills and knowledge. This document is color-coded to reflect both anchor and priority standards. Though previous emphasis was placed on priority standards to address lost learning due to COVID-19, New Mexico teachers should note that moving forward, while priority standards allow for acceleration of learning, all standards should be addressed in instruction throughout the school year.

In this guide you will find:

- A breakdown of each of the grade level standards within the cluster, including:
  - Standards of Mathematical Practice
  - Common Misconceptions
  - Identification of Priority Standards, as identified by NMPED.
  - Level of Rigor Identification
- Sample aligned assessment items
- Suggested Student Discourse Guide
- A multilayered system of supports (MLSS) and culturally and linguistically responsive instruction (CLR) guide

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Algebra 1 Reasoning with Equations and Inequalities Guide

Key		
	Priority Standard	Priority standards, as identified by NMPED, are denoted with red highlighting. Priority standards are the most critical prerequisite skills and knowledge a student needs. This does not mean that these are only standards required to be taught, just these are the standards that will allow for the acceleration the students of New Mexico need during this time.
	*Conceptual Understanding*	Conceptual Understanding standards help students build a deep understanding of the **how** and **why** of mathematics.
	*Application*	Application standards help students identify the appropriate concepts and skills to tackle **novel real-world problems.**
	*Procedural Skill and Fluency*	Procedural standards help students develop **efficiency** and **accuracy** in computations.

Standards Breakdown

- Understand solving equations as a process of reasoning and explain the reasoning.
  - HSA.REI.A.1
- Solve equations and inequalities in one variable.
  - HSA.REI.B.3
  - HSA.REI.B.4
- Solve systems of equations.
  - HSA.REI.C.5
  - HSA.REI.C.6
  - HSA.REI.C.7
- Represent and solve equations and inequalities graphically.
  - HSA.REI.D.10
  - HSA.REI.D.11
  - HSA.REI.D.12

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Algebra 1 Reasoning with Equations and Inequalities Guide

Grade	*CCSS Domain*	*CCSS Cluster*
A1	**Reasoning with Equations & Inequalities**	**Understand solving equations as a process of reasoning and explain the reasoning**

Cluster Standard: HSA.REI.A.1

Standard	Standards for Mathematical Practice
Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.	• **SMP 3:** Construct viable arguments and critique the reasoning of others. • **SMP 5:** Use appropriate tools strategically.
Clarification Statement	**Students Who Demonstrate Understanding Can...**
• A written sequence of steps to solve an equation is code for a narrative line of reasoning using words like "if," "then," "for all," " and "there exists." In the process of learning to solve equations, students learn certain standard "if-then" moves, for example "if $x = y$ then $x + 2 = y + 2$." The danger in learning algebra is that students emerge with nothing but the moves, which may make it difficult to detect incorrect or made-up moves later. Thus, the first requirement in the standards in this domain is that students understand that solving equations is a process of reasoning. This does not necessarily mean that they always write out the full text; part of the advantage of algebraic notation is its compactness. Once students know what the code stands for, they can start writing in code.	• Explain why an equation is equivalent when performing operations to isolate a variable. • Construct arguments for equality using visual representations. • Justify reasoning for elimination of coefficients and/or constants and other steps using multiple types of operations, including multiplication of fractions.

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Fragments of reasoning

$$x^2 = 4$$
$$x^2 - 4 = 0$$
$$(x-2)(x+2) = 0$$
$$x = 2, -2$$

This sequence of equations is short-hand for a line of reasoning:

> If x is a number whose square is 4, then $x^2 - 4 = 0$. Since $x^2 - 4 = (x-2)(x+2)$ for all numbers x, it follows that $(x-2)(x+2) = 0$. So either $x - 2 = 0$, in which case $x = 2$, or $x + 2 = 0$, in which case $x = -2$.

More might be said: a justification of the last step, for example, or a check that 2 and -2 actually do satisfy the equation, which has not been proved by this line of reasoning.

DOK	Blooms
1-3	Understand, Apply, Evaluate

Common Misconceptions

- Students do not recognize equality as a relationship between two quantities or, more generally, two mathematical expressions, asserting that the quantities have the same value, or that the expressions represent the same mathematical object.
- Students may perform inappropriate operations on polynomials. Students may subtract from coefficients and constants when subtracting on both sides of an equation or multiply only coefficients when multiplying both sides of an equation.

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Algebra 1 Reasoning with Equations and Inequalities Guide

Grade	*CCSS Domain*	*CCSS Cluster*
A1	**Reasoning with Equations & Inequalities**	**Solve equations and inequalities in one variable**

Cluster Standard: HSA.REI.B.3

Standard	**Standards for Mathematical Practice**
Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	• **SMP 2:** Reason abstractly and quantitatively. • **SMP 8:** Look for and express regularity in repeated reasoning.
Clarification Statement	**Students Who Demonstrate Understanding Can...**
• With an understanding of solving equations as a reasoning process, students can organize the various methods for solving different types of equations into a coherent picture. For example, solving linear equations involves only steps that are reversible (adding a constant to both sides, multiplying both sides by a non-zero constant, transforming an expression on one side into an equivalent expression). Therefore, solving linear equations does not produce extraneous solutions.	• Solve linear equations, including ones that require using the distributive property, combining like terms, variables on both sides and rational coefficients. • Solve literal equations to isolate a specific variable (e.g., rewriting point slope form to solve for *m*). • Solve linear inequalities, including ones with negative coefficients.
DOK	**Blooms**
1-2	Understand, Apply

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Algebra 1 Reasoning with Equations and Inequalities Guide

Grade	*CCSS Domain*	*CCSS Cluster*
A1	**Reasoning with Equations & Inequalities**	**Understand solving equations as a process of reasoning and explain the reasoning**

Cluster Standard: HSA.REI.B.4

Standard	Standards for Mathematical Practice
Solve quadratic equations in one variable. • HSA.REI.B.4.A: Use the method of completing the square to transform any quadratic equation in *x* into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form. • HSA.REI.B.4.B: Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b.	• **SMP 5**: Use appropriate tools strategically. • **SMP 7:** Look for and make use of structure.
Clarification Statement	**Students Who Demonstrate Understanding Can...**
• HSE.REI.B.4a: The key step in completing the square involves at its heart factoring. And the quadratic formula is nothing more than an encapsulation of the method of completing the square, expressing the actions repeated in solving a collection of quadratic equations with numerical coefficients with a single formula. (MP.8) • HSE.REI.B.4b: It is traditional for students to spend a lot of time on various techniques of solving quadratic equations, which are often presented as if they are completely unrelated (factoring, completing the square, the quadratic formula). Students with an understanding of the underlying reasoning behind all these methods are opportunistic in their application, choosing the method that	• Derive the quadratic formula from the general form of a quadratic equation. • Solve quadratic equations in one variable with real solutions by inspection, taking square roots, completing the square, using the quadratic formula and factoring. • Identify the number and types of solutions of a quadratic equation using the discriminant.

best suits the situation at hand.	
DOK	**Blooms**
1-3	Understand, Apply, Analyze, Evaluate

Common Misconceptions

- Since the steps for solving addition and subtraction equations and inequalities are similar, students often forget to change the direction of the inequality sign when multiplying or dividing by a negative coefficient.
- Students will often gravitate toward one solution method or another and try to use it in every possible situation given rather than paying attention to the structure of the equation and choosing the method that is most appropriate to use based on its structure.

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Algebra 1 Reasoning with Equations and Inequalities Guide

Grade	*CCSS Domain*	*CCSS Cluster*
A1	**Reasoning with Equations & Inequalities**	**Solve systems of equations**

Cluster Standard: HSA.REI.C.5

Standard	**Standards for Mathematical Practice**
Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.	• **SMP 3:** Construct viable arguments and critique the reasoning of others. • **SMP 8:** Look for and express regularity in repeated reasoning.
Clarification Statement	**Students Who Demonstrate Understanding Can...**
• Student work with solving systems of equations starts the same way as work with solving equations in one variable; with an understanding behind the various techniques. An important step is realizing that a solution to a system of equations must be a solution to all the equations in the system simultaneously. Then the process of adding one equation to another is understood as "if the two sides of one equation are equal, and the two sides of another equation are equal, then the sum of the left sides of the two equations is equal to the sum of the right sides." Since this reasoning applies equally to subtraction, the process of adding one equation to another is reversible, and therefore leads to an equivalent system of equations.	• Transform a given system of two equations in two variables into an equivalent system that has the same solutions as the original system. • Prove that both systems have the same solution.
DOK	**Blooms**
2-3	Apply, Analyze, Evaluate

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Grade	*CCSS Domain*	*CCSS Cluster*
A1	**Reasoning with Equations & Inequalities**	**Solve systems of equations**

Cluster Standard: HSA.REI.C.6

Standard	**Standards for Mathematical Practice**
Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.	• **SMP 3**: Construct viable arguments and critique the reasoning of others. • **SMP 7:** Look for and make use of structure.
Clarification Statement	**Students Who Demonstrate Understanding Can...**
• Systems of two linear equations with two variables also have the advantage that a good graphical visualization is available; a pair (*x*,*y*) satisfies two equations in two variables if it is on both their graphs, and therefore an intersection point of the graphs.	• Solve a system of linear equations using substitution. • Solve a system of linear equations using elimination. • Solve a system of linear equations by graphing by hand. • Solve a system of linear equations using graphing technology (or Desmos) to estimate more complicated solutions (non-terminating rational solutions). • Differentiate among situations where one solution, no solutions or infinite solutions occur.
DOK	**Blooms**
1-2	Understand, Apply, Analyze

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Algebra 1 Reasoning with Equations and Inequalities Guide

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Grade	*CCSS Domain*	*CCSS Cluster*
A1	**Reasoning with Equations & Inequalities**	**Solve systems of equations**

Cluster Standard: HSA.REI.C.7

Standard	**Standards for Mathematical Practice**
Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. *For example, find the points of intersection between the line y = -3x and the circle $x^2 + y^2 = 3$.*	• **SMP 5:** Use appropriate tools strategically. • **SMP 7**: Look for and make use of structure.
Clarification Statement	**Students Who Demonstrate Understanding Can...**
Systems of two linear equations with two variables also have the advantage that a good graphical visualization is available; a pair (*x*,*y*) satisfies two equations in two variables if it is on both their graphs, and therefore an intersection point of the graphs	• Solve a simple system of a linear equation and a quadratic equation algebraically. • Solve a simple system of a linear equation and a quadratic equation by graphing by hand. • Differentiate among situations where one solution, no solutions or two solutions occur.
DOK	**Blooms**
1-2	Understand, Apply, Analyze

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Algebra 1 Reasoning with Equations and Inequalities Guide

Grade	*CCSS Domain*	*CCSS Cluster*
A1	**Reasoning with Equations & Inequalities**	**Represent and solve equations and inequalities graphically**

Cluster Standard: HSA.REI.D.10

Standard	Standards for Mathematical Practice
Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).	• **SMP 2:** Reason abstractly and quantitatively. • **SMP 4:** Model with mathematics.
Clarification Statement	**Students Who Demonstrate Understanding Can...**
Systems of two linear equations with two variables also have the advantage that a good graphical visualization is available; a pair (*x*,*y*) satisfies two equations in two variables if it is on both their graphs, and therefore an intersection point of the graphs	• Explain and verify that every point (x, y) on the graph of a linear or exponential equation represents all values for x and y that make the equation true. • Identify points that are solutions to an equation given a graph of a linear or exponential equation.
DOK	**Blooms**
1	Remember, Understand

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Algebra 1 Reasoning with Equations and Inequalities Guide

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Grade	*CCSS Domain*	*CCSS Cluster*
A1	**Reasoning with Equations & Inequalities**	**Represent and solve equations and inequalities graphically**

Cluster Standard: HSA.REI.D.11

Standard	**Standards for Mathematical Practice**
Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.	• **SMP 3:** Construct viable arguments and critique the reasoning of others. • **SMP 5**: Use appropriate tools strategically. • **SMP 7:** Look for and make use of structure.
Clarification Statement	**Students Who Demonstrate Understanding Can...**
• Just as the algebraic work with equations can be reduced to a series of algebraic moves unsupported by reasoning, so can the graphical visualization of solutions. The simple idea that an equation $f(x) = g(x)$ can be solved (approximately) by graphing $y = f(x)$ and $y = g(x)$ and finding the intersection points involves a number of pieces of conceptual understanding. This method seeks to convert an equation in one variable, $f(x) = g(x)$, to a system of equations in two variables, $y = f(x)$ and $y = g(x)$, by introducing a second variable y and setting it equal to each side of the equation. If x is a solution to the original equation, then $f(x)$ and $g(x)$ are equal, and thus (x, y) is a solution to the new system.	• Recognize what the solution $y = f(x)$ and $y = g(x)$ means on a graph. • Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$. • Find approximate solutions for the system $y = f(x)$ and $y = g(x)$ using graphs and tables. • Find successive approximations and use them to solve the system $y = f(x)$ and $y = g(x)$.
DOK	**Blooms**
1-3	Understand, Apply, Analyze, Evaluate

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Algebra 1 Reasoning with Equations and Inequalities Guide

Grade	*CCSS Domain*	*CCSS Cluster*
A1	**Reasoning with Equations & Inequalities**	**Represent and solve equations and inequalities graphically.**

Cluster Standard: HSA.REI.D.12

Standard	Standards for Mathematical Practice
Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.	• **SMP 2:** Reason abstractly and quantitatively. • **SMP 5**: Use appropriate tools strategically.
Clarification Statement	**Students Who Demonstrate Understanding Can...**
• Just as the algebraic work with equations can be reduced to a series of algebraic moves unsupported by reasoning, so can the graphical visualization of solutions. The simple idea that an equation $f(x) = g(x)$ can be solved (approximately) by graphing $y = f(x)$ and $y = g(x)$ and finding the intersection points involves a number of pieces of conceptual understanding. This method seeks to convert an equation in one variable, $f(x) = g(x)$, to a system of equations in two variables, $y = f(x)$ and $y = g(x)$, by introducing a second variable y and setting it equal to each side of the equation. If x is a solution to the original equation, then $f(x)$ and $g(x)$ are equal, and thus (x, y) is a solution to the new system.	• Determine whether the boundary line of a linear inequality is inclusive (solid) or is exclusive (broken) of the solution. • Determine which half-plane is the solution to a linear inequality • Graph the solution set to a system of linear inequalities in two variables as the intersection. of the corresponding half-planes. • Identify points that are a solution or non-solution to a linear inequality or system of linear inequalities.
DOK	**Blooms**
1-2	Understand, Apply, Analyze

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Algebra 1 Reasoning with Equations and Inequalities Guide

Common Misconceptions

- Students often interpret the solutions to an equation or graphical representation of an equation as only integer values.
- Students may believe an estimate of a value between two integer points is sufficient, but the standard states that students should find successive approximations to approximate the solution.

Student Discourse Guide

- **Purposeful, rich classroom discourse offers students the opportunity to express their ideas, thinking, and to critique the reasoning of others in a variety of ways (writing, drawing, verbal). Purposeful implementation of classroom discourse allows students to activate funds of knowledge and to refine their mathematical understanding. When students have frequent opportunities for discourse they find various paths to solutions and reveal knowledge or misunderstandings to educators. The process also allows educators to honor students' culture, lived experiences and evolving math identities.**
- **Discourse that focuses on tasks that promote reasoning and problem solving is a primary mechanism for developing conceptual understanding and meaningful learning of mathematics (Michaels, O'Connor, and Resnick, 2008)**

Domain: **Reasoning with Equations & Inequalities**	Strand: **Understand solving equations as a process of reasoning and explain the reasoning**

Suggested Student Discourse Questions

- Solve the equation. After each step, explain what you did and what mathematical property allows you to do it.
- Share your steps for solving the equation. Give feedback to other students on the steps they used.
- How many different ways can you solve this equation? Describe each method, step-by-step.
- Write an equation describing how you might spend money at a store for gift bags. You will have the same number of items in each gift bag, and you will spend the same amount of money for all the items you buy. Explain why you wrote the equation using specific

	numbers and variables.

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Domain: **Reasoning with Equations & Inequalities**	Strand: **Solve equations and inequalities in one variable**
Suggested Student Discourse Questions	
• Describe the structure of the literal equation. List the operations needed to rewrite the literal equation so it is defined by any of the variables within the literal equation. • Each group should share the process used to solve the inequality. When they are finished, the other groups should give the presenting group feedback on their process.	• Compare how you solved the literal equation with others in your group. Whose seems to be the most efficient? • Write an equation defining money you can spend at a store. Rewrite this equation so that it can represent buying various items at the store (ie, one equation may include only shirts and pants, while another equation includes grocery items).

ASSESSMENT GUIDE

- Understand solving equations as a process of reasoning and explain the reasoning.
- Solve equations and inequalities in one variable.
- Solve systems of equations.
- Represent and solve equations and inequalities graphically.

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Grade	*CCSS Domain*	*CCSS Strand*
A1	**Reasoning with Equations & Inequalities**	**Understand solving equations as a process of reasoning and explain the reasoning**

Sample Task #1 (Constructed Response)

What value of *x* is the expression $\frac{-3}{x^2+3x-10}$ undefined?

SAT, #

Sample Task #2 (Multiple Choice)

$\frac{a-b}{a}=c$

In the equation above, if a is negative and b is positive, which of the following must be true?

A. $c>1$

B. $c=1$

C. $c=-1$

D. $c<-1$

SAT, #422064

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Grade	*CCSS Domain*	*CCSS Strand*
A1	**Reasoning with Equations & Inequalities**	**Solve equations and inequalities in one variable**

Sample Task #1 (Constructed Response)

Solve for x in each of the equations or inequalities below, and name the property and/or properties used:

a. $\frac{3}{4}x = 9$

b. $10 + 3x = 5x$

c. $a + x = b$

d. $cx = d$

e. $\frac{1}{2}x - g < m$

f. $q + 5x = 7x - r$

Engage NY - Algebra 1
Module 1, End of Module Assessment, #4

	Sample Task #2 (Multiple Choice)
	$a = 1{,}052 + 1.08t$ The speed of a sound wave in air depends on the air temperature. The formula above shows the relationship between a, the speed of a sound wave, in feet per second, and t, the air temperature, in degrees Fahrenheit (°F). At which of the following air temperatures will the speed of a sound wave be closest to 1,000 feet per second? A. $-46°F$ B. $-48°F$ C. $-49°F$ D. $-50°F$ SAT, #18488

Grade	*CCSS Domain*	*CCSS Strand*
A1	**Reasoning with Equations & Inequalities**	**Solve systems of equations**
	Sample Task #1 (Constructed Response)	
	$x - y = 1$ $x + y = x^2 - 3$ Which ordered pair is a solution to the system of equations above? A. $(1+\sqrt{3}, \sqrt{3})$ B. $(\sqrt{3}, -\sqrt{3})$ C. $(1+\sqrt{5}, \sqrt{5})$ D. $(\sqrt{5}, -1+\sqrt{5})$ SAT, #5439728	

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Sample Task #2 (Multiple Choice)

$y = x^2 + 3x - 7$
$y - 5x + 8 = 0$

How many solutions are there to the system of equations above?

A. There are exactly 4 solutions.

B. There are exactly 2 solutions.

C. There is exactly 1 solution.

D. There are no solutions.

SAT, #1473185

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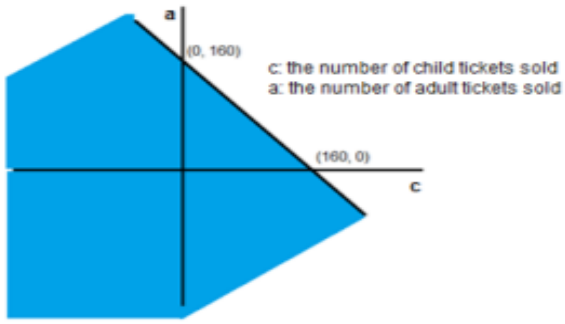
Grade	*CCSS Domain*	*CCSS Strand*
A1	**Reasoning with Equations & Inequalities**	**Represent and solve equations and inequalities graphically**

Sample Task #1 (Constructed Response)

The local theater in Jamie's home town has a maximum capacity of 160 people. Jamie shared with Venus the following graph and said that the shaded region represented all the possible combinations of adult and child tickets that could be sold for one show.



a. Venus objected and said there was more than one reason that Jamie's thinking was flawed. What reasons could Venus be thinking of?

Use equations, inequalities, graphs, and/or words to describe for Jamie the set of all possible combinations of adult and child tickets that could be sold for one show.

Engage NY - Algebra 1
Module 1, End of Module Assessment, #12

Sample Task #2 (Multiple Choice)

Which of the following ordered pairs (x, y) satisfies the inequality $5x - 3y < 4$?

1. $(1, 1)$
2. $(2, 5)$
3. $(3, 2)$

A. I only

B. II only

C. I and II only

D. I and III only

SAT, #422861

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MLSS AND CLR GUIDE

- Understand solving equations as a process of reasoning and explain the reasoning.
- Solve equations and inequalities in one variable.
- Solve systems of equations.
- Represent and solve equations and inequalities graphically.

CCSS Domain	*CCSS Cluster*
Reasoning with Equations and Inequalities	**Understand solving equations as a process of reasoning and explain the reasoning**

Culturally and Linguistically Responsive Instruction

Relevance to Families and Communities	During a unit focused on solving equations as a process of reasoning, consider options for learning from your families and communities the cultural and linguistic ways mathematics exists outside of school to create stronger home to school connections for students. For example, learn about the different ways of relating the steps of solving equations in real-life applications of using equations. Students working backward to solve for the unknown quantity is the same as students using inverse operations to solve the equation.	
Cross-Curricular Connections	Language Arts: Justifying reasoning is a form of persuasive writing, as students are trying to get others to agree that their solving process is appropriate and accurate. Consider providing a connection for students to write out the full text (as referenced above) in more of an essay format. Science: When students write up a lab report they often must detail how they tested their hypothesis and clarify why they performed their experiment in a specific way. Consider providing a connection where students must make some "prediction" or hypothesis about an equation prior to solving and then write up their solving method in a format like a lab report.	
Validate/Affirm/Build/Bridge	• *How can you design your mathematics classroom to intentionally and purposefully legitimize the home*	• Facilitating Meaningful Mathematical Discourse: Mathematics discourse requires intentional planning to ensure all students feel comfortable to share, consider, build upon and critique the mathematical ideas under consideration. When student ideas serve as the basis for discussion, we position them as

	culture and languages of students and reverse the negative stereotypes regarding the mathematical abilities of students of marginalized cultures and languages? • *How can you create connections between the cultural and linguistic behaviors of your students' home culture and language, the culture and language of school mathematics to support students in creating mathematical identities as capable mathematicians that can use mathematics within school and society?*	knowers and doers of mathematics. Using equitable talk moves students and the ways students talk about who is and isn't capable of mathematics, As a result, we can disrupt the negative images and stereotypes around mathematics of marginalized cultures and languages. "A discourse-based mathematics classroom provides stronger access for every student — those who have an immediate answer or approach to share, those who have begun to formulate a mathematical approach to a task but have not fully developed their thoughts, and those who may not have an approach but can provide feedback to others." For example, when understanding solving equations as a process of reasoning and explaining the mathematical discourse is critical because students practice expressing their mathematical thinking using the content language. Students compare and evaluate different entry points of solving equations. Students defend their strategies by constructing viable arguments and build confidence in math.

Planning for Multi-Layered System of Supports

Vertical Alignment

Previous Learning	*Current Learning*	*Future Learning*
• Connect to applying the associative, commutative, distributive, and identity properties. **(3.OA.5)** • Connect to learning math properties and their names.	• Connect to creating and solving equations and inequalities in one variable. **(HSA.CED.1, HSA.REI.3)**	• Connect to justifying steps in solving rational and radical equations. **(HSA.REI.2)** • Connect to justifying steps in writing proofs for geometry. **(HSG.CO.9-11, HSG.SRT.4-5)**

(7.NS.1-2) • Connect to using variables to write expressions and equations. **(6.EE.2)** • Connecting to solving linear equations. **(7.EE.4, 8.EE.7)**		

Suggested Instructional Strategies

Pre-Teach

Level of Intensity	***Essential Question***	***Examples***
Targeted	*What pre-teaching will prepare students to productively struggle with the mathematics for this cluster within your HQIM?*	Some learners may benefit from targeted pre-teaching that focuses on solving equations and explaining each step because students may need to justify the inverse operation used in each step with viable arguments. Students may practice expressing their mathematical thinking verbally and symbolically.
Intensive	*What critical understandings will prepare students to access the mathematics for this cluster?*	6.EE.B.5: This standard provides a foundation for work with reasoning and solving one-variable equations because students need to understand each step of solving one-variable equations and explain the reason for each step. If students have unfinished learning within this standard, based on assessment data, consider ways to provide intensive pre-teaching support prior to the start of the unit to ensure students are ready to access grade level instruction and assignments.

Universal Support Framework

A student should know/understand...	A student should be able to do...	***Potential Scaffolds***
• Different forms of an expression can be equivalent and are useful in different contexts. • The addition, subtraction, or multiplication of polynomials results in	• Use the structure of an expression and the properties of mathematics to rewrite it in a different form. • Perform the	• Build on students' experience with the following skills: ○ Connect to identifying and interpreting slope and *y*-intercept for linear representations. (8.F.3-4) ○ Connect to rewriting standard linear equation to slope intercept form for systems of equations. (8.EE.8)

another polynomial. ● When a situation and its potential constraints will be represented by a linear or quadratic, or exponential equation/inequality or a system of those equations/inequalities. ● The relationship between solutions of equations/ inequalities and their graphical representations.	operations of addition, subtraction, and multiplication with polynomials. ● Determine reasonable solutions based on the context of real-world problems from graphs of equations/inequalities and systems of equations/inequalities. ● Use the properties of mathematics to solve linear and quadratic equations/inequalities and systems of those equations/inequalities.	○ Connect to knowing and apply the properties of integer exponents to generate equivalent, simplified numerical expressions using the properties of exponents. (8.A.1) ○ Connect to combining like terms and simplifying expressions using the distributive property (6.EE.3) ○ Connect to creating and solving equations in one variable. (7.EE.4) ○ Connect to reasoning with inequalities. (7.EE.4) ○ Connect to solving real world problems involving two linear equations in two variables. (8.EE.8) ● Cognitive Strategies ○ Repeatedly model the strategies ○ Monitor the students' use of the strategies ○ Provide feedback to students ○ Teach self-questioning and self-monitoring strategies ○ Introduce multiple means of representation for mathematical ideas ● Encourage students to use alternative tools to better access the grade level content. Examples include: ⊄ Desmos graphing calculator ⊄ Algebra tiles ⊄ Graphic Organizers ⊄ Sketch graph ⊄ Create table of values

Re-Teach		
Level of Intensity	***Essential Question***	***Examples***
Targeted	What formative assessment data (e.g.,	For example, students may benefit from re-engaging with content during a unit on explaining the reason of each

	tasks, exit tickets, observations) will help identify content needing to be revisited during a unit?	step of solving equations by critiquing student approaches/solutions to make connections through a short mini-lesson because students need to understand why the specific inverse operation is used and develop the viable argument using properties of equality.
Intensive	What assessment data will help identify content needing to be revisited for intensive interventions?	For example, some students may benefit from intensive extra time during and after a unit explaining the steps of solving equations by offering opportunities to understand and explore different strategies because students need to understand why some steps are interchangeable when solving the equations. Students need to explain the order of applying the inverse operations and how that relates to the order of operation of the equations.

Extension	
Essential Question	***Examples***
What type of extension will offer additional challenges to 'broaden' your student's knowledge of the mathematics developed within your HQIM?	Some learners may benefit from an extension such as solving complex equations and explaining the steps because students may deepen their understanding of inverse operation, such as logarithm as the inverse operation of exponent. Students explore strategies of solving equations with complex operations and justify their reason in cooperative learning groups.

CCSS Domain	***CCSS Cluster***
Reasoning with Equations and Inequalities	**Solve equations and inequalities in one variable**

Culturally and Linguistically Responsive Instruction

Relevance to Families and Communities	During a unit focused on solving equations and inequalities in one variable, consider options for learning from your families and communities the cultural and linguistic ways mathematics exists outside of school to create stronger home to school connections for students. For example, allowing students the autonomy to choose

	and create problems relevant to their home culture provides students a connection to the world of mathematics.	
Cross-Curricular Connections	Science: Projectile motion is modeled by quadratic functions. Consider providing a connection for students to experiment with projectile motion by tossing objects themselves, possibly using technology, and then exchanging equations with another classmate or group to solve. Language Arts: Explaining a process is a form of expository writing, as students are trying to give facts and information. Consider providing a connection for students to write out the derivation of the quadratic formula from standard form to help them see and explain how the two forms are related.	
Validate/Affirm/Build/Bridge	• *How can you design your mathematics classroom to intentionally and purposefully legitimize the home culture and languages of students and reverse the negative stereotypes regarding the mathematical abilities of students of marginalized cultures and languages?* • *How can you create connections between the cultural and linguistic behaviors of your students' home culture and language, the culture and language of school mathematics to support students in creating mathematical identities as capable mathematicians that can use mathematics within school and society?*	• Posing Purposeful Questions: CLRI requires intentional planning around the questions posed in a mathematics classroom. It is critical to consider "who is being positioned as competent, and whose ideas are featured and privileged" within the classroom through both the types of questioning and who is being questioned. Mathematics classrooms traditionally ask short answer questions and reward students that can respond quickly and correctly. When questioning seeks to understand students' thinking by taking their ideas seriously and asking the community to build upon one another's ideas a greater sense of belonging in mathematics is created for students from marginalized cultures and languages. For example, when solving equations and inequalities in one variable, the pattern of questions within the classroom is critical because promoting student learning in It should connect students' lived experiences and interests (their only resources for learning something new) to disciplinary problems in the world. For example, how are verbal and algebraic models and formulas used to represent real life situations? This allows students to come up with their own ideas and make it personable.

New Mexico Instructional Scope

Algebra 1 Reasoning with Equations and Inequalities Guide

NEW MEXICO Public Education Department

Planning for Multi-Layered System of Supports

Vertical Alignment

Previous Learning	*Current Learning*	*Future Learning*
• Connect to solving equations and inequalities in one variable. **(7.EE.4, 8.EE.7)** • Connect to solving equations involving squares and square roots. **(8.EE.2)**	• Connect to solving quadratic equations and relating solutions to the graph of the function. **(HSF.IF.7)** • Connect to use completing the square and factoring to rewrite quadratic functions in vertex and intercept form to identify key features of the graph. **(HSS.SSE.3)**	• Connect to solving additional types of nonlinear equations. **(HSA.REI.2)** • Connect to relating knowledge of solving quadratic equations to complex numbers, solving rational equations, trigonometric equations, and trigonometric form. **(HSN.CN.7, HSA.REI.2, HSF.TF.5, 7)** • Connect to understanding the need for a variety of methods (factoring, completing the square, and using quadratic formula) when solving other types of equations, such as parabolas, hyperbolas, and ellipses. **(HSG.GPE.A)**

Suggested Instructional Strategies

Pre-Teach

Level of Intensity	*Essential Question*	*Examples*
Targeted	*What pre-teaching will prepare students to productively struggle with the mathematics for this cluster within your HQIM?*	Some learners may benefit from targeted pre-teaching that focuses on solving equations and inequalities in one variable because knowing this will help prevent errors when solving this type of problem. Students will know what to look for and be aware of when approaching the problems.

Intensive	*What critical understandings will prepare students to access the mathematics for this cluster?*	6.EE.B.5Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.: This standard provides a foundation for work with solving the equations and inequalities because students will learn that solving is a process of reasoning to find the numbers which make an equation true, which can include checking if a given number is a solution. Although the process of reasoning will eventually lead to standard methods for solving equations, students should study examples where looking for structure pays off. If students have unfinished learning within this standard, based on assessment data, consider ways to provide intensive pre-teaching support prior to the start of the unit to ensure students are ready to access grade level instruction and assignments.

Universal Support Framework

A student should know/understand...	A student should be able to do...	***Potential Scaffolds***
• Different forms of an expression can be equivalent and are useful in different contexts. • The addition, subtraction, or multiplication of polynomials results in another polynomial. • When a situation and its potential constraints will be represented by a linear or quadratic, or exponential equation/inequality or a system of those equations/inequalities. • The relationship between solutions of	• Use the structure of an expression and the properties of mathematics to rewrite it in a different form. • Perform the operations of addition, subtraction, and multiplication with polynomials. • Determine reasonable solutions based on the context of real-world problems from graphs of equations/inequal	• Build on students' experience with the following skills: ○ Connect to identifying and interpreting slope and *y*-intercept for linear representations. (8.F.3-4) ○ Connect to rewriting standard linear equation to slope intercept form for systems of equations. (8.EE.8) ○ Connect to knowing and apply the properties of integer exponents to generate equivalent, simplified numerical expressions using the properties of exponents. (8.A.1) ○ Connect to combining like terms and simplifying expressions using the distributive property (6.EE.3) ○ Connect to creating and solving equations in one variable. (7.EE.4) ○ Connect to reasoning with inequalities. (7.EE.4) ○ Connect to solving real world problems

equations/ inequalities and their graphical representations.	ities and systems of equations/inequalities. ● Use the properties of mathematics to solve linear and quadratic equations/inequalities and systems of those equations/inequalities.	involving two linear equations in two variables. (8.EE.8) ● Cognitive Strategies ○ Repeatedly model the strategies ○ Monitor the students' use of the strategies ○ Provide feedback to students ○ Teach self-questioning and self-monitoring strategies ○ Introduce multiple means of representation for mathematical ideas ● Encourage students to use alternative tools to better access the grade level content. Examples include: ⊄ Desmos graphing calculator ⊄ Algebra tiles ⊄ Graphic Organizers ⊄ Sketch graph ⊄ Create table of values

Re-Teach

Level of Intensity	***Essential Question***	***Examples***
Targeted	What formative assessment data (e.g., tasks, exit tickets, observations) will help identify content needing to be revisited during a unit?	For example, students may benefit from re-engaging with content during a unit on solving equations and inequalities in one variable by providing specific feedback to students on their work through a short mini-lesson because < completing a task that compares equations and inequalities side by side and using the previous learned steps in solving both problems allows them to practice the skills that they have learned previously and reinforce them.
Intensive	What assessment data will help identify content needing to be revisited for intensive interventions?	For example, some students may benefit from intensive extra time during and after a unit solving equations and inequalities in one variable by offering opportunities to understand and explore different strategies> because students need opportunities to explore different methods and find which one works best for them.

New Mexico Instructional Scope

Algebra 1 Reasoning with Equations and Inequalities Guide

Extension	
Essential Question	***Examples***
What type of extension will offer additional challenges to 'broaden' your student's knowledge of the mathematics developed within your HQIM?	Some learners may benefit from an extension such as open-ended tasks linking multiple disciplines when studying solving equations and inequalities in one variable because making connections helps students appreciate learning the concept more and gives them opportunities to see where it may be going.

CCSS Domain	*CCSS Cluster*
Reasoning with Equations and Inequalities	**Solve systems of equations**

Culturally and Linguistically Responsive Instruction

Relevance to Families and Communities	During a unit focused on solving systems of equations, consider options for learning from your families and communities the cultural and linguistic ways mathematics exists outside of school to create stronger home to school connections for students. For example, connecting systems to their future will allow students the opportunity to understand there are many variables that influence their future goals and some variables are dependent on other variables. For example, whether they attend or where they attend college is dependent on money, grades, etc. By connecting systems of equations to their future goals, students learn how variables are connected and influence each other.	
Cross-Curricular Connections	Science: Projectile motion is modeled by quadratic functions and height is modeled by linear functions. Consider providing a connection for students to experiment with projectile motion by tossing objects themselves, possibly using technology, and then exchanging their system equations with another classmate or group to solve. Social Studies: In high school the New Mexico Social Studies Standards state students should "use quantitative data to analyze economic information". Consider providing a connection for students to work with systems of equations involving economic data.	
Validate/Affirm/Build/Bridge	• *How can you design your mathematics*	• Posing Purposeful Questions: CLRI requires intentional planning around the questions posed in a

	classroom to intentionally and purposefully legitimize the home culture and languages of students and reverse the negative stereotypes regarding the mathematical abilities of students of marginalized cultures and languages? ● *How can you create connections between the cultural and linguistic behaviors of your students' home culture and language, the culture and language of school mathematics to support students in creating mathematical identities as capable mathematicians that can use mathematics within school and society?*	mathematics classroom. It is critical to consider "who is being positioned as competent, and whose ideas are featured and privileged" within the classroom through both the types of questioning and who is being questioned. Mathematics classrooms traditionally ask short answer questions and reward students that can respond quickly and correctly. When questioning seeks to understand students' thinking by taking their ideas seriously and asking the community to build upon one another's ideas a greater sense of belonging in mathematics is created for students from marginalized cultures and languages. For example, when solving systems of equations, the pattern of questions within the classroom is critical because promoting student learning in It should connect students' lived experiences and interests (their only resources for learning something new) to disciplinary problems in the world. Systems can be used when trying to determine if you'll make more money at one job or another, taking multiple variables into account, such as salary, benefits and commissions. For example, how would you describe in writing the graphical and algebraic solutions to systems of linear equations using key, technical vocabulary in expanded and some complex sentences? This allows students to really see if they understand the concept. How can you create your own real-world problem?

Planning for Multi-Layered System of Supports

Vertical Alignment

Previous Learning	*Current Learning*	*Future Learning*
● Connect to solving systems of linear equations with a focus on graphing and substitution. **(8.EE.8)**	● Connect to creating a system of linear equations or inequalities in a real- world context. **(HSA.CED.3)**	● Connect to using matrices to solve systems of linear equations. **(HSA.REI.8-9)**

Suggested Instructional Strategies

New Mexico Instructional Scope

Algebra 1 Reasoning with Equations and Inequalities Guide

NEW MEXICO Public Education Department

Pre-Teach		
Level of Intensity	***Essential Question***	***Examples***
Targeted	*What pre-teaching will prepare students to productively struggle with the mathematics for this cluster within your HQIM?*	Some learners may benefit from targeted pre-teaching that focuses on solving systems of equations because understanding common errors will help clarify understanding and avoid making the same mistakes.
Intensive	*What critical understandings will prepare students to access the mathematics for this cluster?*	8. EE.C.8 Analyze and solve pairs of simultaneous linear equations. This standard provides a foundation for work with solving equations simultaneously graphically, algebraically, or with a matrix because understanding that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously. If students have unfinished learning within this standard, based on assessment data, consider ways to provide intensive pre-teaching support prior to the start of the unit to ensure students are ready to access grade level instruction and assignments.
Universal Support Framework		
A student should know/understand...	A student should be able to do...	***Potential Scaffolds***
• Different forms of an expression can be equivalent and are useful in different contexts. • The addition, subtraction, or multiplication of polynomials results in another polynomial. • When a situation and its potential constraints will be represented by a linear or quadratic, or	• Use the structure of an expression and the properties of mathematics to rewrite it in a different form. • Perform the operations of addition, subtraction, and multiplication with polynomials. • Determine reasonable solutions based on	• Build on students' experience with the following skills: ○ Connect to identifying and interpreting slope and *y*-intercept for linear representations. (8.F.3-4) ○ Connect to rewriting standard linear equation to slope intercept form for systems of equations. (8.EE.8) ○ Connect to knowing and apply the properties of integer exponents to generate equivalent, simplified numerical expressions using the properties of exponents. (8.A.1) ○ Connect to combining like terms and simplifying expressions using the

exponential equation/inequality or a system of those equations/inequalities. ● The relationship between solutions of equations/ inequalities and their graphical representations.	the context of real-world problems from graphs of equations/inequalities and systems of equations/inequalities. ● Use the properties of mathematics to solve linear and quadratic equations/inequalities and systems of those equations/inequalities.	distributive property (6.EE.3) ○ Connect to creating and solving equations in one variable. (7.EE.4) ○ Connect to reasoning with inequalities. (7.EE.4) ○ Connect to solving real world problems involving two linear equations in two variables. (8.EE.8) ● Cognitive Strategies ○ Repeatedly model the strategies ○ Monitor the students' use of the strategies ○ Provide feedback to students ○ Teach self-questioning and self-monitoring strategies ○ Introduce multiple means of representation for mathematical ideas ● Encourage students to use alternative tools to better access the grade level content. Examples include: ○ **Desmos graphing calculator** ○ **Algebra tiles** ○ **Graphic Organizers** ○ **Sketch graph** ○ **Create table of values**

Re-Teach		
Level of Intensity	***Essential Question***	***Examples***
Targeted	What formative assessment data (e.g., tasks, exit tickets, observations) will help identify content needing to be revisited during a unit?	For example, students may benefit from re-engaging with content during a unit on solving system of equations by revisiting student thinking through a short mini lesson because sometimes students need a refresher in prior knowledge to help them continue in the task.
Intensive	What assessment data will help identify content needing to be revisited for	For example, some students may benefit from intensive extra time during and after a unit system of equations by confronting student misconceptions because learning

	intensive interventions?	from other students' mistakes can help develop their own understanding and help them to not continue to make the same mistakes.

Extension	
Essential Question	***Examples***
What type of extension will offer additional challenges to 'broaden' your student's knowledge of the mathematics developed within your HQIM?	Learners may benefit from an extension such as in-depth, self-directed exploration of self-selected topics when solving systems of equations because they can relate the concept to a real-world problem and see how this will benefit in real life. Making connections with them and applying solving a system to a real-life situation will allow them to make connections to other concepts as well.

CCSS Domain	***CCSS Cluster***
Reasoning with Equations and Inequalities	**Represent and solve equations and inequalities graphically**

Culturally and Linguistically Responsive Instruction

Relevance to Families and Communities	During a unit focused on representing and solving equations and inequalities graphically, consider options for learning from your families and communities the cultural and linguistic ways mathematics exists outside of school to create stronger home to school connections for students. For example, bring in the different languages spoken in the home and connecting it to the tools available to translate different languages, (i.e. Google translate, closed captions on televisions, etc.) make connections that show that in the culture of mathematics, tools are used to translate mathematics and help us make sense of what we are seeing.
Cross-Curricular Connections	Computer Science: Computer programs use functions to define the points used to graph the animation on a computer. Consider providing a connection where students can write from scratch or compile premade selections to create code that will result

	in their own animations. Social Studies: In high school the New Mexico Social Studies Standards state students should "use quantitative data to analyze economic information". Consider providing a connection for students to work with a context that compares two situations that each include a standard base fee and additional charges per unit of some quantity.	
Validate/Affirm/Build/Bridge	• *How can you design your mathematics classroom to intentionally and purposefully legitimize the home culture and languages of students and reverse the negative stereotypes regarding the mathematical abilities of students of marginalized cultures and languages?* • *How can you create connections between the cultural and linguistic behaviors of your students' home culture and language, the culture and language of school mathematics to support students in creating mathematical identities as capable mathematicians that can use mathematics within school and society?*	• Using and Connecting Mathematical Representations: The standard for mathematical practice, use appropriate tools strategically, provides a strong foundation to validate and bridge concepts for students. Mathematical representations are mathematical tools. The linguistic and cultural experiences of students provide different and varied types of representations for solving mathematical problems. By explicitly encouraging students to use multiple mathematical representations students can draw on their "mathematical, social, and cultural competence". By valuing these representations and discussing them we can connect student representations to the representations of school mathematics and build a bridge for students to position them as competent and capable mathematicians. For example, when representing and solving equations and inequalities graphically the use of mathematical representations within the classroom is critical because students are given a situation in two variables and they must find the value of one variable given the value of the other, create an equation to represent the situation, use technology to create a graph, and interpret each representation. Understanding how lines and tables represent solution sets of linear relationships will help students make sense of graphs of and solutions to linear inequalities, and later, to make sense of solutions to systems of linear equations in their Algebra 1 class.

Planning for Multi-Layered System of Supports

New Mexico Instructional Scope

Algebra 1 Reasoning with Equations and Inequalities Guide

Vertical Alignment		
Previous Learning	***Current Learning***	***Future Learning***
• Connect to using variables to write expressions, equations, and inequalities. **(6.EE.2)** • Connect to graphing one variable inequalities on a number line. **(7.EE.4)** • Connect to graphing linear equations. **(8.EE.5)** • Connect to graphing systems of linear equations. **(8.EE.8)**	• Connect to interpreting statements, key features, and solutions of linear, quadratic, and exponential functions in terms of context. **(HSA.CED.1,3)** • Connect to graphing linear, quadratic, and exponential functions. **(HSA.CED.2)** • Connect to creating linear, quadratic, and exponential functions. **(HSA.CED.1-2)** • Connect to using graphs of linear, quadratic, and exponential functions to solve real-world contexts. **(HSA.CED.2)**	• Connect to apply these principles to different types of functions. **(HSA.REI.11)**

Suggested Instructional Strategies

Pre-Teach

Level of Intensity	***Essential Question***	***Examples***
Targeted	*What pre-teaching will prepare students to productively struggle with the mathematics for this cluster within your HQIM?*	Some learners may benefit from targeted pre-teaching that focuses on representing and solving equations and inequalities graphically because they will be taking the graphing of single points to graphing lines and equations as a set.
Intensive	*What critical understandings will prepare students to access the mathematics for this cluster?*	6.EE.B.5: This standard provides a foundation for work to represent and solve equations and inequalities graphically because by substituting numerical values into an equation to determine if the equation is true, the student will comprehend that the answer is a solution. If students have unfinished learning within this standard,

		based on assessment data, consider ways to provide intensive pre-teaching support prior to the start of the unit to ensure students are ready to access grade level instruction and assignments.
Universal Support Framework		
A student should know/understand...	A student should be able to do...	***Potential Scaffolds***

• Different forms of an expression can be equivalent and are useful in different contexts.
• The addition, subtraction, or multiplication of polynomials results in another polynomial.
• When a situation and its potential constraints will be represented by a linear or quadratic, or exponential equation/inequality or a system of those equations/inequalities.
• The relationship between solutions of equations/ inequalities and their graphical representations.
	• Use the structure of an expression and the properties of mathematics to rewrite it in a different form.
	• Perform the operations of addition, subtraction, and multiplication with polynomials.
	• Determine reasonable solutions based on the context of real-world problems from graphs of equations/inequalities and systems of equations/inequalities.
	• Use the properties of mathematics to solve linear and quadratic equations/inequalities and systems of those equations/inequa
		• Build on students' experience with the following skills:
		  ○ Connect to identifying and interpreting slope and *y*-intercept for linear representations. (8.F.3-4)
		  ○ Connect to rewriting standard linear equation to slope intercept form for systems of equations. (8.EE.8)
		  ○ Connect to knowing and apply the properties of integer exponents to generate equivalent, simplified numerical expressions using the properties of exponents. (8.A.1)
		  ○ Connect to combining like terms and simplifying expressions using the distributive property (6.EE.3)
		  ○ Connect to creating and solving equations in one variable. (7.EE.4)
		  ○ Connect to reasoning with inequalities. (7.EE.4)
		  ○ Connect to solving real world problems involving two linear equations in two variables. (8.EE.8)
		• Cognitive Strategies
		  ○ Repeatedly model the strategies
		  ○ Monitor the students' use of the strategies
		  ○ Provide feedback to students
		  ○ Teach self-questioning and self-monitoring strategies
		  ○ Introduce multiple means of representation for mathematical ideas
		• Encourage students to use alternative tools to

	lities.	better access the grade level content. Examples include: ⊄ Desmos graphing calculator ⊄ Algebra tiles ⊄ Graphic Organizers ⊄ Sketch graph ⊄ Create table of values

Re-Teach		
Level of Intensity	***Essential Question***	***Examples***
Targeted	What formative assessment data (e.g., tasks, exit tickets, observations) will help identify content needing to be revisited during a unit?	For example, students may benefit from re-engaging with content during a unit on representing and solving equations and inequalities graphically by clarifying mathematical ideas and/or concepts through a short mini-lesson because helping students to understand what the different parts of the graph are telling them will help them to make better understanding of the graphs themselves.
Intensive	What assessment data will help identify content needing to be revisited for intensive interventions?	For example, some students may benefit from intensive extra time during and after a unit representing and solving equations and inequalities graphically by confronting student misconceptions because graphs can be misleading if read incorrectly and lead to quite a number of misconceptions, especially when it comes to how accurate the answers you are getting from them are.

Extension	
Essential Question	***Examples***
What type of extension will offer additional challenges to 'broaden' your student's knowledge of the mathematics developed within your HQIM?	Some learners may benefit from an extension that addresses representing and solving equations and inequalities graphically. Some students will pick up on the nuances of graphing quite quickly, by comparison, and could investigate further along points of inquiry such as how changing windows, scaling, or other aspects of the graph affect the readability and usefulness of it as a tool.

New Mexico Instructional Scope

Algebra 1 Reasoning with Equations and Inequalities Guide