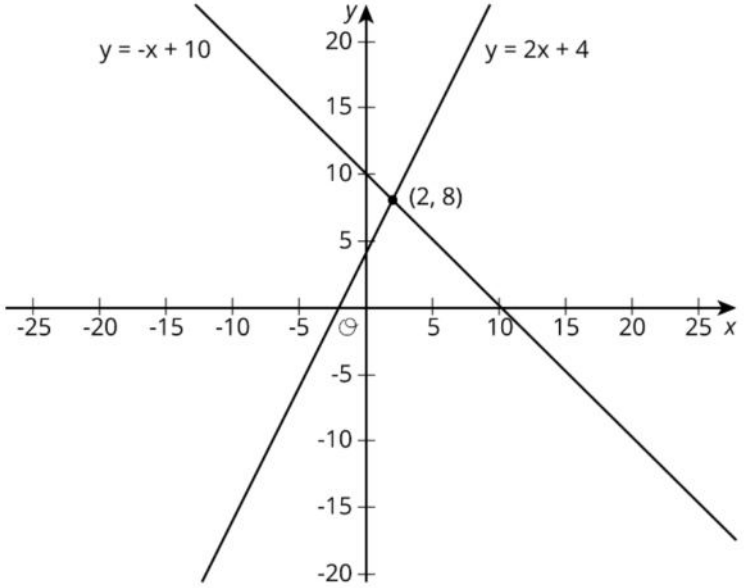
4-13: Learning Goals

- Let's solve systems of equations.

4-13-1: True or False: Two Lines



Use the lines to decide whether each statement is true or false. Be prepared to explain your reasoning using the lines.

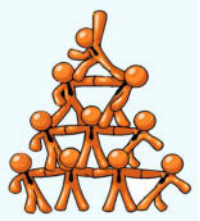
1. A solution to $8 = -x + 10$ is 2.

2. A solution to $2 = 2x + 4$ is 8.

3. A solution to $-x + 10 = 2x + 4$ is 8.

4. A solution to $-x + 10 = 2x + 4$ is 2.

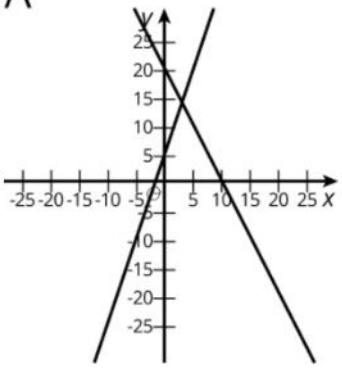
5. There are no values of x and y that make $y = -x + 10$ and $y = 2x + 4$ true at the same time.



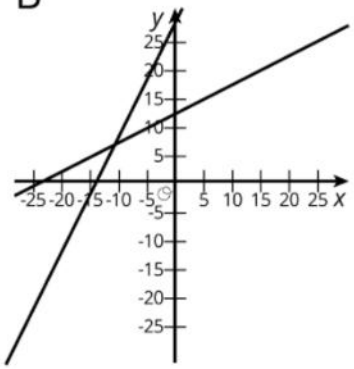
4-13-2: Matching Graphs to Systems

Here are three **systems of equations** graphed on a coordinate plane:

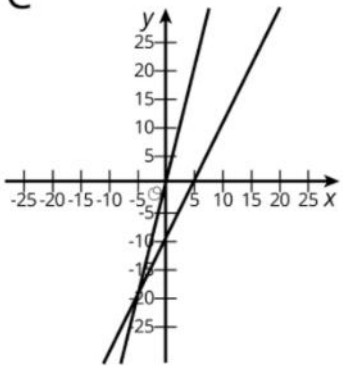
A



B



C



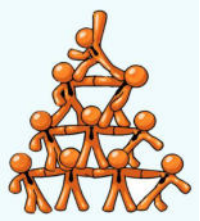
1. Match each figure to one of the systems of equations shown here.

   a. $\begin{cases} y = 3x + 5 \\ y = -2x + 20 \end{cases}$

   b. $\begin{cases} y = 2x - 10 \\ y = 4x - 1 \end{cases}$

   c. $\begin{cases} y = 0.5x + 12 \\ y = 2x + 27 \end{cases}$

2. Find the solution to each system and check that your solution is reasonable based on the graph.



4-13-3: Different Types of Systems

Your teacher will give you a page with some systems of equations.

1. Graph each system of equations carefully on the provided coordinate plane.

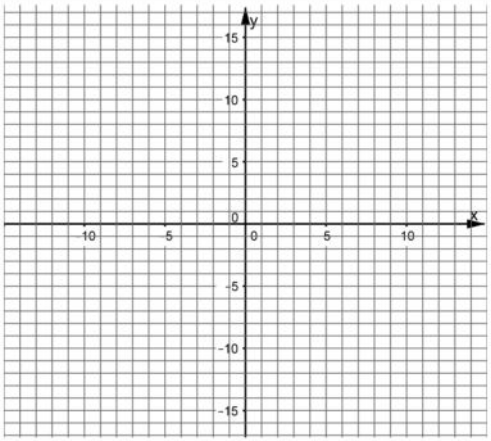
2. Describe what the graph of a system of equations looks like when it has . . .
   a. 1 solution

   b. 0 solutions

   c. infinitely many solutions

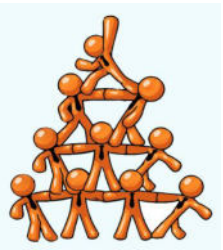
$A \begin{cases} y = -4(x - 2) \\ y = -2\left(x - \frac{5}{2}\right) \end{cases}$

One solution



4-13: Lesson Synthesis

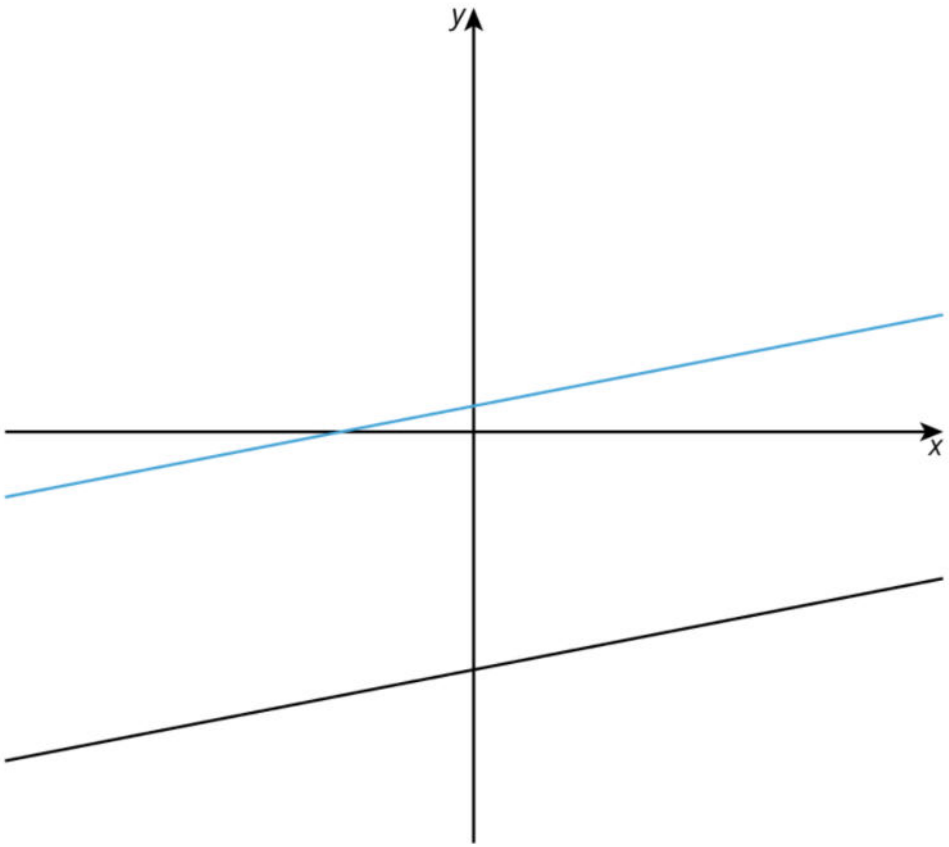
- How can you know the number of solutions for a system of equations from its graph?
- How can you know the number of solutions for a system of equations from their equations?



4-13: Learning Targets

- I can solve systems of equations using algebra.
- I can graph a system of equations.

4-13-4: Two Lines



1. Given the lines shown here, what are two possible equations for this system of equations?

2. How many solutions does this system of equations have? Explain your reasoning.