MAFS.912.A-CED.1.2 Also assesses MAFS.912.A-REI.3.5 Also assesses MAFS.912.A-REI.3.6 Also assesses MAFS.912.A-REI.4.12	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. 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. Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables. 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.
Item Types	Editing Task Choice – May require choosing the correct definition of a variable or completing an explanation or a proof. Equation Editor – May require creating a set of equations, creating a set of inequalities, or giving an ordered pair. GRID – May require graphing a representation of a set of equations, a set of inequalities, or an ordered pair; selecting a solution region; or dragging and dropping text to complete a proof. Hot Text – May require selecting a solution or dragging and dropping text to complete a proof. Multiple Choice – May require identifying a set of equations, a set of inequalities, a value, an ordered pair, or a graph. Multiselect – May require identifying equations or inequalities. Open Response – May require writing an explanation.
Clarifications	Students will identify the quantities in a real-world situation that should be represented by distinct variables. Students will write a system of equations given a real-world situation. Students will graph a system of equations that represents a real-world context using appropriate axis labels and scale. Students will solve systems of linear equations. Students will provide steps in an algebraic proof that shows one equation being replaced with another to find a solution for a system of equations.

	Students will identify systems whose solutions would be the same through examination of the coefficients. Students will identify the graph that represents a linear inequality. Students will graph a linear inequality. Students will identify the solution set to a system of inequalities. Students will identify ordered pairs that are in the solution set of a system of inequalities. Students will graph the solution set to a system of inequalities.
Assessment Limits	Items that require the student to write a system of equations using a real-world context are limited to a system of 2 x 2 linear equations with integral coefficients if the equations are written in the form $Ax + By = C$. Items that require the student to solve a system of equations are limited to a system of 2 x 2 linear equations with integral coefficients if the equations are written in the form $Ax + By = C$. Items that require the student to graph a system of equations or inequalities to find the solution are limited to a 2 x 2 system. Items that require the student to write a system of inequalities using a real-world context are limited to integer coefficients.
Stimulus Attributes	Items assessing A-CED.1.2 must be placed in a real-world context. Items assessing A-REI.3.5 must be placed in a mathematical context. Items assessing A-REI.3.6 and A-REI.4.12 may be set in a real-world or mathematical context. Items may result in infinitely many solutions or no solution.
Response Attributes	Items may require the student to choose an appropriate level of accuracy. Items may require the student to choose and interpret the scale in a graph. Items may require the student to choose and interpret units. For A-CED.1.2, items may require the student to apply the basic modeling cycle.
Calculator	Neutral

Sample Item	Item Type
	Multiselect

The system $\begin{matrix} Px + Qy = R \\ Fx + Gy = H \end{matrix}$ has the solution $(3, -1)$, where F, G, H, P, Q, and R are non-zero real numbers.

Select all the systems that are also guaranteed to have the solution $(3, -1)$.

- ☐ $(P + F)x + (Q + G)y = R + H$
  $Fx + Gy = H$
- ☐ $(P + F)x + Qy = R + H$
  $Fx + (G + Q)y = H$
- ☐ $Px + Qy = R$
  $(3P + F)x + (3Q + G)y = 3H + R$
- ☐ $Px + Qy = R$
  $(F - 2P)x + (G - 2Q)y = H - 2R$
- ☐ $Px + Qy = R$
  $5Fx + 5Gy = 5H$