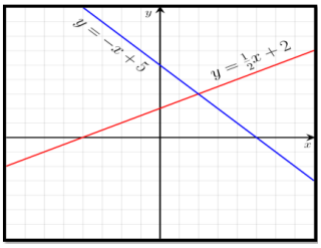
8th Grade Unit 4: Real-life Phenomena Explored through Systems of Linear Equations



Overview:

In this fourth unit of eighth-grade math, students will explore incorporating patterning and algebraic reasoning to create, interpret, solve, and graph linear equations and inequalities in one variable. The equations and inequalities include those with rational coefficients, variables on both sides and whose solutions require the use of the distributive property and combining of like terms. Students will interpret expressions with multiple factors and/or terms and manipulate linear and literal equations expressed in various forms.

Learning Targets:

In Unit 4, students will:

- Interpret and solve relevant mathematical problems leading to two linear equations in two variables.
- Show and explain that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because the points of intersection satisfy both equations simultaneously.
- Approximate solutions of two linear equations in two variables by graphing the equations and solving simple cases by inspection.
- Analyze and solve systems of two linear equations in two variables algebraically to find exact solutions.
- Create and compare the equations of two lines that are either parallel to each other, perpendicular to each other, or neither parallel nor perpendicular.

Key Vocabulary: (linked to GA DOE Interactive Glossary)

Consistent System	Elimination Method	Inconsistent System	Infinite Solutions
Parallel Lines	Perpendicular Lines	Slope of Parallel Lines	Slope of Perpendicular Lines
Simultaneous Equations	Solution to a System of Equations	Substitution Method	System of Linear Equations
x-intercept	y-intercept		

Supporting Resources:

http://ctlslearn.cobbk12.org/	Systems of Equations by Graphing
https://gavirtual.instructure.com/courses/34331	
Number of Solutions to a System of Equations	Systems of Equations Elimination Method
Consistent vs. Inconsistent System	Systems of Equations Substitution Method
Perpendicular Lines	Parallel Lines