

Why

Equations and Inequalities in Two Variables

Why is the elimination method for solving systems of linear equations addressed in Algebra I but not in grade 8?

Grade 8 module 5 introduces students to systems of two linear equations. Students focus on estimating solutions to systems by graphing and solving systems algebraically by using the substitution method. Waiting until Algebra I to address the elimination method provides time and space for students to develop a conceptual understanding of solution sets. In particular, the goal is for students to understand that using the elimination method results in a system that has the same solution set as the original system. This not only gives students the opportunity to develop an understanding of why the elimination method works rather than presenting it as a rote procedure, but it also provides them with the tools they need to solve more complex systems.

In topic C, why is the least squares regression line referred to as the line of best fit?

In grade 8, students estimate a line of fit to model a set of bivariate numerical data, write the equation of the line, and use that equation to make predictions. In Algebra I, students use technology to find the equation of the line of best fit and use that equation to make predictions. The line of best fit is the least squares regression line, which minimizes the sum of the squared residuals. Since we address how we know that this is really a line of “best fit,” students do not need to use the term *least squares regression line* when referring to it.

Why is bivariate categorical data analysis included in module 2?

Presenting bivariate categorical data analysis immediately after bivariate quantitative data analysis allows students to make connections between the two types of data analysis. In particular, both analyses answer the question of whether knowing the value of one of the variables helps predict the value of the other variable. The order of the bivariate data analysis topics is also consistent with that of grade 8 topics.

Why does work with two-variable equations and inequalities precede work with functions?

Solving equations and inequalities in one variable in module 1 prepares students to graph the solution sets of equations and inequalities in two variables in module 2. Students hone their skills with graphing linear equations in two variables, which prepares them to graph linear and piecewise linear functions in module 3.