

Bell Work:

1. What is the slope of the line with an equation of $2x - 5y = -30$?
2. What is the domain in interval notation of the linear parent function?
3. Solve and show all work. $3(a - 4) + 5 = 5(a + 7) - 11$
4. Simplify. $(-3b^3c^{-2}d)^3$

Grab a ruler!!!

Chapter 3: Systems of Equations

In this chapter, you will learn how to...

- 1. Solve systems of equations graphically,**
- 2. Solve systems of equations algebraically,**
- 3. Solve word problems using systems of equations,**
- 4. Graph systems of inequalities,**
- 5. Graph in 3 dimensional graphs, and**
- 6. Solve system of equations with 3 equations and 3 variables.**

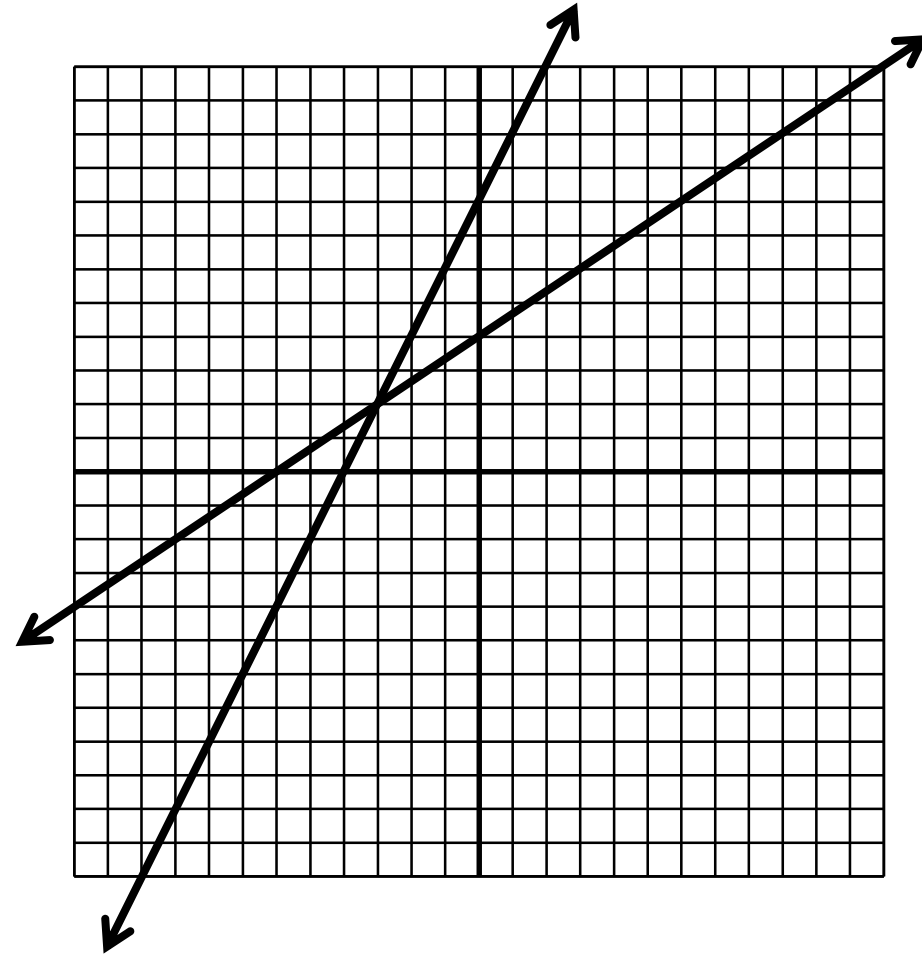
Systems of Equations

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

$$y = 2x + 8$$

Solution: $(-3, 2)$

*Graph both lines
and find where they
intersect.*



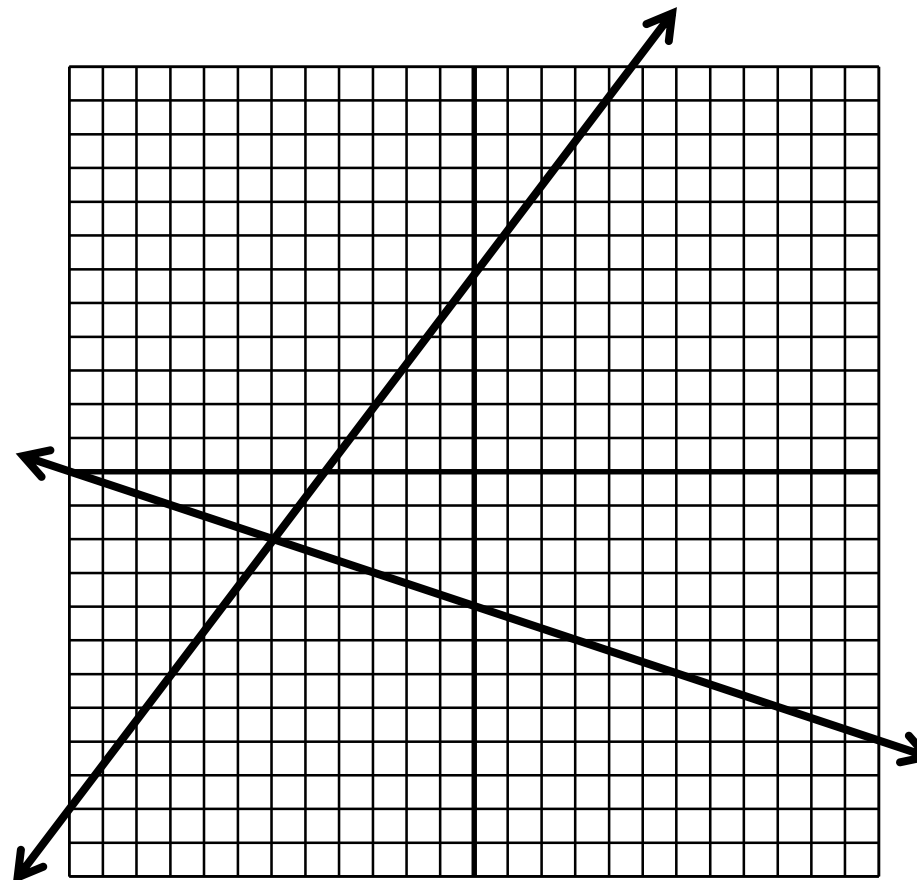
Systems of Equations

$$y = \frac{4}{3}x + 6$$

$$x + 3y = -12$$

Solution: $(-6, -2)$

*Graph both lines
and find where they
intersect.*



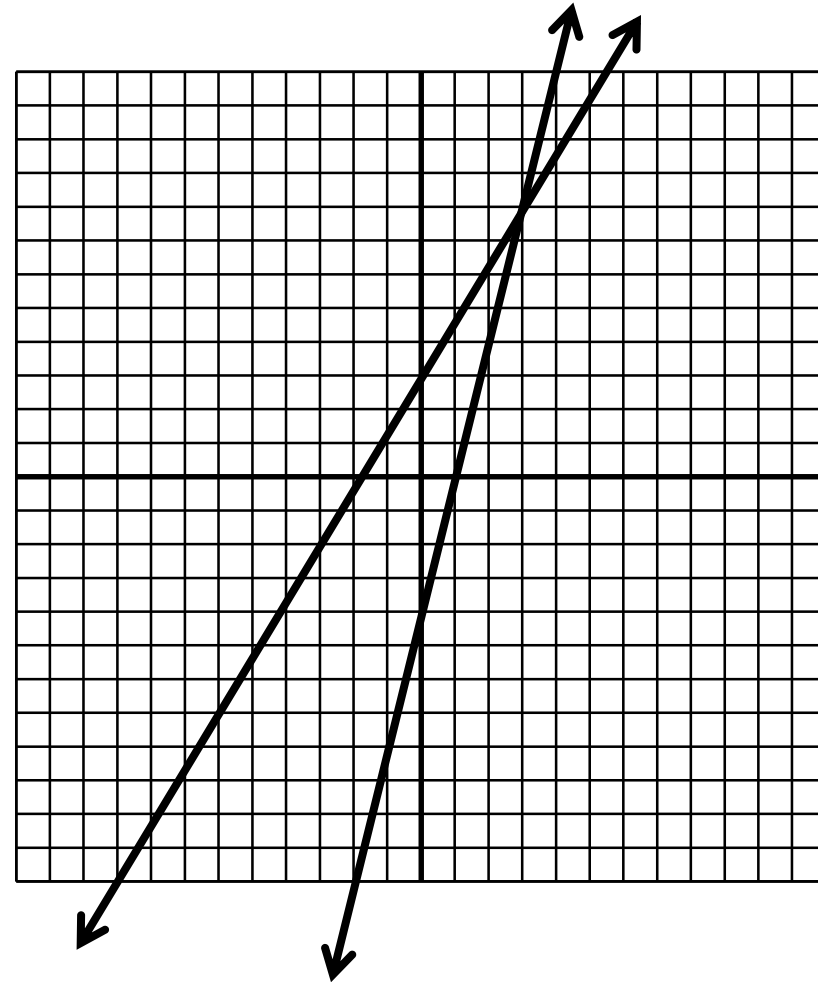
Systems of Equations

$$5x - 3y = -9$$

$$4x - y = 4$$

Solution: (3, 8)

*Graph both lines
and find where they
intersect.*



Systems of Equations

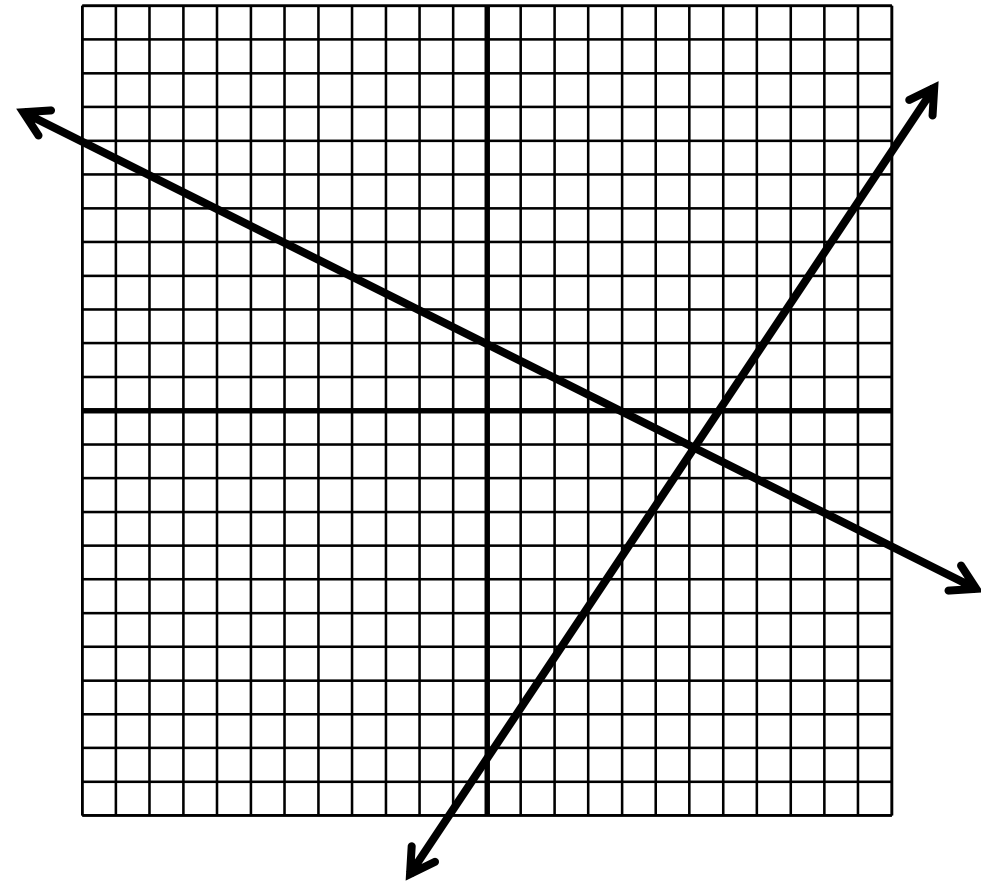
$$3x - 2y = 20$$

$$4 - 2y = x$$

*Change to either
slope-intercept or
standard to graph.*

$$y = -\frac{1}{2}x + 2$$

Solution: (6, -1)




Systems of Equations

$$y = \frac{1}{2}x + 6$$

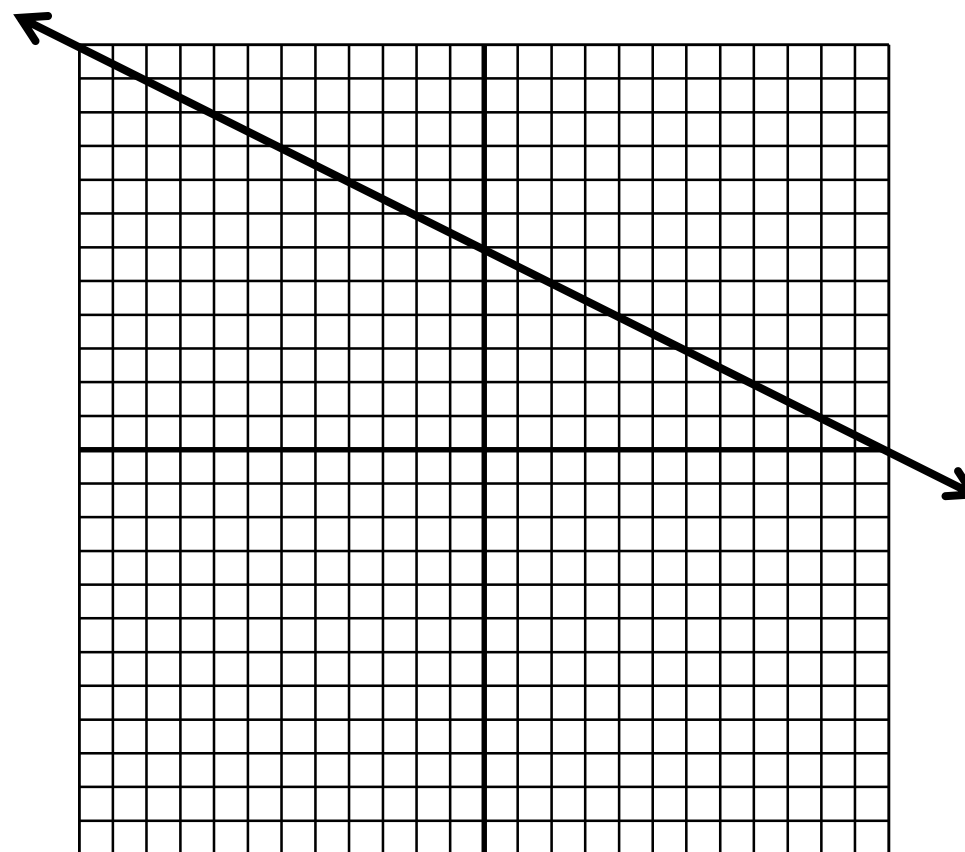
$$8y - 4x = 48$$

Same line.


$$y = \frac{1}{2}x + 6$$

Solution: Infinitely Many

Since they are the same line, they will intersect all the time and have an infinite amount of solutions.



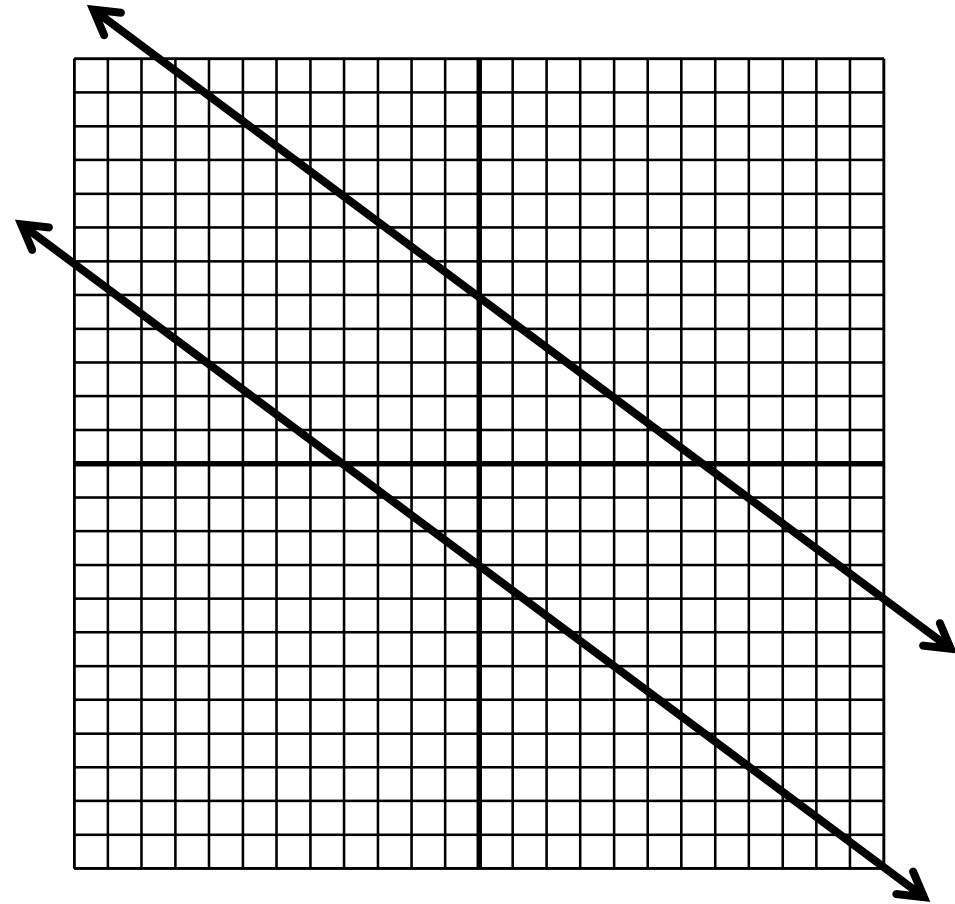
Systems of Equations

$$y = -\frac{3}{4}x + 5$$

Parallel lines

$$6x + 8y = -24$$

Solution: No Solution



Assignment:

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Just graph and find the intersection.

Use a graph and a table to solve each system. Check your answer.

$$19. \begin{cases} 2 + y = x \\ x + y = 4 \end{cases}$$

$$20. \begin{cases} 4y - 2x = 4 \\ 10x - 5y = 10 \end{cases}$$

$$21. \begin{cases} 12x + 4y = -4 \\ 2x - y = 6 \end{cases}$$

$$22. \begin{cases} y = 10 - x \\ 3x - 3y = 0 \end{cases}$$

Classify each system and determine the number of solutions.

$$23. \begin{cases} 24x - 27y = 42 \\ -9y + 8x = 14 \end{cases}$$

$$24. \begin{cases} \frac{3}{2}x + 9 = y \\ 4y - 6x = 36 \end{cases}$$

$$25. \begin{cases} 7y + 42x = 56 \\ 25x - 5y = 100 \end{cases}$$

$$26. \begin{cases} 3y = 2x \\ -4x + 6y = 3 \end{cases}$$