

Unit 1 – Slope and Linear Functions

Desired Results

Title of Unit: Slope and Linear Functions

Enduring Understandings

1. Linear functions model situations with a constant rate of change, represented mathematically as slope.
2. The slope and y-intercept of a linear function provide meaningful information about real-world relationships.
3. Linear functions can be represented in multiple ways—equations, tables, graphs—and each form provides unique insights.
4. Algebraic properties (commutative, associative, distributive) are tools that help simplify and solve equations efficiently.
5. Literal equations can be manipulated to isolate variables and solve for quantities of interest in various contexts.

Essential Questions

1. How does the concept of slope describe change in a real-world or mathematical situation?
2. In what ways can linear relationships be represented, and how do those representations connect?
3. How can I use equations to model and solve problems involving real-world linear relationships?
4. What role do the properties of real numbers play when solving linear and literal equations?

Guiding Questions

- What does the slope of a line represent in a given context?
- How can I determine the slope from a graph, table, or two points?
- How do I know if a table or equation represents a linear function?
- How do I write an equation in slope-intercept form using given information?
- What does the y-intercept tell me about the situation being modeled?
- How can I use a graph to represent and interpret linear change?
- What strategies can I use to solve linear equations in one variable?
- How can algebraic properties help simplify and solve equations?
- How do I manipulate a literal equation to isolate a variable of interest?

Knowledge

Students will have an understanding of slope and other characteristics of Linear Functions. Students will know that linear functions have a constant rate of change (slope) as well as how to interpret the rate of change within context.

Key Vocabulary:

Slope	Rate of Change
Linear Function	Slope-Intercept
Form	
Y-intercept	Variable
Like Terms	Distributive Property
Commutative Property	Associative Property
Literal Equations	

Skills

Students will be able to:

- determine the average rate of change (slope) given two points, a graph, or a table.
- represent changing rates graphically.
- graph linear functions.
- write the slope-intercept form of a line using the slope and y-intercept or given a set of criteria.
- determine if a table represents a linear function.
- model real world contexts using linear equations.
- solve linear equations in one variable.
- identify properties of real numbers and identify the properties used to solve an equation.
- solve literal equations.

Standards (Priority Standards):

AI-A.CED.1: Create equations and inequalities in one variable to represent a real-world context.

AI-A.CED.2: Create equations and linear inequalities in two variables to represent a real-world context

AI-A.CED.4: Rewrite formulas to highlight a quantity of interest, using the same reasoning as in solving equations.

AI-A.REI.1a: Explain each step when solving a linear or quadratic equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

AI-A.REI.3: Solve linear equations and inequalities

AI-F.LE.1b Recognize situations in which one quantity changes at a constant rate per unit interval relative to another, and therefore can be modeled linearly.

Assessment Evidence

In-class informal formative assessments
In-class graded assignments
Homework assignments
Unit 1 summative assessment

Learning Plan

Learning Activities

Google Slides Activity

Jamboard/Whiteboard Activities

Google Form Activities

Independent Practice

Resources

Unit Note Packet (Guided Notes)

NYS Next Generation Mathematical Standards

NYS Modules