

Chapter 5: Systems of Linear Equations

A System of Linear Equations is a set of two or more linear equations in the same variables.

example:

$$\begin{aligned}y &= x + 1 \\y &= 2x - 7\end{aligned}$$

A Solution of a system of linear equations in two variables is an ordered pair that is a solution of each equation in the system. (x, y) must work in both equations.

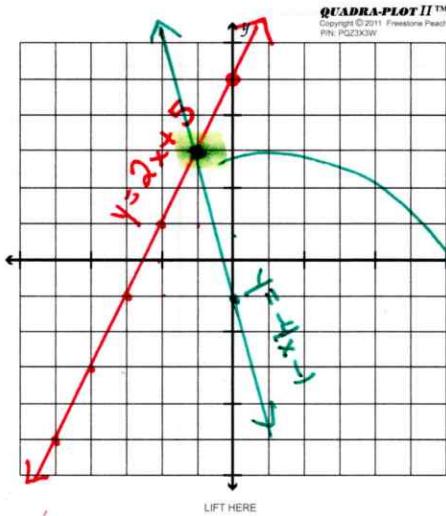
*A system of linear equations is also called a linear system.

There are 3 methods to find the solution:

- 1) graphing 5.1
- 2) substitution 5.2
- 3) elimination 5.3

5.1 Graphing on a Coordinate Plane

- Steps:
- make sure the equations are in slope intercept form
 - graph both on the same coordinate plane
 - where they intersect is the solution
 - write the ordered pair (x, y)
 - check your solution



$$\begin{aligned}y &= 2x + 5 \\y &= -4x - 1\end{aligned}$$

Solution $\rightarrow (-1, 3)$

Check

$$\begin{array}{ll}3 = 2(-1) + 5 & 3 = -4(-1) - 1 \\3 = -2 + 5 & 3 = 4 - 1 \\3 = 3 \checkmark & 3 = 3 \checkmark\end{array}$$