# 12 Topic: Systems of Linear Equations & Matrices Copied from: All Algebra 2, Copied on: 02/28/22

Content Area: Mathematics
Course(s): Algebra 2

Time Period: Marking Period 4

Length: **2-3 weeks** Status: **Published** 

#### **Standards**

MA.A-CED.A.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.
MA.N-VM.C.6	Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network.
MA.A-REI.C.6	Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.
MA.A-REI.C.8	Represent a system of linear equations as a single matrix equation in a vector variable.
MA.A-REI.C.9	Find the inverse of a matrix if it exists and use it to solve systems of linear equations (using technology for matrices of dimension $3 \times 3$ or greater).

### **Enduring Understandings**

- 1. Mathematics is a language consisting of symbols and rules.
- 2. The same mathematical ideas can be represented concretely or symbolically.
- 3. There can be different strategies to solve a problem, but some are more effective and efficient than others.

## **Essential Questions**

- 1. Which operations and equivalences will simplify and help me solve the problem?
- 2. How is thinking algebraically different from thinking arithmetically?
- 3. How does explaining my process help me to understand a problem's solution better?
- 4. What is meant by equality?

## **Knowledge and Skills**

Solve a system of equations by graphing

Solve a system of equations by Substitution Method

Solve a system of equations by Elimination Method

Solve a system of Linear equations using Cramer's Rule

Solve a system of equations using the Inverse Matrix

Find the determinant of a matrix by the definition

Find the determinant of a matrix by minors

Find the determinant of a matrix using the TI-83 calculator

Find the inverse of a square matrix with and without a calculator

Add, Subtract, and Multiply Matrices

Solve word problems by systems of equations

#### **Transfer Goals**

Using mathematical reasoning and strategic thinking can allow for practical solutions ot many problems.

Often unique vocabulary and implementation methods are needed to solve problems.

#### Resources

- 1. McDougal/Littell Algebra & Trigonometry Structure & Method Book 2
- 2. Aufmann/Barker/Lockwood Intermediate Algebra with Applications Sixth Edition
- 3. Houghton/Mifflin/Harcourt On Core Mathematics Algebra 2
- 4. Holt Algebra 2 with Trigonometry
- 5. Larson/Boswell Big Ideas Math: Algebra 2 Texas Edition
- 6. Khan Academy
- 7. PurpleMath
- 8. KutaSoftware

- 9. <u>CK-12</u>
- 10. Quizlet
- 11. Albert I/O
- 12. <u>Desmos</u>
- 13. Problem Attic