

5.1

SOLVING SYSTEMS OF LINEAR EQUATIONS BY GRAPHING

Review

A system of equations is when you have two or more equations with the same variables.

$$2x - y = 8$$

$$x + y = 1$$

Goal: Two solve a problem like the following.

Jason and Denise went to two different stores to buy school supplies. Jason went to Staples where notebooks cost \$4 and binders cost \$5. He ended up spending \$28. Denise went to Walmart where notebooks were \$3 and surprisingly the binders were \$2. She only spent \$14. If Jason and Denise ended up buying the same amount of notebooks and binders, how many of each thing did they buy?

Writing equations

Write the following as equations in standard form.

- 1) Your class is taking a trip to a science museum. You can travel in small and large vans. A small van holds 8 people, and a large van holds 12 people. There will be 144 people on the trip.
- 2) People at a banquet will be seated at rectangular and round tables. Rectangular tables seat 6 people, and round tables seat 10 people. There will be 120 people in the banquet.
- 3) You spend \$80 on c CD's that cost \$15 each and d DVDs that cost \$20 each.

Writing equations

Write the following as equations in standard form.

- 4) You spend \$56 on p paperback books that cost \$7 each and h hardcover books that cost \$14 each.
- 5) James the gardener has to buy seedlings for his garden. He only has \$300 to spend. Peppers are \$1.20 and tomatoes are \$1.75 each.

Systems of equations

A system of equations is when you have two or more equations with the same variables.

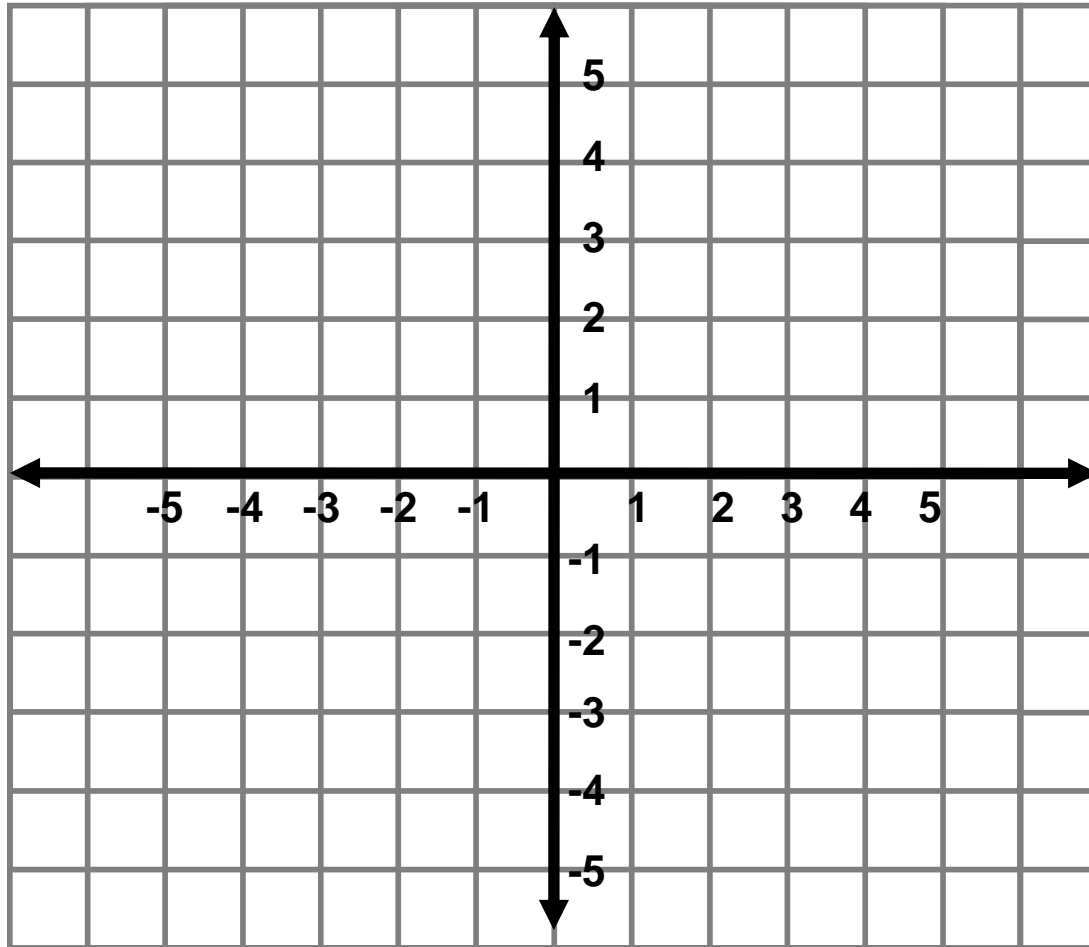
$$3x + 2y = 4$$

$$x + y = 1$$

Solving systems of equations means: _____
_____.

In this case, the solution that will fit for this is (,)

To find the solution of systems of equations by graphing, graph both equations. Basically, the intersection is the solution.

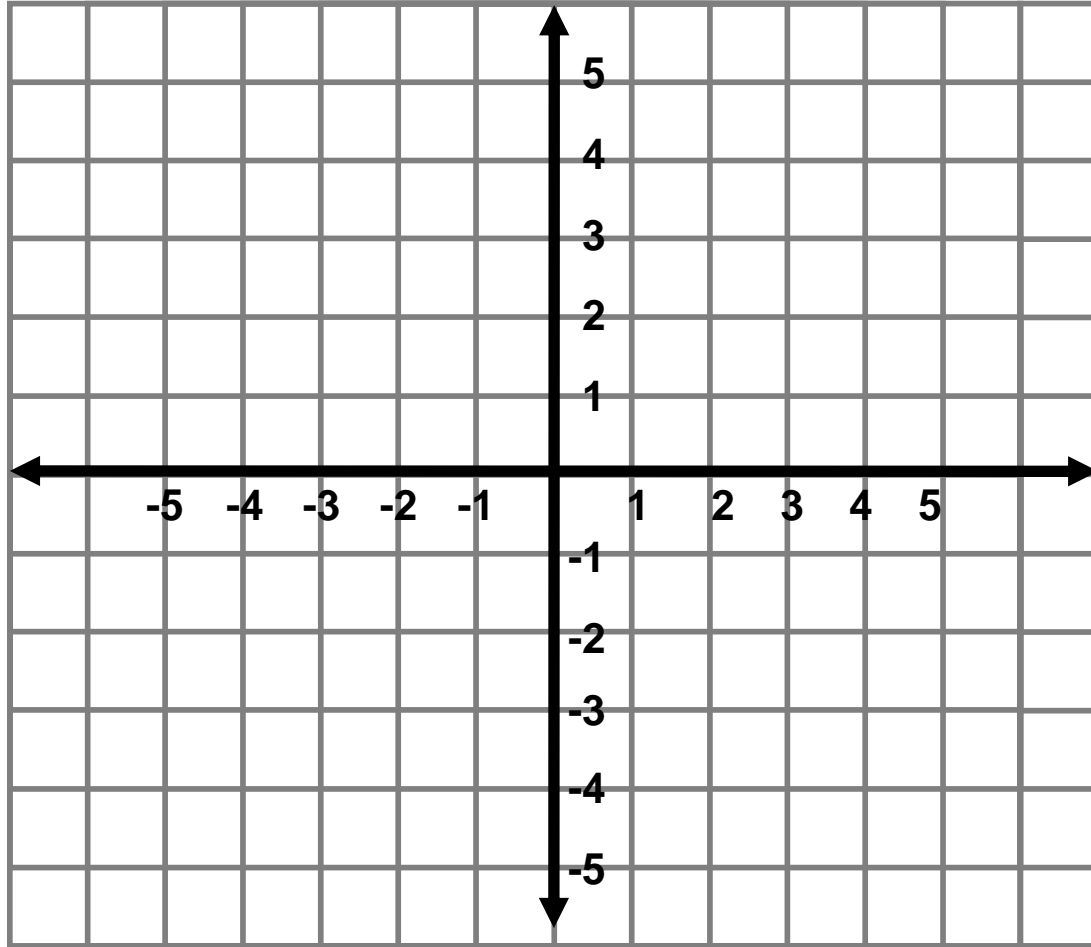


$$-2x + y = -1$$

$$x + y = 5$$

Clue: Change these to slope-intercept form and then graph.

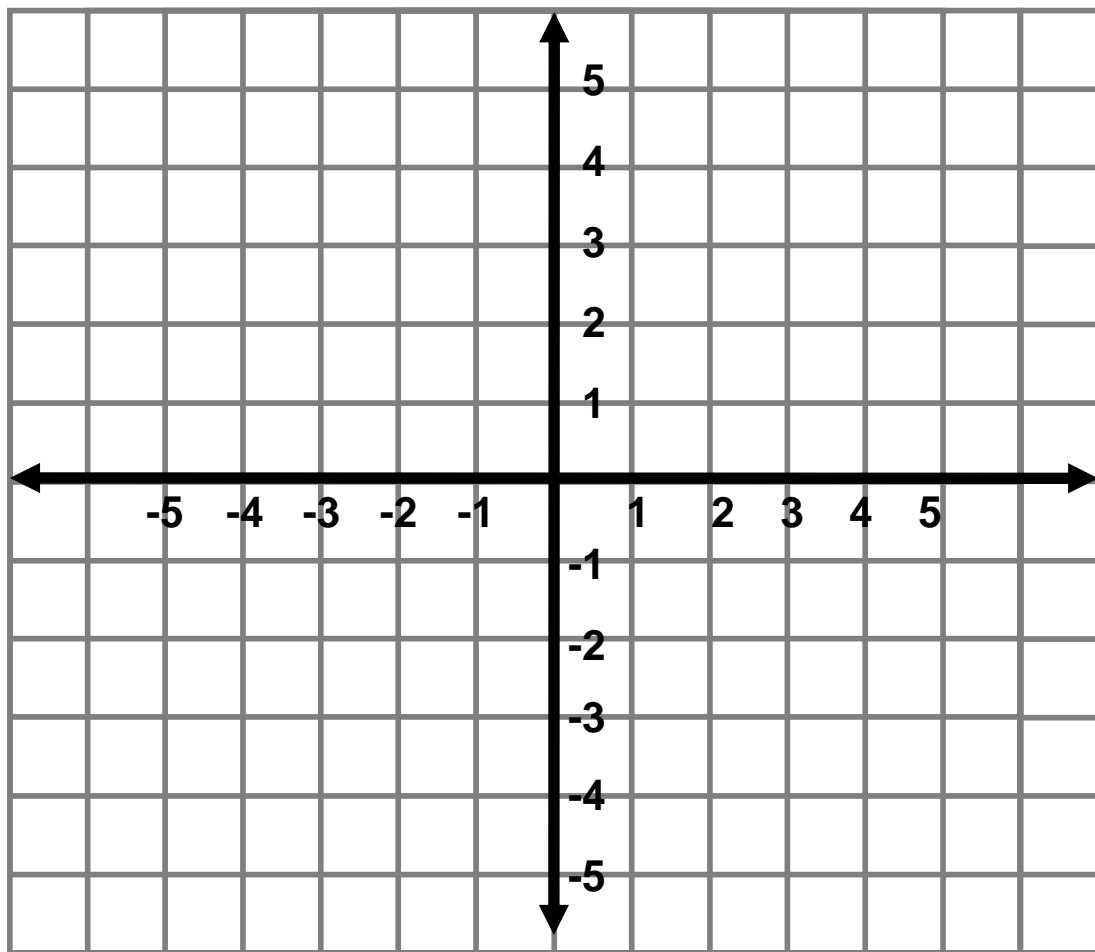
Use the graph to solve the system. Then check your solution algebraically.



$$y = -\frac{2}{3}x + 4$$

$$y = \frac{5}{3}x - 3$$

3) Find the solution by graphing:



$$2x + y = 2$$

$$-x + y = -4$$

4) Tell whether the ordered pair is a solution of the linear system.

a) $(-1, 2)$

$$y = -x + 1$$

$$y = 2x + 4$$

b) $(-1, 5)$

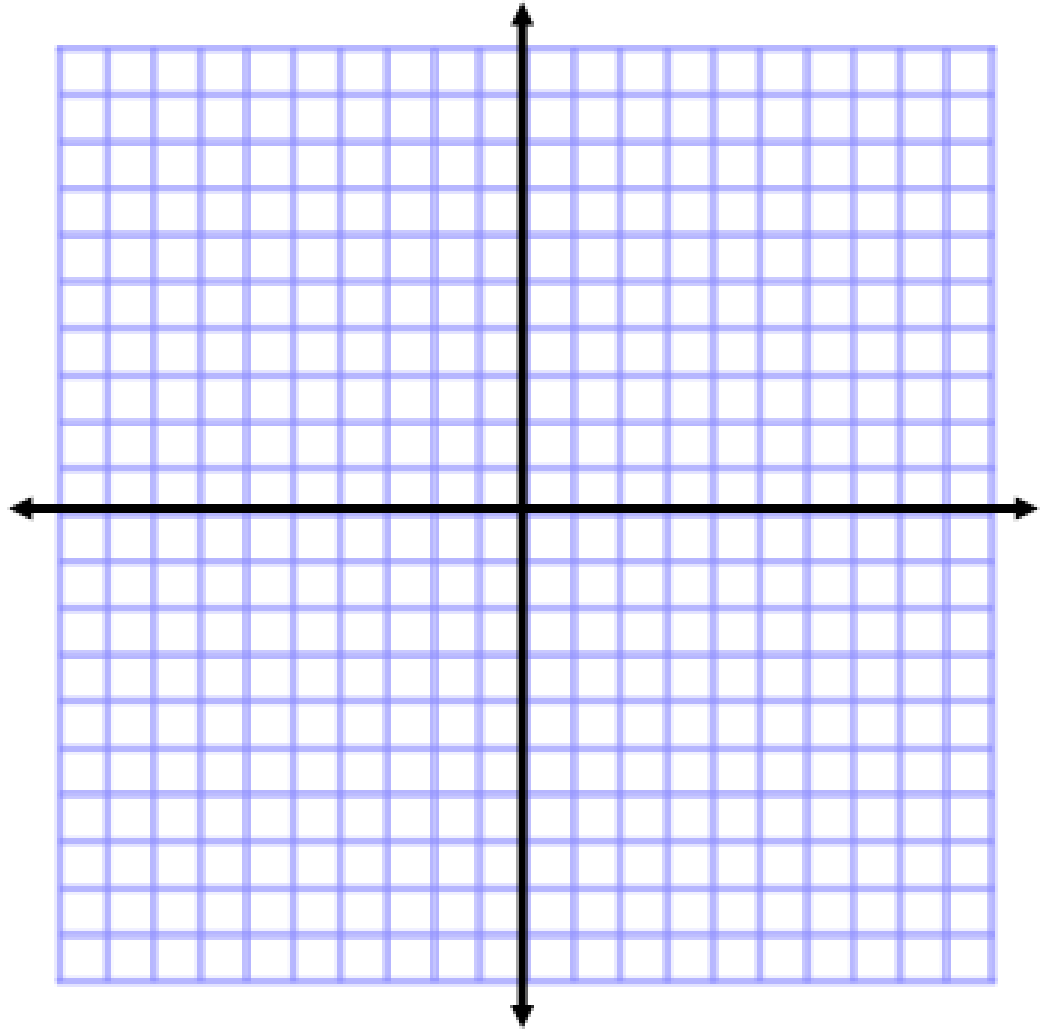
$$x + y = 4$$

$$x - y = 6$$

**5) Solve the linear system by graphing.
Check your solution.**

$$-x + y = 7$$

$$x + 4y = 8$$

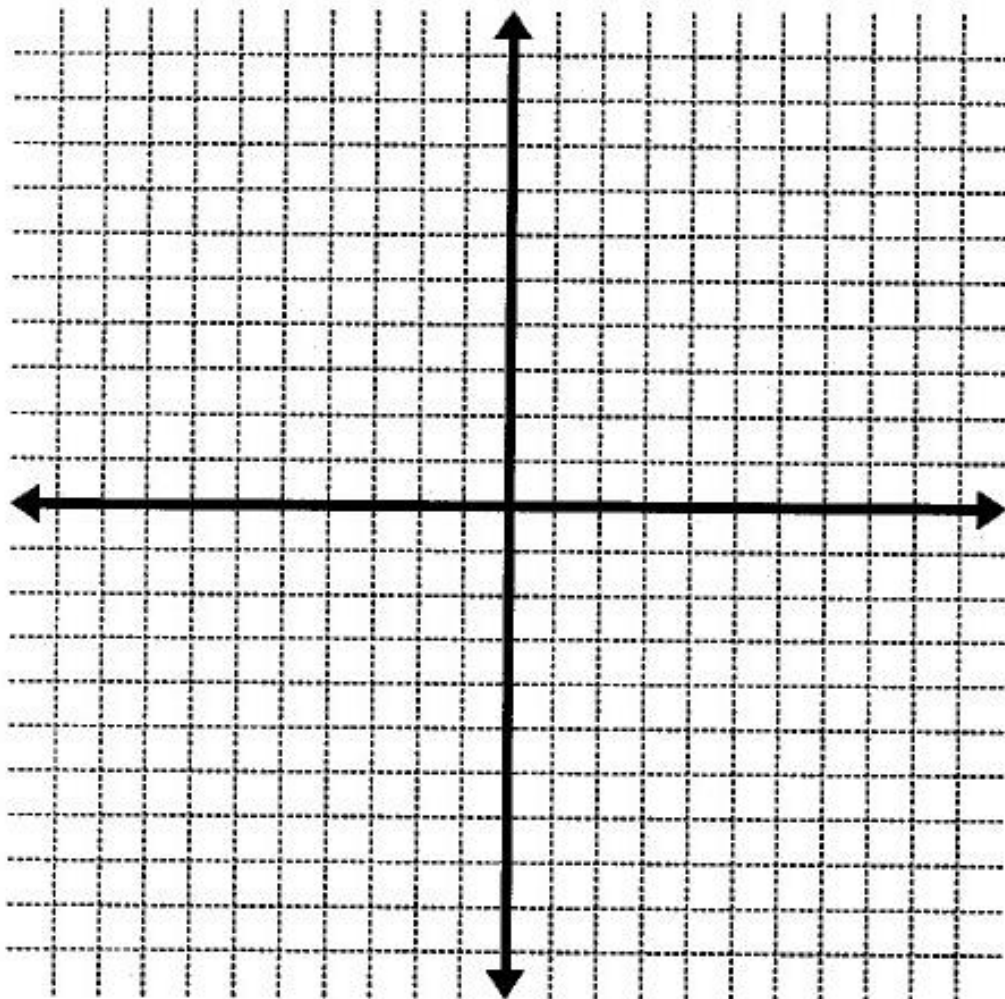


Practice

6)

$$2x + y = 3$$

$$3y = x - 12$$



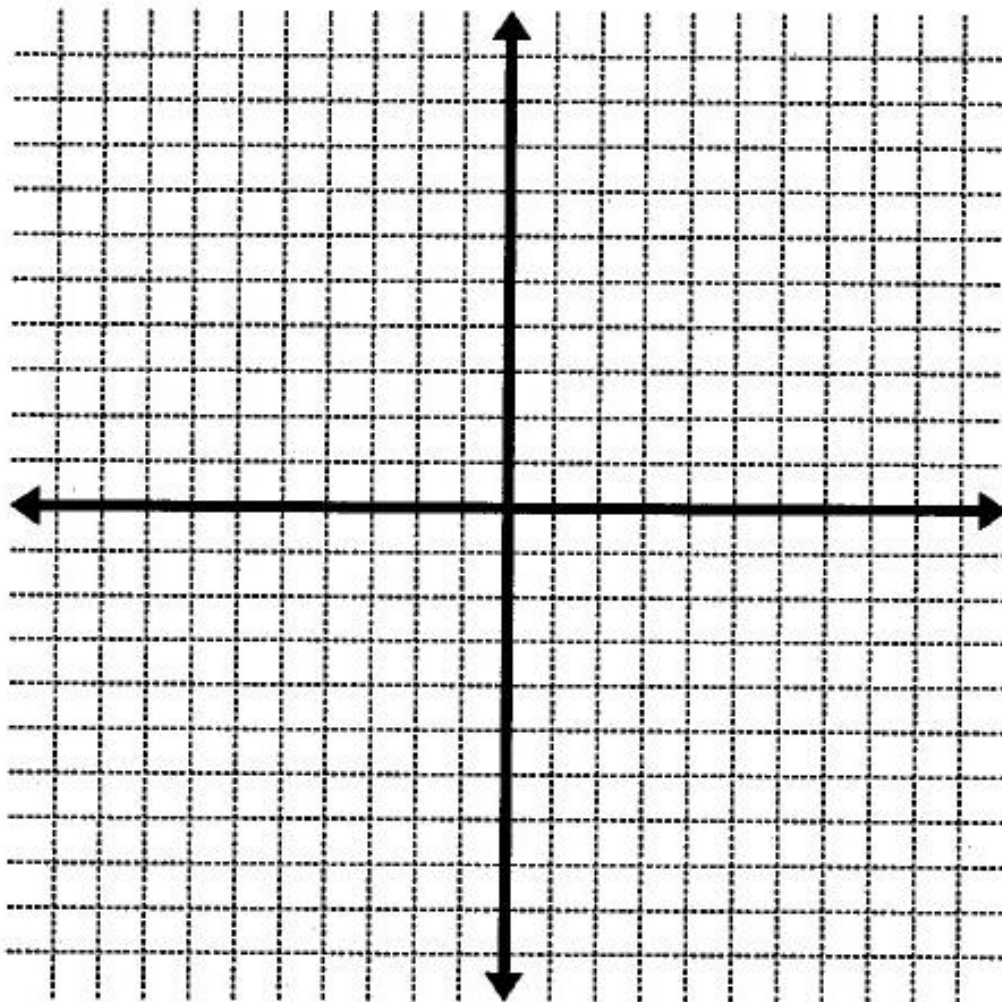
Check:

Practice

7)

$$4y - 3x = 12$$

$$y + 2x = -8$$



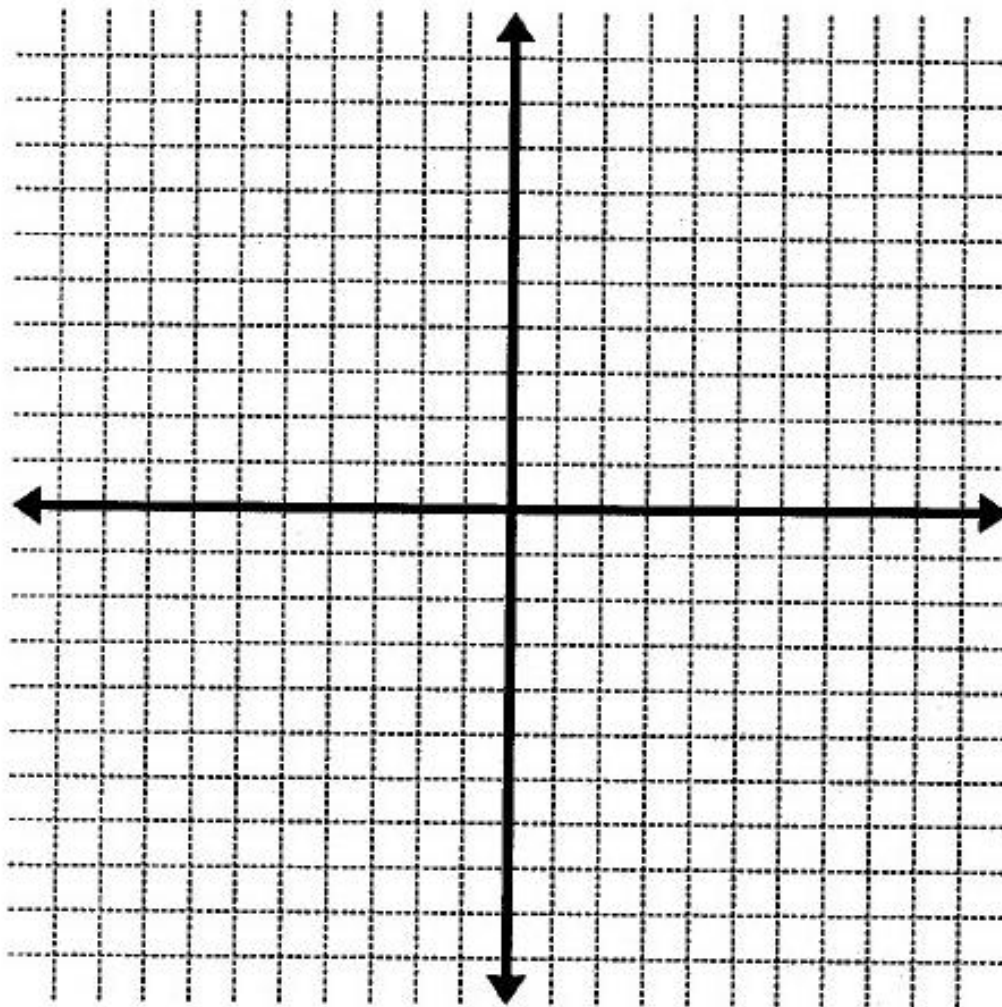
Check:

Practice

8)

$$y = -x + 4$$

$$y = -\frac{3}{5}x + 2$$



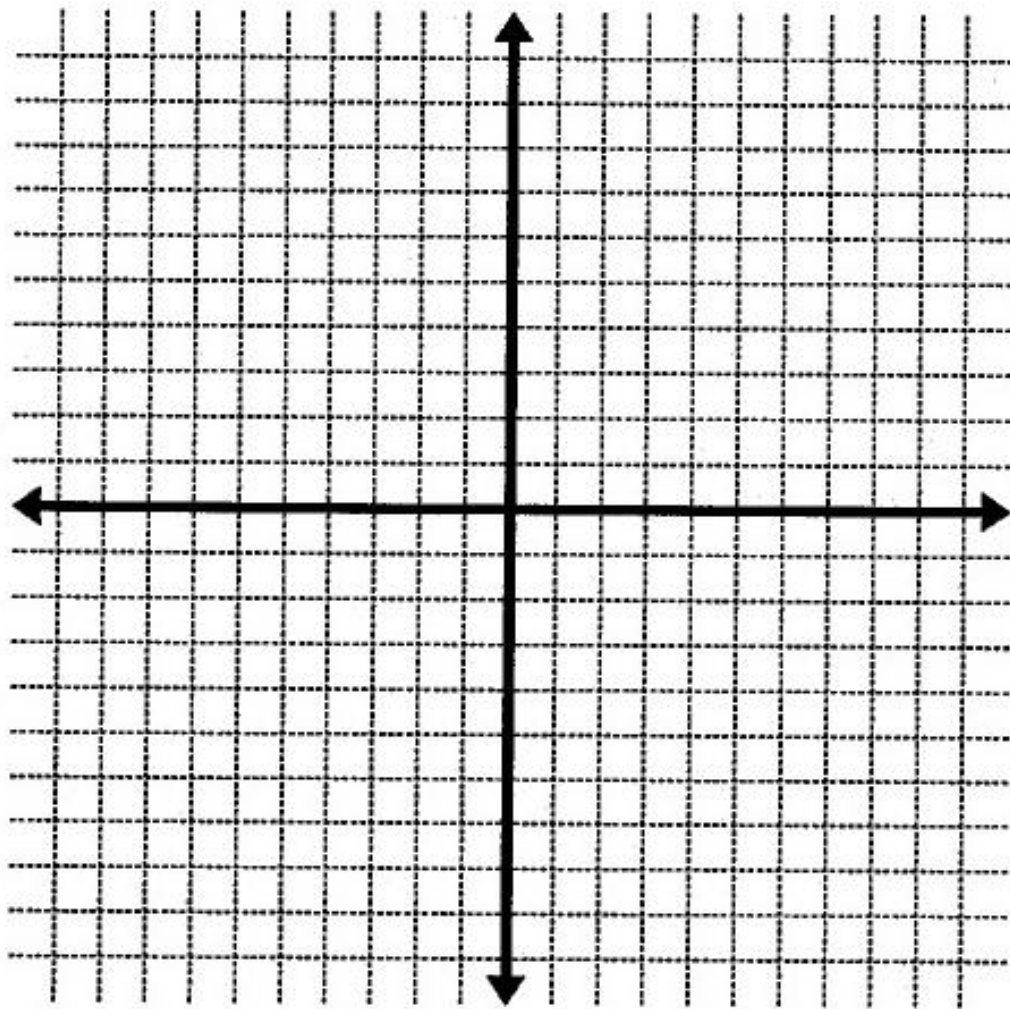
Check:

Practice

9)

$$y + 3x = -2$$

$$2y - 3x = 14$$



Check: