C2.0 Investigations into Mathematics Unit 6 Course Outline

Functional Relationships and Linear Equations

Topic	Instructional Foci
Topic 1: Connecting Proportional Relationships to Linear Equations	In this topic, students apply their understanding of unit rates and proportional relationships to the graphs of linear equations in two variables. They use similar triangles to reason about how the ratio between the rise and run for any two points on a line is always the same, and use this reasoning to determine the slope of a line. Students use this understanding of slope as a constant to derive the equation of a line. *Concepts:* Compare proportional relationships by analyzing representations. Use similar triangles to explore the slope of a line through the origin. Derive equations for lines intercepting the y-axis at the origin by graphing and compare the different proportional relationships. Explore linear representations that are not through the origin. Derive the equation for a line intercepting the y-axis at a point other than the origin. Generate multiple representations that reflect a given scenario.
Topic	Instructional Foci
Topic 2: Solving Linear Equations	In this topic, students apply their equation solving skills to linear equations with rational number coefficients. Students learn that not every linear equation has a solution. In doing so, students reason about how to transform equations into simpler forms until an equivalent equation results in a unique solution, no solution, or infinitely many solutions. *Concepts:* Explore and evaluate expressions and equations in one variable. Model equivalence by transforming linear equations. Solve equations in one variable. Classify solutions of linear equations. Understand the solution classifications of linear equations. Identify patterns that lead to solutions of linear equations. Fluently solve equations in one variable.