Chapter 5 Systems of Equations and Inequalities

Course Number

Instructor

Date

Section 5.1 Solving Systems of Equations

Objective: In this lesson you learned how to solve a system of equations by substitution and by graphing and how to use systems of equations to model and solve real-life problems.

Important Vocabulary Define each term or concept.

Systems of equations

Solution of a system of equations (in two variables)

Method of substitution

Point of intersection

Break-even point

What you should learn
How to use the method of substitution to solve systems of equations in two variables and how to solve systems of equations graphically

I. The Method of Substitution (Pages 364–368)

To check that the ordered pair (– 3, 4) is the solution of a system of equations, . . .

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

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Explain what is meant by back-substitution.

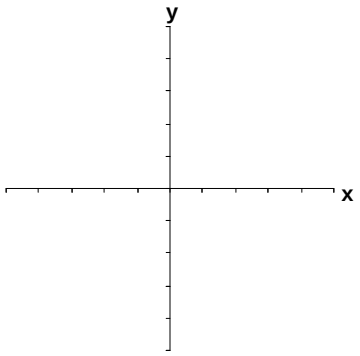
Example 1: Solve the system of equations using the method of substitution.

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

To use a graphing utility to solve a system of equations graphically, . . .

Example 2: Solve the system of equations graphically.

$$\begin{cases} x^2 - y = 5 \\ -x + y = -3 \end{cases}$$



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II. Applications of Systems of Equations (Pages 369–370)

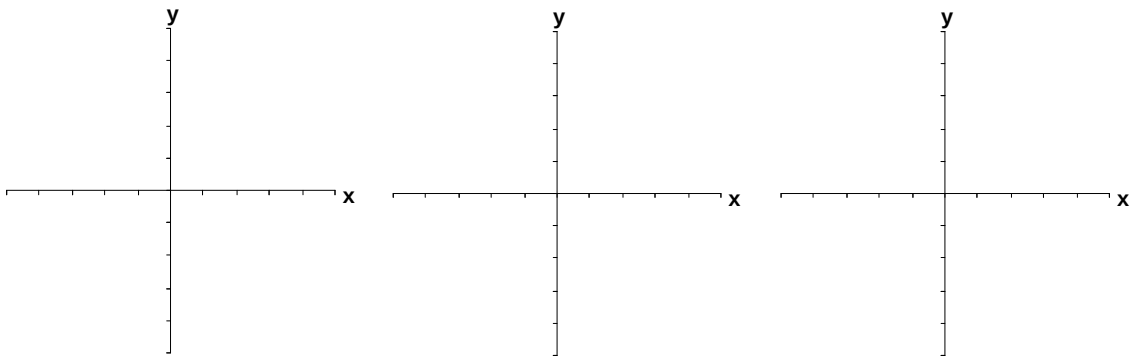
What you should learn
How to use systems of equations to model and solve real-life problems

The total cost C of producing x units of a product typically has two components: _____.

In break-even analysis, the break-even point corresponds to the _____ of the cost and revenue curves.

Break-even analysis can also be approached from the point of view of profit. In this case, consider the profit function, which is _____. The break-even point occurs when profit equals _____.

Example 3: The cost of producing x units is $C = 1.5x + 15{,}000$ and the revenue obtained by selling x units is $R = 5x$. How many items should be sold to break even?



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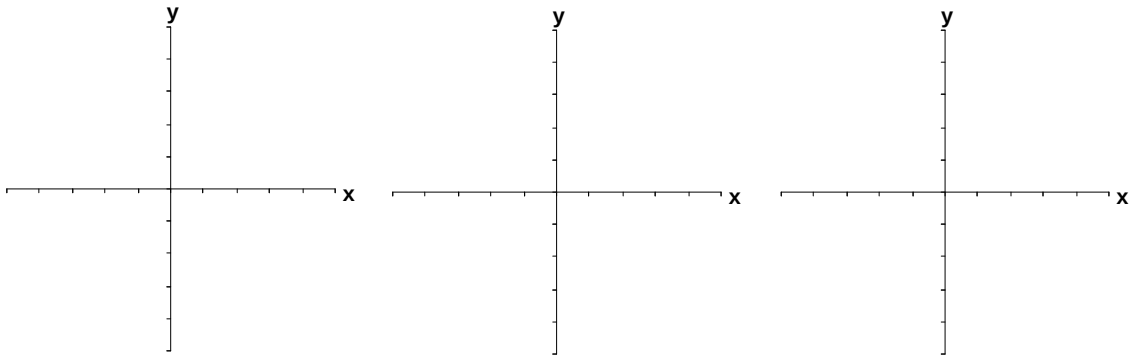
Additional notes



Homework Assignment

Page(s)

Exercises

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