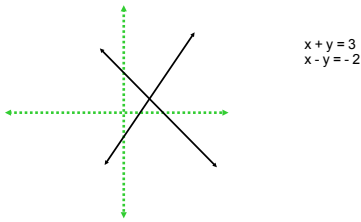


MATH 1010 ~ Intermediate Algebra Chapter 4: SYSTEMS OF EQUATIONS

Section 4.1: SYSTEMS OF EQUATIONS

Objectives:

- ↻ Determine if ordered pairs are solutions of systems of equations.
- ↻ Solve systems of equations graphically
- ↻ Solve systems of equations by substitution.
- ↻ Use systems of equations to model and solve real life problems.



$x + y = 3$
 $x - y = -2$

Vocabulary:

system of equations

solution

point of intersection

consistent

inconsistent

dependent

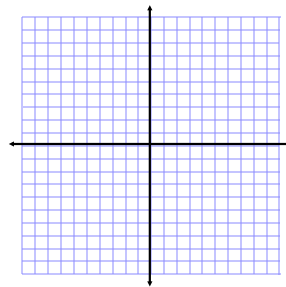
Three methods to solve a system of equations:

1. Graphing
2. Substitution
3. Elimination

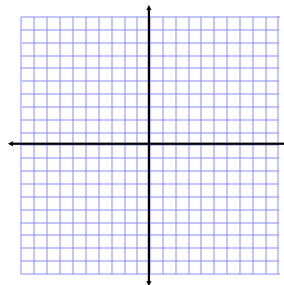
① EXAMPLE:

Solve each system by graphing

a) $x - y = 3$
 $2x + 3y = 7$



b) $2x + y = 3$
 $2y = -4x + 8$



② EXAMPLE

Solve by substitution

a)
$$\begin{aligned} y &= 2x + 1 \\ 3x + 2y &= 16 \end{aligned}$$

b)
$$\begin{aligned} x + y &= 3 \\ 2y &= 2x + 6 \end{aligned}$$

c)
$$\begin{aligned} 2x + 5y &= 15 \\ y &= -2/5 x \end{aligned}$$

a)
$$\begin{aligned} x - y &= 5 \\ 2x &= 2y + 10 \end{aligned}$$

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

④ EXAMPLE:

Set up a set of equations and solve these problems.

- a) The sum of two numbers is 160.
The larger number is three times the smaller number.
Find the two numbers.

- b) The perimeter of a rectangle is 90 meters.
The length is $1\frac{1}{2}$ times the width.
Find the dimensions of the rectangle.

- c) Ten pounds of a nut mixture sells for \$6.95 per pound.
The mixture is made from two kinds of nuts; peanuts at
\$5.65 per pound and cashews at \$8.95 per pound.

How many pounds of each will be used in the mixture?