9.1

(5) CST items

Students solve a system of two linear equations in two variables algebraically and are able to interpret the answer graphically. ~~Students are able to solve a system of two linear inequalities in two variables and sketch the solution sets.~~
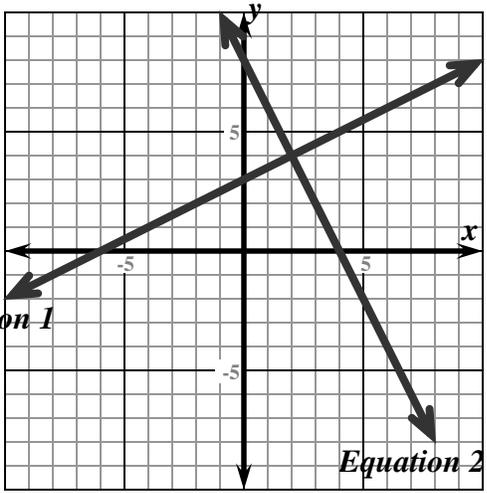
Key Vocabulary

Solve	Variable	Linear	System of Equations
Substitution	Sketch	System of Inequalities	Graphical Interpretation
Solution	Intersection	Coordinates	Guess-and-Check

Instructional Objectives

1 Use guess-and-check to find a solution that will work in each of two linear equations.

1 ▶ Use a data tale to find 5 solutions for each equation.
$$x + y = 8 \qquad 3x = y$$

2 ▶ What value of x and y will make both equations true?
$$\tfrac{1}{2}x + y = 10 \qquad x = y + 2$$

3 ▶ What value of x and y will make both equations true?
$$x + y = 12 \qquad 2x = y$$

4 ▶ What is the solution to the system of equations shown?
$$\begin{cases} y = 2x - 6 \\ y = -3x - 6 \end{cases}$$

2 Use a graph to find a solution that will work in each of two linear equations.

1 ▶ Use a data table to graph each equation.
$$x + 3y = 12 \qquad y - x = 4$$
What are the coordinates where the two lines intersect?

2 ▶ Use a graph to find the solution to the system of equations shown.
$$\begin{cases} y = x + 5 \\ y = \tfrac{1}{2}x + 7 \end{cases}$$

3 ▶ Use a graph to find the solution to the system of equations shown.
$$\begin{cases} 2x + 3y = 18 \\ y = -2x + 14 \end{cases}$$

4 ▶ The graphs of two equations are shown on the coordinate plane. What is the one solution that is valid in both equations?

Equation 1

Equation 2

3	Use substitution to solve a system of linear equations.		
		1 ▶ Solve for x: $2x + 6y = 18$	
		2 ▶ Solve for y: $2x + 6y = 18$	
		3 ▶ Use substitution to find the solution to the system of equations shown.	$y = 4x - 10$ $y = x + 5$
		4 ▶ Use substitution to find the solution to the system of equations shown.	$2x - 6y = 18$ $6y = \frac{1}{2}x$

4	Create a system of equations to represent a given scenario, then solve and graph.	
		1 ▶ A jar contains only nickels and dimes. The number of dimes in the jar is three more than twice the number of nickels. The total number of coins in the jar is 18. What is the total value of all the coins in the jar?
		2 ▶ A jar contains only nickels and dimes. The total value of the coins in the jar is $1.10. The number of nickels in the jar is two less than 6-times the number of dimes. How many dimes are in the jar?
		3 ▶ Alexis is 7 years older than her brother Stephen. The combined age of Alexis and Stephen is 34. How old is each person?
		4 ▶ Phone Company A charges 20 cents to connect a call and 2 cents for each minute the call lasts. Phone Company B charges 12 cents to connect a call and 6 cents for each minute the call lasts. For what length of phone call would Phone Company A and Phone Company B charge the same amount?