

Warm Up

- Emily has just opened her new computer store. She makes \$27 on every computer she sells and her monthly expenses are \$5,000. Make an input/output table, write an equation, and make a graph.
- Challenge: How many computers must she sell to break even?

Math 8C

Unit 4 – Day 8

Standards:

- ✓ Identify constraints and write a system of equations for a context.
- ✓ Estimate the solution to a system of equations using graphing and verify that solution using a table and equation.

Mystery Numbers

- I am thinking of two numbers. Their sum is 35 and their difference is 13.
- What are the numbers?
- How many solutions do we have to this problem?

one solution:

One pair of x & y values that validate both equations.

Mystery Numbers

We can represent this situation with a **system of equations**.

$$x + y = 35$$

$$x - y = 13$$

A **system of equations** is a set of two or more equations.

Solve by Graphing

Graph each equation:

$$x + y = 35$$

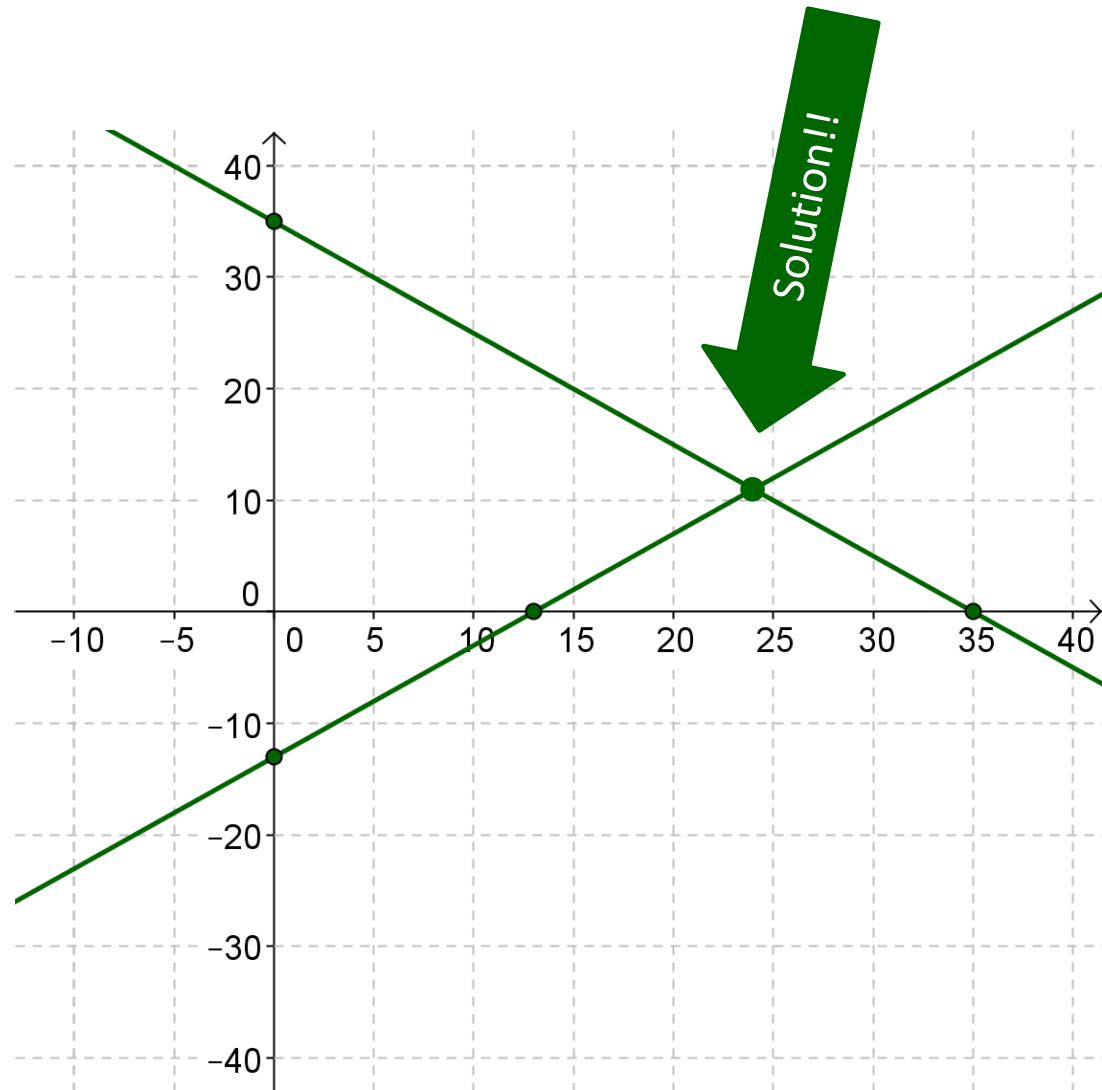
$$x - y = 13$$

Estimate the
solution

$$x \approx 24$$

$$y \approx 11$$

Solution: (24, 11)



Solve by Graphing

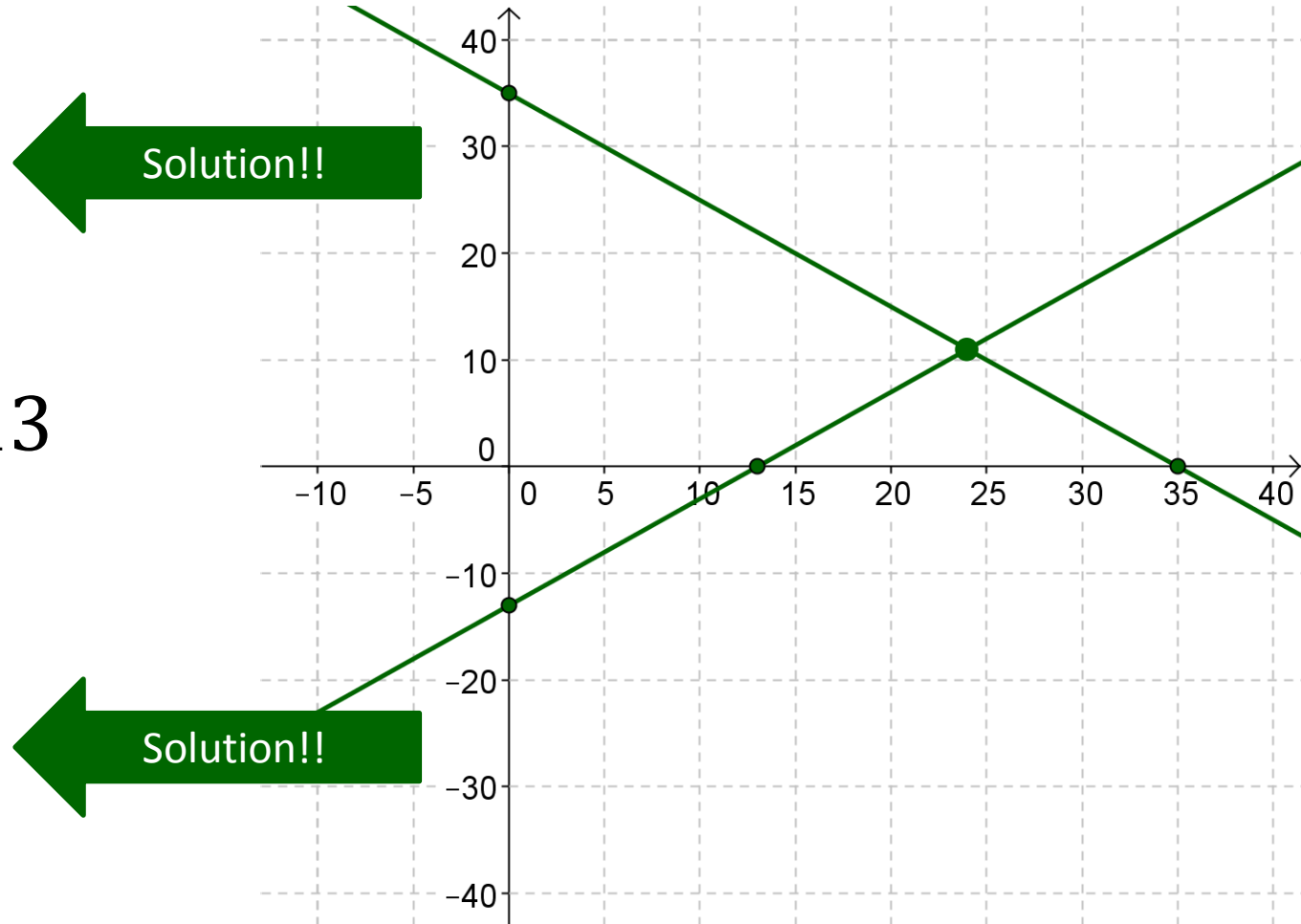
Verify the solution using a table

$$x + y = 35$$

x	y
23	
24	
25	

$$x - y = 13$$

x	y
23	
24	
25	



Solve by Graphing

Verify the solution using the equations.

$$x + y = 35$$

$$x - y = 13$$

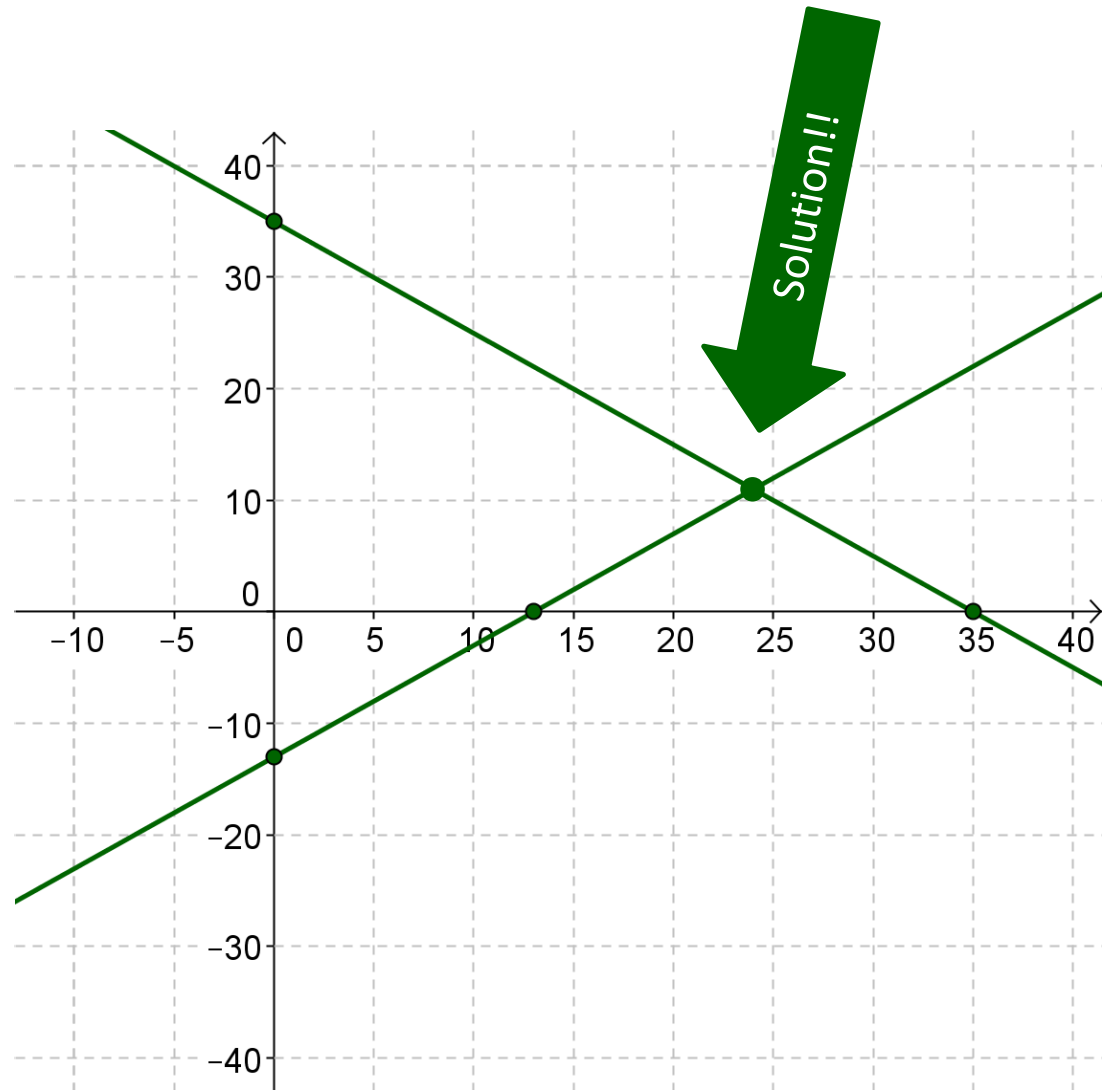
$$x + y = 35$$

$$24 + 11 = 35$$



$$x - y = 13$$

$$24 - 11 = 13$$



You Try!

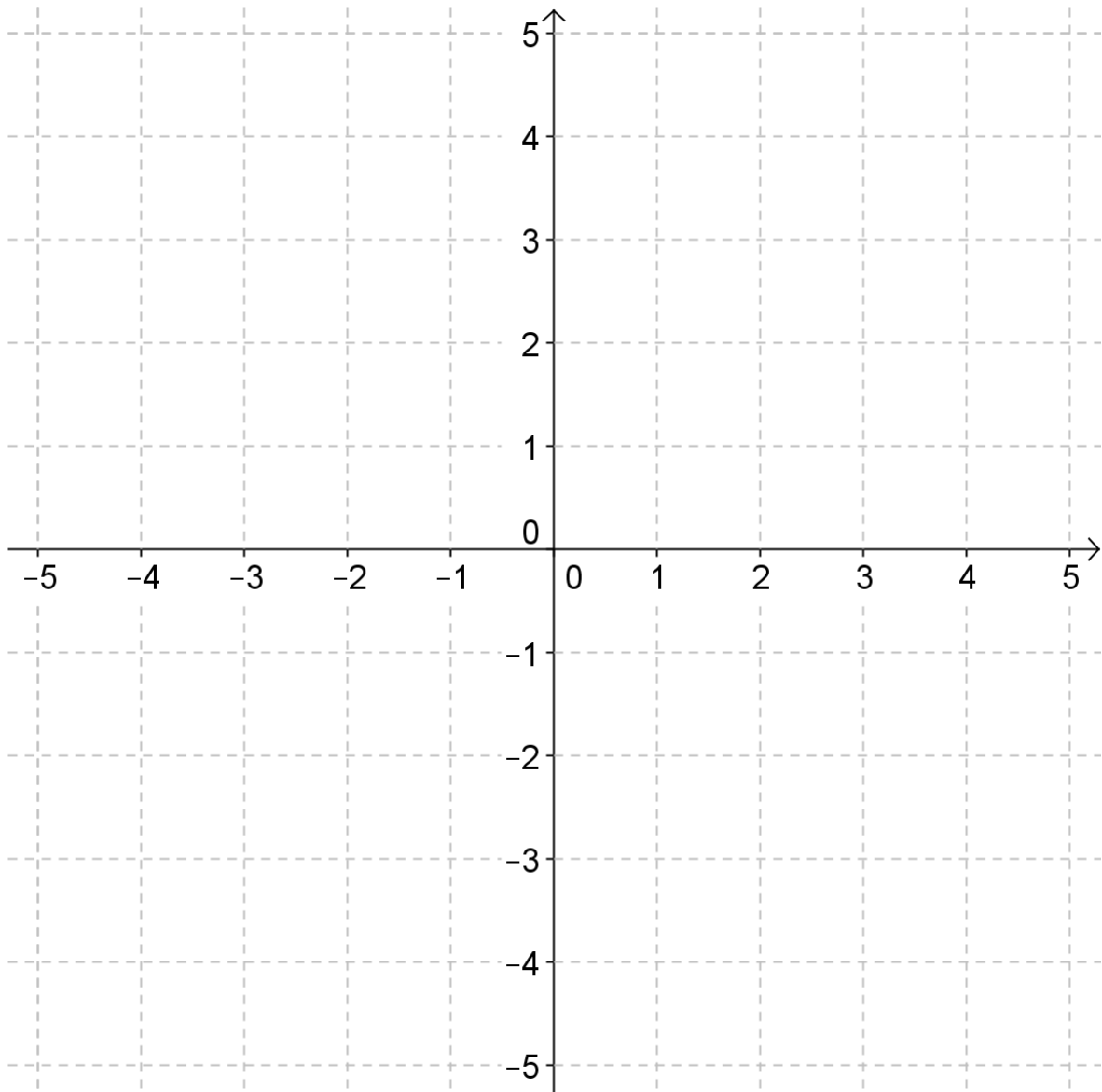
Solve each system of equations by graphing:

1. $-6x + y = 4$
 $-y - 2x = 4$

$(-1, -2)$

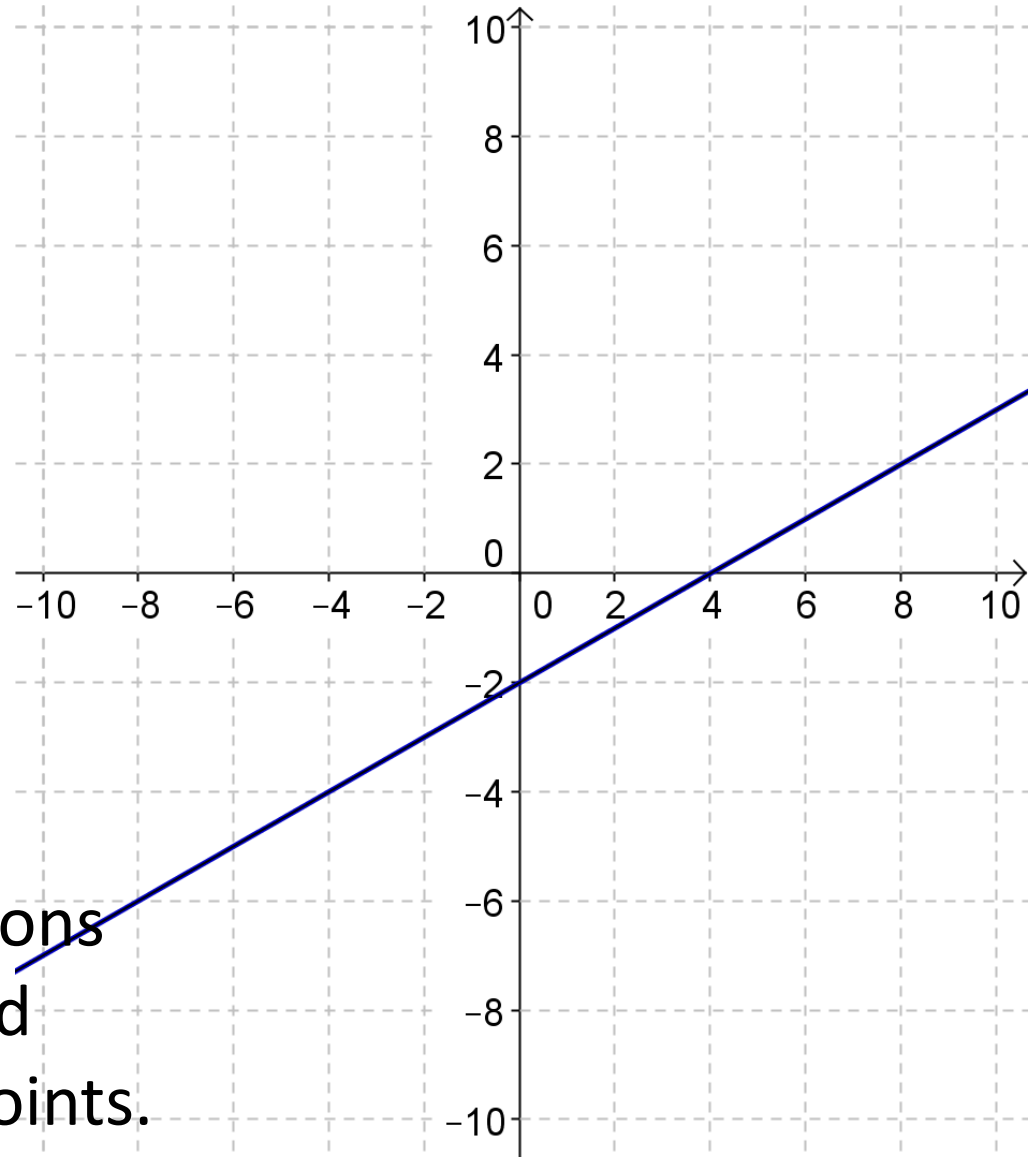
2. $2x + y = -4$
 $x + 4y = 12$

$(-4, 4)$



How Many Solutions?

- $4x + 3y = 28$
- $4x + 3y = 12$
 - **No solution** because parallel lines never cross.
- $9x - 18y = 36$
- $3x - 6y = 12$
 - **Infinite solutions** because both equations are the same line and share all the same points.



In Class Practice

U4D8 - ICP