

Section 3-1  
Solving Systems Using  
Tables and Graphs

When you have two or more related unknowns, they can be represented in a **system of equations**.

**linear system:** consists of linear equations

**Solution to the system:** set of values of the variables that make all equations true.

Aug 18-2:52 PM

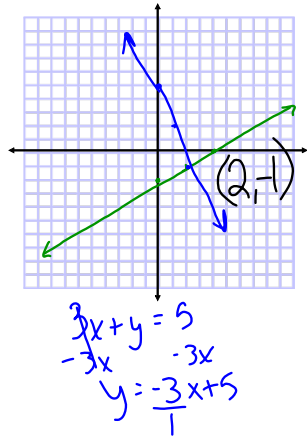
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Solving by graphing:

Solve:

$$\begin{cases} x - 2y = 4 \\ 3x + y = 5 \end{cases}$$

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

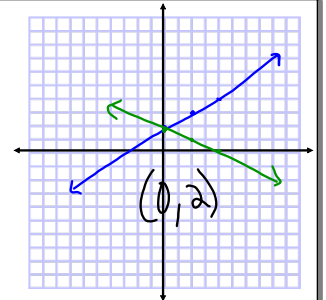


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Solve:

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

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

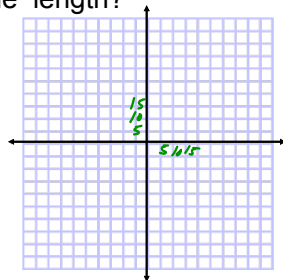


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Greenland sharks have a birth length of 37 cm and grow at an average of 0.75 cm/yr. Spiny dogfish sharks have a growth rate of 1.5 cm/yr and a birth length of 22 cm. At what age would both sharks be the same length?

\*\*Use any method\*\*

$$\begin{aligned} x &- \text{yrs} \\ y &- \text{total length} \\ y &= \frac{3}{4}x + 37 \\ y &= \frac{3}{2}x + 22 \end{aligned}$$

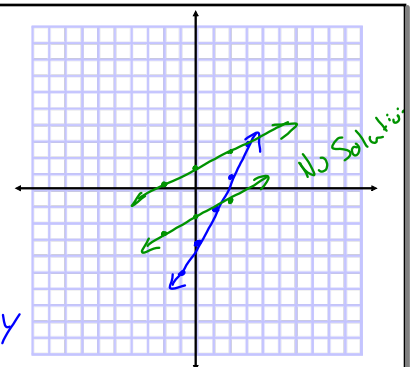


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$$\begin{cases} 4y - 2x = 6 \\ 8y = 4x - 12 \end{cases}$$

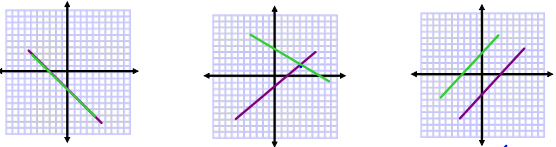
$$\begin{cases} y = 2x - 3 \\ 6x - 3y = 9 \end{cases}$$

inf many



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Classifying Systems:



inf. many dependent      1 sol independent      inconsistent

Word bank:

How many solutions does each have?

Hwk:  
pg. 138 - 140  
#8 - 14 evens, #18 - 34 (4th),  
36, 42, 44, 46

Aug 18-2:52 PM

Aug 18-2:52 PM



Aug 18-2:52 PM



Aug 18-2:52 PM



Aug 18-2:52 PM



Aug 18-2:52 PM



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