Before This Module

Grade 8 Module 5

Students represent mathematical and real-world situations with systems of two linear equations. They solve systems of two linear equations graphically and algebraically with the substitution method. They also identify the number of solutions to a system by inspection.

Grade 8 Module 6

Students represent bivariate numerical data with scatter plots. They fit the data with lines and use them to make predictions. Students also represent bivariate categorical data with two-way frequency tables. They analyze row and column relative frequency tables to determine whether a possible association exists between variables.

Overview

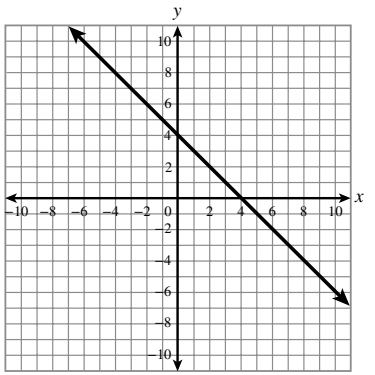
Equations and Inequalities in Two Variables

Topic A

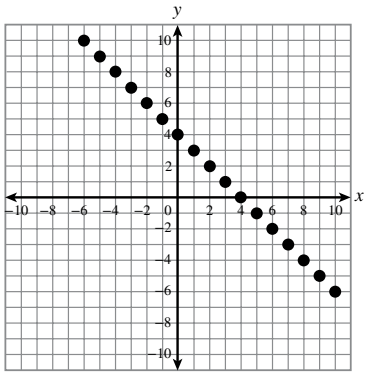
Linear Equations and Inequalities in Two Variables

Students explore situations with linear equations and inequalities in two variables, and they represent the graphs of solution sets of linear equations as lines in the coordinate plane. Students represent the graphs of solution sets of linear inequalities as half-planes, which may include the boundary line. They also solve problems in context, requiring them to determine whether the solution sets are continuous or discrete.

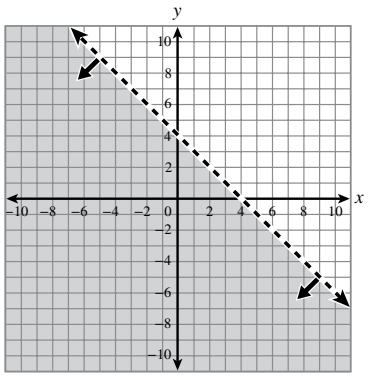
The sum of two numbers is 4.
$x + y = 4$



The sum of two integers is 4.
$x + y = 4$ for integers x and y



The sum of two numbers is less than 4.
$x + y < 4$



Topic B

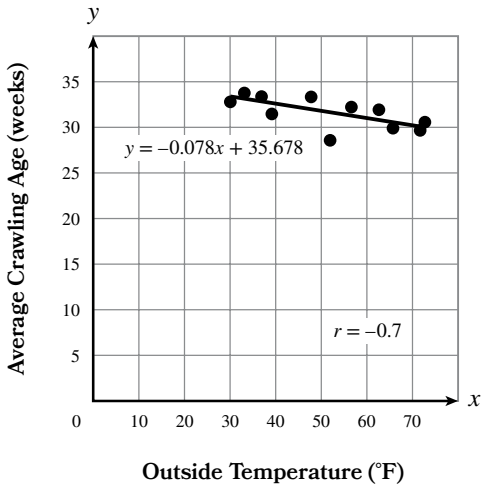
Systems of Linear Equations and Inequalities in Two Variables

Students examine situations with systems of two or more linear equations or inequalities in two variables. They solve systems of linear equations graphically and algebraically by using both the substitution and elimination methods. They represent the graph of the solution set of a system of linear inequalities as the intersection of two or more half-planes, which may include parts of the boundary lines.

Topic C

Numerical Data on Two Variables

Students use scatter plots to represent bivariate quantitative data. They analyze the data by using a variety of tools, including graphing lines of best fit, calculating and plotting residuals, and examining correlation coefficients. They make general observations about the characteristics of residual plots and draw conclusions about the relationship between the value of a correlation coefficient and the strength and direction of the line of best fit. Students also distinguish between correlation and a cause-and-effect relationship between variables.



Topic D

Categorical Data on Two Variables

Students represent bivariate categorical data by using two-way tables and segmented bar graphs. They analyze frequencies, relative frequencies, and conditional relative frequencies to identify trends and possible associations between variables in samples.

		Preferred Device				
		Personal Computer	Tablet	Television	Phone	Total
Subscriber Level	Bronze	30	23	19	3	75
	Silver	25	15	52	8	100
	Gold	48	33	235	18	334
	Total	103	71	306	29	509

After This Module

Algebra I Module 3

Students build on their understanding of graphing linear equations to graph linear functions. They also apply their understanding of how to identify the solution sets of systems from graphs as they use the graphs of functions to solve equations in one variable.