

Section 9.2 Two-Variable Linear Systems

Objective: In this lesson you learned how to solve systems of equations by elimination and how to use systems of equations in two variables to model and solve real-life problems.

Course Number

Instructor

Date

Important Vocabulary

Define each term or concept.

Method of elimination**Equivalent systems****Consistent system****Inconsistent system****I. The Method of Elimination** (Pages 653–655)

The operations that can be performed on a system of linear equations to produce an equivalent system are:

- (1)
- (2)
- (3)

What you should learn

How to use the method of elimination to solve systems of linear equations in two variables

List the steps necessary for solving a system of equations using the method of elimination.

To check the solution of a system of equations using a graphing utility, . . .

Example 1: Describe a strategy for solving the system of linear equations using the method of elimination.

$$\begin{cases} 3x + y = 9 \\ 4x - 2y = -1 \end{cases}$$

Example 2: Solve the system of linear equations using the method of elimination.

$$\begin{cases} 4x + y = -3 \\ x - 3y = 9 \end{cases}$$

II. Graphical Interpretation of Solutions (Pages 656–658)

If a system of linear equations has two different solutions, it must have _____ solutions.

For a system of two linear equations in two variables, list the possible number of solutions the system can have and give a graphical interpretation of the solutions.

What you should learn
How to interpret graphically the numbers of solutions of systems of linear equations in two variables

If a contradictory statement such as $9 = 0$ is obtained while solving a system of linear equations using the method of elimination, then the system has _____.

If a statement that is true for all values of the variable, such as $0 = 0$, is obtained while solving a system of linear equations using the method of elimination, then the system has _____.

Example 3: Is the following system consistent or inconsistent?
How many solutions does the system have?

$$\begin{cases} x - 3y = 2 \\ -4x + 12y = 8 \end{cases}$$

III. Applications of Two-Variable Linear Systems

(Pages 659–660)

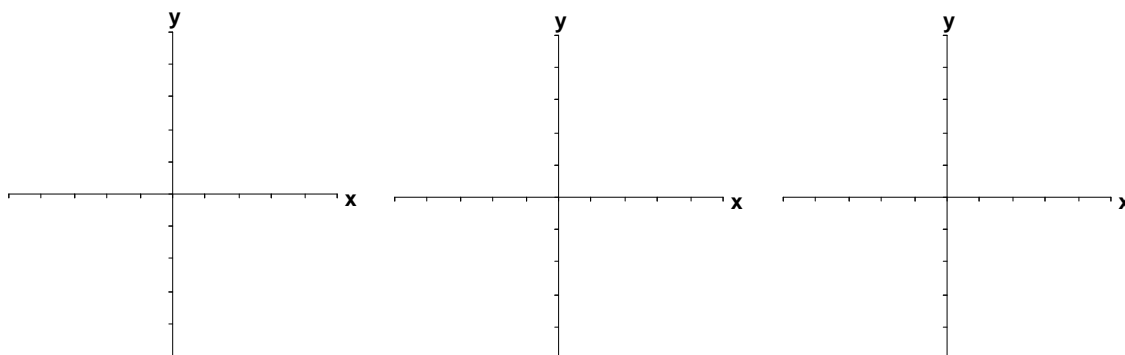
When may a system of linear equations be an appropriate mathematical model for solving a real-life application?

What you should learn

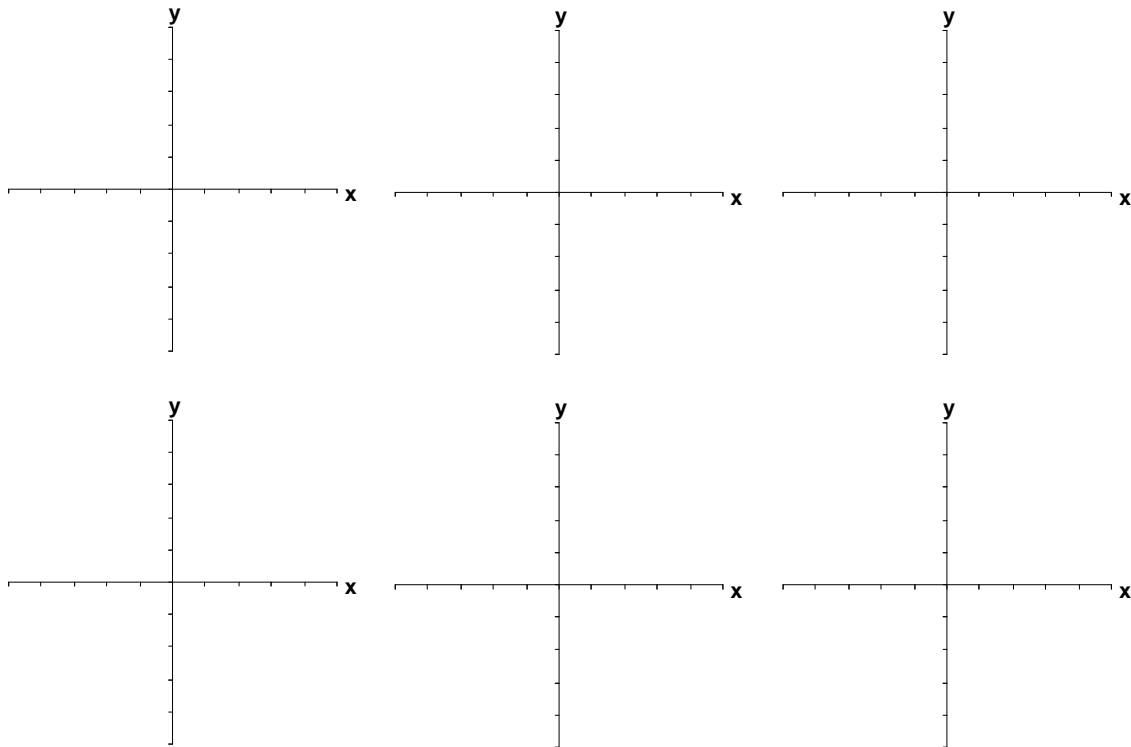
How to use systems of equations in two variables to model and solve real-life problems

Give an example of a real-life application that could be solved with a system of linear equations.

Additional notes



Additional notes



Homework Assignment

Page(s)

Exercises