

Unit 2: Systems of Linear Equations

Algebra 1 Honors

11 Class Meetings

Revised January 2026

Essential Questions

- How can you graph and solve a system of equations?
- How can systems of equations be used to represent and solve real-world situations?

Enduring Understandings with Unit Goals

EU 1: Systems of equations can be solved by graphing, substitution, or by eliminating a variable.

- Solve systems of equations by graphing, substitution, or by eliminating a variable.

EU 2: Systems of linear equations can be used to model and solve real-world problems.

- Model real-world problems using systems of linear equations.
- Solve real-world problems using systems of linear equations (by graphing, substitution, or by eliminating a variable).

Standards

Common Core State Standards:

- **HS.F.IF.C.7:** Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.
- **H.SN.Q.A.2:** Define appropriate quantities for the purpose of descriptive modeling.
- **HS.A.CED.A.3:** Represent constraints by equations or inequalities, and by systems of equations, and interpret solutions as viable or nonviable options in a modeling context.
- **HS.A.REI.C.5:** 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.
- **HS.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.
- **HS.A.REI.D.11:** 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.

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ISAAC Vision of the Graduate Competencies

Competency 1: Write effectively for a variety of purposes.

Competency 2: Speak to diverse audiences in an accountable manner.

Competency 3: Develop the behaviors needed to interact and contribute with others on a team.

Competency 4: Analyze and solve problems independently and collaboratively.

Competency 5: Be responsible, creative, and empathetic members of the community.

Unit Content Overview

1. Solving Systems by Graphing

- Solve a System of Equations by Graphing
- Solve a System of Equations with Infinitely Many Solutions or No Solution

2. Solving Systems Using Substitution

- Solve a System of Equations using Substitution
- Solve for a Variable and Using Substitution
- Solve a System with Infinitely Many Solutions or No Solutions

3. Solving Systems Using Elimination

- Solve a System of Equations by adding equations
- Solve a System of Equations by Multiplying one or more equations

4. Applications of Linear Systems

- Write a System of Equations given a scenario
- Choose a method for solving linear systems
- Solve a Real-World Problem represented by a linear system

Interdisciplinary Connection:

- Language Arts- Accountable Talk, Word Problems, Think-Write-Pair-Share (TWPS), and Claim-Evidence Reasoning (CER)

Daily Learning Objectives with *TWPS Activities*

Students will be able to...

- Graph a system of linear equations to determine the solution
 - *TWPS – What does the point (8, 17) represent in this system of equations? Explain.*
- Calculate the solution to a system of linear equations by using the substitution property**
 - *TWPS - How can you determine if a point is the correct solution to the system of equations?*
 - *TWPS – What is the error made by this student when solving the system of equations?*

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- Solve systems by eliminating a variable while using the properties of equality and multiplication to add or subtract
 - *TWPS – How is elimination similar to substitution when solving a system of linear equations? How is it different?*
- Choose and apply the best method for solving a system of linear equations
 - *TWPS – Why does choosing the most efficient method to solve systems of equations matter?*
- Create a system of equations to represent a real-world problem and use it to solve the problem**
 - *TWPS – What is the error that the student made when creating a system of equations for the scenario?*
 - *TWPS – Create your own problem that involves systems of equations.*

Instructional Strategies/Differentiated Instruction

- Whole-group instruction
- Creating authentic connections for students
- Rephrasing and restatement of information and concepts
- Guided notes
- Interactive notebooks
- Student-led instruction
- Math stations (rotations)
- Independent problem-solving
- Collaborative problem-solving
- Cross-curricular problem solving (independent and collaborative)
- Accountable Talk
- Manipulatives
- Cumulative Homework

EL DIFFERENTIATED INSTRUCTION:

- Word Walls with visuals
- TWPS (Think, Write, Pair, Share)
- Pre-reading strategies
- Culturally responsive teaching
- Explicit Modeling
- Key Vocabulary
- Graphic Organizers
- Strategic Grouping
- Non-verbal Assessments

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Assessments

FORMATIVE ASSESSMENTS:

- Accountable Talk Discussions
- Daily Think-Write-Pair Share (TWPS)
- Claim-Evidence Reasoning (CER)
- Daily Do Now: Spiral Review
- Whiteboards
- Mid-class check-ins
- Exit Slips
- Student-led instruction
- Cumulative Homework
- Performance Task – Four Systems
 - Summative Performance Task Assessment Rubric

SUMMATIVE ASSESSMENTS:

- Pear Assessment Unit 8A Quiz (EU 1)
- Pear Assessment Unit 8 Test (EU 1 and EU 2)
- Performance Task – Four Systems
 - Summative Performance Task Assessment Rubric

Unit Task

Unit Task Name: Four Systems

Description: Students will use information learned during this unit about how systems of equations can be solved with graphing, substitution or by eliminating a variable (EU 1), and a real-life problem can be solved using systems of equations (EU 2). Students will be given a real-world scenario. They will write four systems of equations to represent the scenarios and solve their systems using all three methods that they learned in this unit. Students will then have to write an explanation to justify their solution(s). They will write about whether their answers were the same when using each method and why they think that is.

Evaluation: Summative Performance Task Assessment Rubric

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Unit Resources

- Worksheets
- Calculator
- Laptops
- SBAC Prep Online
- Pear Assessment
- Khan Academy
- Blooket
- Prodigy
- Quizizz
- Jeopardy Labs
- Individual Whiteboards
- Online resources: math stations
- Task Cards
- Partner/Group Games