

GUIDED NOTES – 7.1 SYSTEMS OF LINEAR EQUATIONS: TWO VARIABLES

LEARNING OBJECTIVES

In this section, you will:

- Solve systems of equations by graphing.
- Solve systems of equations by substitution.
- Solve systems of equations by addition.
- Identify inconsistent systems of equations containing two variables.
- Express the solution of a system of dependent equations containing two variables.

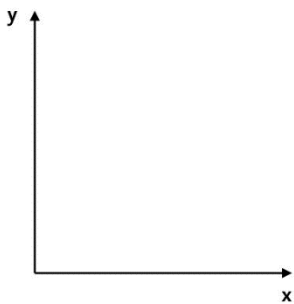
INTRODUCTION TO SYSTEMS OF EQUATIONS

- A system of linear equations consists of _____ or more linear equations made up of two or more variables such that all equations in the system are considered _____.
- A solution to a system of linear equations in two variables is any ordered pair that satisfies _____ equation independently.

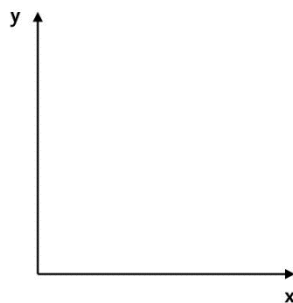
Study the box in your textbook section titled “types of linear systems.”

- There are three types of systems of linear equations in two variables, and three types of solutions.
 - Which type of system of linear equations has no solutions? _____
 - Which type of system of linear equations has infinitely many solutions? _____
 - Which type of system of linear equations has exactly one solution? _____
- Draw an example of an independent, inconsistent, and dependent linear system.

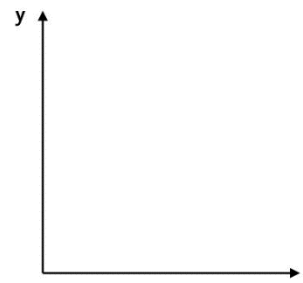
Independent



Inconsistent



Dependent



- Write out the 2 step process for determining whether an ordered pair is a solution, given a system of linear equations and an ordered pair.

1.

2.

Try It: Read Example 1 in the text, then answer the following.

Determine whether the ordered pair (8, 5) is a solution to the following system.

$$5x - 4y = 20$$

$$2x - 1 = 3y$$

Homework: You should now be ready to attempt problem 1 in “Homework – Section 7.1” on WeBWork.

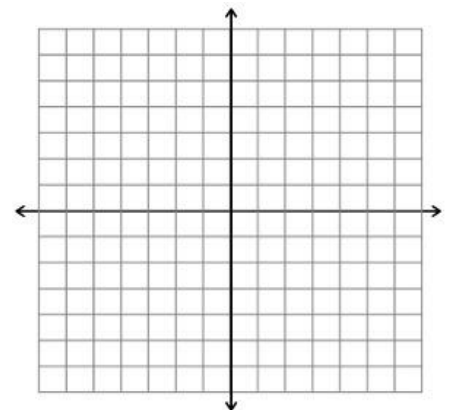
SOLVING SYSTEMS OF EQUATIONS BY GRAPHING

Try It: Read Example 2 in the text, then answer the following.

Solve the following system of equations by graphing.

$$2x - 5y = -25$$

$$-4x + 5y = 35$$



SOLVING SYSTEMS OF EQUATIONS BY SUBSTITUTION

- Write out the 4 step process for solving using the substitution method, given a system of two equations in two variables.

1.

2.

3.

4.

Try It: Read Example 3 in the text, then answer the following.

Solve the following system of equations by substitution.

$$\begin{aligned}x &= y + 3 \\4 &= 3x - 2y\end{aligned}$$

Homework: You should now be ready to attempt problems 2-4 in “Homework – Section 7.1” on WeBWorK.

SOLVING SYSTEMS OF EQUATIONS BY ADDITION

- Write out the 5 step process for solving using the addition method, given a system of two equations in two variables.

1.

2.

3.

4.

5.

Try It: Read Examples 6 and 7 in the text, then answer the following.

Solve the following system of equations by addition.

$$\begin{aligned}2x + 3y &= 8 \\3x + 5y &= 10\end{aligned}$$

Homework: You should now be ready to attempt problems 6-8 in “Homework – Section 7.1” on WeBWorK.

IDENTIFYING INCONSISTENT SYSTEMS OF EQUATIONS CONTAINING TWO VARIABLES

Try It: Read Example 8 in the text, then answer the following.

Solve the following system of equations in two variables.

$$\begin{aligned}2y - 2x &= 2 \\2y - 2x &= 6\end{aligned}$$

EXPRESSING THE SOLUTION OF A SYSTEM OF DEPENDENT EQUATIONS CONTAINING TWO VARIABLES

Try It: Read Example 9 in the text, then answer the following.

Solve the following system of equations in two variables.

$$\begin{aligned}y - 2x &= 5 \\-3y + 6x &= -15\end{aligned}$$