

Solving Systems of Equations

I. Solving Systems of Equations by Graphing

A. A Solution to a system of linear equations is *the ordered pair that works for both equations*

1. Examples:

a) Decide whether the ordered pair $(5, 2)$ is a solution of the system of linear equations. $3x - 2y = 11$ and $-x + 6y = 7$

$$3 \cdot 5 - 2 \cdot 2 = 11 \quad -5 + 6 \cdot 2 = 7$$

$$15 - 4 = 11 \quad -5 + 12 = 7$$

$$11 = 11 \checkmark \quad 7 = 7 \checkmark$$



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With your partner...

b) Decide whether the ordered pair $(3, -6)$ is a solution of the system of linear equations. $x + 3y = 15$ and $4x + y = 6$

$$3 + 3(-6) = 15$$

$$3 - 18 = 15$$

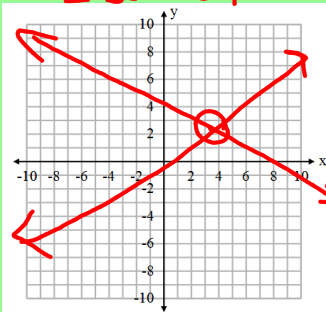
$$-15 \neq 15$$



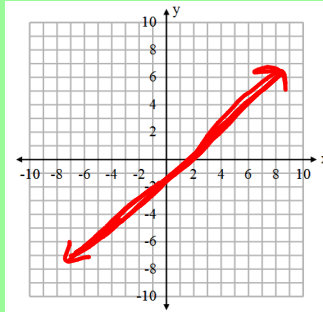
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Identifying the number of solutions

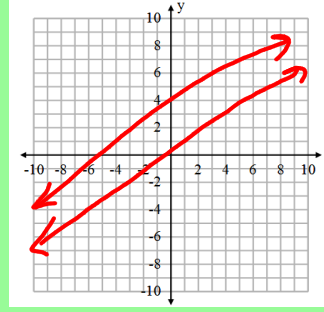
1 solution



Infinite Solutions



No Solutions



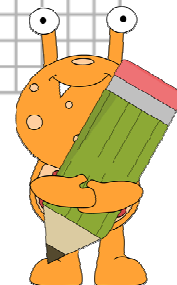
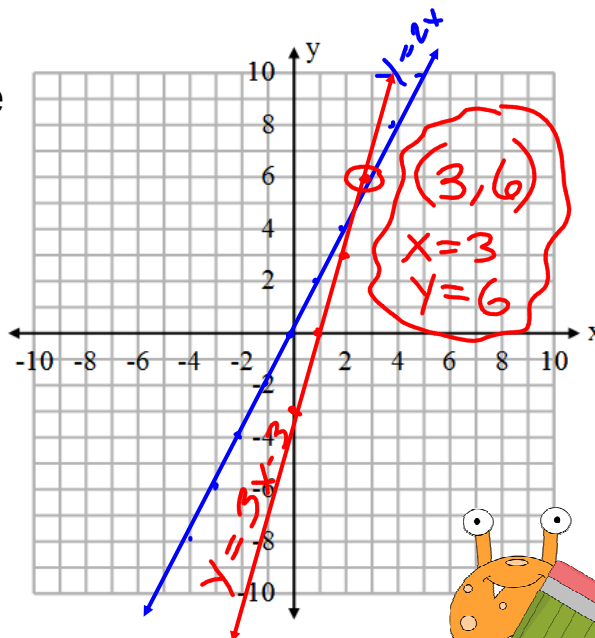
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Find a solution to the system by graphing.

$y=2x$ and $y=3x-3$

$6=2 \cdot 3$
 $6=6 \checkmark$

$6=3 \cdot 3 - 3$
 $6=9 - 3$
 $6=6 \checkmark$

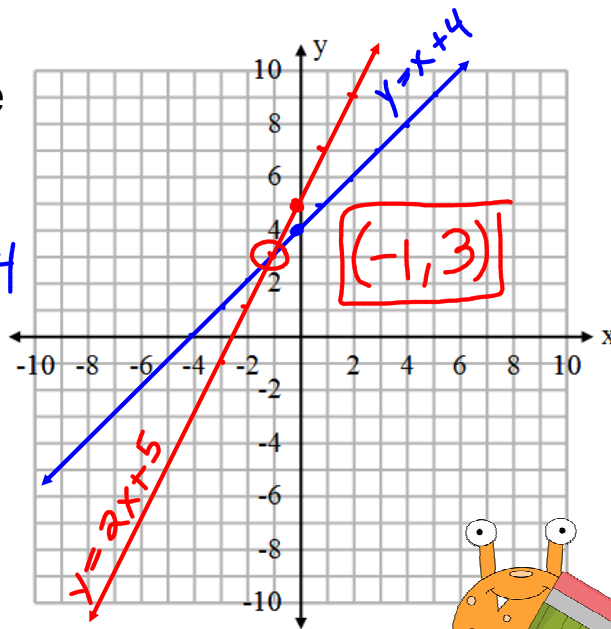


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Find a solution to the system by graphing.

$$y - x = 4 \text{ and } y = x + 4$$

$$y = \underline{2x} + 5$$



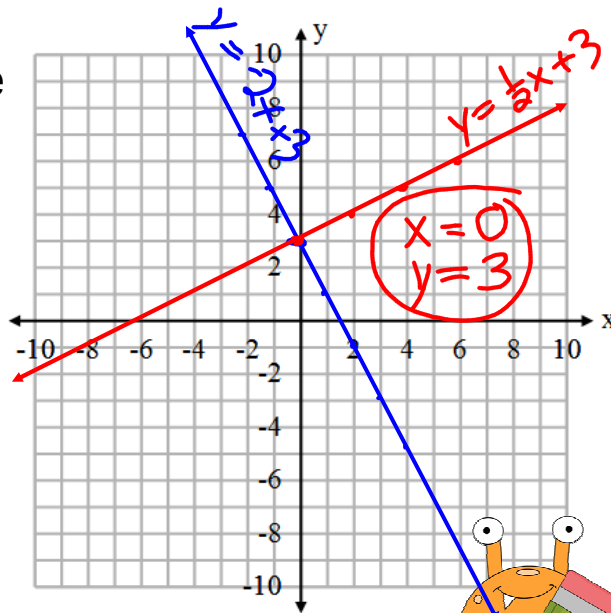
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Find a solution to the system by graphing.

$$y + 2x = 3 \text{ and } y = -2x + 3$$

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

$$y = \frac{1}{2}x + 3$$



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