Moving Straight Ahead Overview

Investigation One – Walking Rates

N.FL.07.03
Calculate rates of change including speed
N.FL.07.05a
Solve proportion problems using such methods as unit rate, scaling, finding equivalent fractions and solving the proportion equation $\frac{a}{b} = \frac{c}{d}$
N.FL.07.05b
Know how to see patterns about proportional situations in tables
A.PA.07.01c
Recognize when information given in a graph suggests a linear relationship
A.PA.07.06c
Understand that linear function have slope that is a constant rate of change
A.PA.07.01a
Recognize when information given in a table suggests a linear relationship
A.PA.07.07b
Graph linear functions in the form y = x + b,
y = mx, and y=mx + b
A.RP.07.02e
Translate among representations of directly proportional and linear relationships
A.PA.07.05c
Understand that in a directly proportional relationship between two quantities one quantity is a constant multiple of the other quantity
A.PA.07.03a
Given a directly proportional or other linear situation, graph
A.PA.07.06c
Understand that linear functions have a slope that is a constant rate of change
A.RP.07.02b/c/d
Represent directly proportional linear relationships using tables, graphs, and formulas
N.FL.07.05b
Know how to see patterns about proportional situations in tables
A.PA.07.05b
Distinguish relationships of the form y=mx from linear relationships of the form y=mx + b, b non-zero
A.PA.07.01b/c
Recognize when information given in a formula or graph suggests a proportional or linear relationship
A.RP.07.02a
Represent directly proportional and linear relationships using verbal descriptions
A.PA.07.03 a/b/c
***Given a directly proportional relationship or other linear situation, graph, interpret slope and intercept(s) in terms of the original situation and evaluate y=mx + b for specific x values, e.g., weight vs. volume of water, base cost plus cost per unit*

Investigation Two – Exploring Linear Functions with Graphs and Tables

A.RP.07.02b/c/d
Represent linear relationships using graphs, tables, and formulas
A.FP.07.13a/b/c
From applied situations, generate, solve, and interpret linear equations of the form ax + b = c
A.PA.07.04
For directly proportional or linear situations, solve applied problems using graphs and equations, e.g., the heights and volumes of a container with uniform cross-section; height of water in a tank being filled at a constant rate; degrees Celsius and degrees Fahrenheit; distance and time under constant speed
A.PA.07.02e
Translate among representations of linear relationships
A.PA.07.06c
Understand that linear functions have slope that is a constant rate of change
A.PA.07.05a
Recognize and use directly proportional relationships of the form y = mx
A.PA.07.05b

***Distinguish relationships of the form y = mx from linear relationships of the form y = mx + b, b non-zero*

A.PA.07.01b
Recognize when information given in a formula suggest a linear relationship
A.FO.07.08a/ b
***Find and interpret the x and/on y intercepts of a linear equation*
A.PA.07.03b
Given a directly proportional or other linear situation, interpret slope and intercept(s) in terms of the original situation
A.PA.07.07c
Interpret slope and y-intercept of linear functions in the form y = x + b, y = mx, and y = mx + b
A.PA.07.03c
Evaluate y = mx + b for specific x-values, e.g., weight vs. volume of water, base cost plus cost per unit
A.PA.0707a
Represent linear functions in the form y = x + b, y = mx, y = mx + b
A.PA.07.03b
Given a directly proportional or other linear situation, interpret slope and intercept(s) in terms of the original situation
A.RP.07.02a
Represent linear relationships using verbal descriptions
A.PA.0707b
Graph linear functions in the form y = x + b, y = mx, and y = mx + b
A.FO.07.08c
Know that the solution to a linear equation o the form ax + b = 0 corresponds to the point at which the graph of y = ax + b crosses the x-axis

Investigation Three – Solving Equations

A.PA.07.03c
Evaluate y = mx + b for specific x values, e.g., weight vs. volume of water, base cost plus cost per unit
A.FO.08.10
Understand that to solve the equation f(x) = g(x) means to find all values of x for which the equation is true, e.g., determine whether a given value, or values from a given set, is a solution of an equation (0 is a solution of $3x^2 + 2 = 4x + 2$, but 1 is not a solution)
A.FO.07.12a/b/c
Add, subtract, and multiply simple algebraic expressions of the first degree and justify using properties of real numbers, e.g., (92x + 8y) – 5x + y; x(x + 2)
A.FO.07.13a/b/c
From applied situations, generate, solve, and interpret linear equations of the form ax + b = c and x + b = cx + d

Investigation Four – Exploring Slope

A.PA.07.06b
Express the slope of a linear function as a fraction and a decimal
A.PA.07.06a
Calculate the slope from the graph of a linear function as the ratio of "rise/run" for a pair of points on the graph
A.PA.07.03b
Given a directly proportional or linear situation, interpret slope and intercept(s) in terms of the original situation
A.PA.07.06b
Express the slope of a linear function as a fraction and a decimal
A.PA.07.07a
Represent linear functions in the form y = x + b, y = mx, and y = mx + b
A.PA.07.04
For directly proportional or linear situations, solve applied problems using graphs and equations, e.g., the heights and volumes of a container with uniform cross-section; height of water in a tank being filled at a constant rate; degrees Celsius and degrees Fahrenheit; distance and time under constant speed

Algebra Properties

A.PA.07.11
Understand and use the basic properties of real numbers: additive and multiplicative identities, additive and multiplicative inverses, commutatively, associatively, and the distributive property of multiplication over addition