**Algebra 2 Unit 1: Solving Systems of Equations and Inequalities**

**Standards:**

1. A-CED1-4: Create equations that describe numbers or relationships.
   1. Create equations and inequalities in one variable and use them to solve problems.
   2. Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.
   3. Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context.
   4. Rearrange formulas to highlight a quantity of interest, using the same reasoning in solving equations.
2. A- REI 10-12: Represent and solve equations and inequalities graphically.
   1. 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.
   2. Explain why the x coordinates of the points where two lines intersect are the solutions of the two equations. Find the solutions to the two lines.
   3. Graph the solutions to a linear inequality in two variables as a half plane, and graph the solution st to a system of linear inequalities in two variables as the intersection of the corresponding half planes.
3. A- REI 5, 6, 8, 9: Solve systems of equations.
   1. 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.
   2. Solve systems of linear equations exactly and approximately focusing on pairs of linear equations in two variables.
   3. Represent a system of linear equations as a single matrix equation in a vector variable.
   4. Find the inverse of a matrix if it exists and use it to solve systems of linear equations.
4. N-VM 6-8: Perform operations on matrices and use matrices in applications.
   1. Use matrices to represent and manipulate data.
   2. Multiply matrices by scalars to produce new matrices
   3. Add, subtract, and multiply matrices of appropriate dimensions.

**Test Standards:**

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2. Solve systems of equations
   1. Graphically
   2. Substitution
   3. Elimination
   4. Matrix
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5. Solve real-world application problems using systems of equations and matrices

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