

# 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

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

check

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

**Solution**  $\rightarrow (-1, 3)$

