

Graphing Linear Equations Part 6

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Mathematics 9 Linear Relations Graphing Linear Relations Part 6

A. Definitions

- 1) Linear Equation: an equation that when graphed forms a straight line.
- 2) Solution Set: the coordinates of the point of intersection of a pair of lines.

Examples

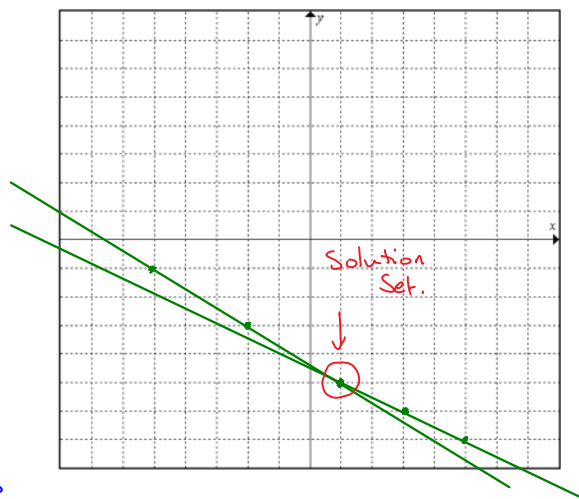
Graph the following pair of linear equations and find the solution set.

1) $2x + 3y = -13$
 $x + 2y = -9$

$2x + 3y = -13$ $x + 2y = -9$

x	y
1	-5
-2	-3
-5	-1

x	y
3	-6
1	-5
5	-7



Solution Set (1 , -5)

$$\begin{aligned}
 2x + 3y &= -13 \\
 2(1) + 3y &= -13 \\
 2 + 3y &= -13 \\
 \underline{-2} & \\
 3y &= -15 \\
 \underline{\frac{3}{3}} & \\
 y &= -5 \checkmark
 \end{aligned}$$

$$\begin{aligned}
 2x + 3y &= -13 \\
 2(-2) + 3y &= -13 \\
 -4 + 3y &= -13 \\
 \underline{+4} & \\
 3y &= -9 \\
 \underline{\frac{3}{3}} & \\
 y &= -3 \checkmark
 \end{aligned}$$

$$\begin{aligned}
 2x + 3y &= -13 \\
 2(-5) + 3y &= -13 \\
 -10 + 3y &= -13 \\
 \underline{+10} & \\
 3y &= -3 \\
 \underline{\frac{3}{3}} & \\
 y &= -1 \checkmark
 \end{aligned}$$

$$\begin{aligned}
 x + 2y &= -9 \\
 (3) + 2y &= -9 \\
 3 + 2y &= -9 \\
 \underline{-3} & \\
 2y &= -12 \\
 \underline{\frac{2}{2}} & \\
 y &= -6 \checkmark
 \end{aligned}$$

$$\begin{aligned}
 x + 2y &= -9 \\
 (1) + 2y &= -9 \\
 1 + 2y &= -9 \\
 \underline{-1} & \\
 2y &= -10 \\
 \underline{\frac{2}{2}} & \\
 y &= -5 \checkmark
 \end{aligned}$$

$$\begin{aligned}
 x + 2y &= -9 \\
 (5) + 2y &= -9 \\
 5 + 2y &= -9 \\
 \underline{-5} & \\
 2y &= -14 \\
 \underline{\frac{2}{2}} & \\
 y &= -7 \checkmark
 \end{aligned}$$

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

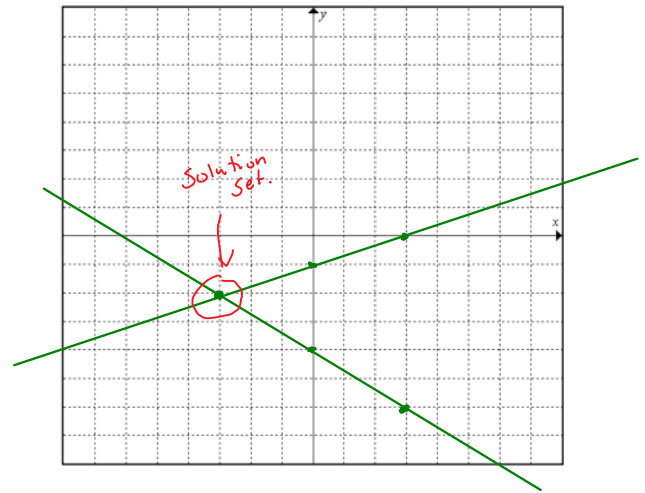
$$y = \frac{1}{3}x - 1$$

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

$$y = \frac{1}{3}x - 1$$

x	y
3	-6
-3	-2
0	-4

x	y
3	0
-3	-2
0	-1



Solution Set $(-3, -2)$

$y = -\frac{2}{3}x - 4$	$y = -\frac{2}{3}x - 4$	$y = -\frac{2}{3}x - 4$
$y = -\frac{2}{3}(3) - 4$	$y = -\frac{2}{3}(-3) - 4$	$y = -\frac{2}{3}(0) - 4$
$y = -2 - 4$	$y = 2 - 4$	$y = 0 - 4$
<u>$y = -6$</u> ✓	<u>$y = -2$</u> ✓	<u>$y = -4$</u> ✓
$y = \frac{1}{3}x - 1$	$y = \frac{1}{3}x - 1$	$y = \frac{1}{3}x - 1$
$y = \frac{1}{3}(3) - 1$	$y = \frac{1}{3}(-3) - 1$	$y = \frac{1}{3}(0) - 1$
$y = 1 - 1$	$y = -1 - 1$	$y = 0 - 1$
<u>$y = 0$</u> ✓	<u>$y = -2$</u> ✓	<u>$y = -1$</u> ✓

Assignment:

Graphing Linear Equations Part 6 Assignment

Name: _____

Graphing Linear Equations Part 6 Assignment

Graph the following pair of linear equations and find the solution set.

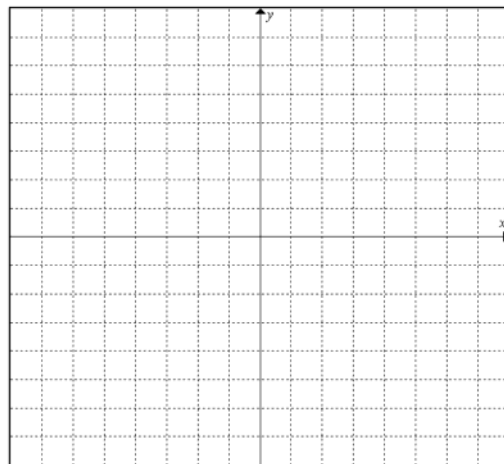
1) $x - y = 4$
 $2x + y = -4$

$x - y = 4$

$2x + y = -4$

x	y

x	y



Solution Set (,)

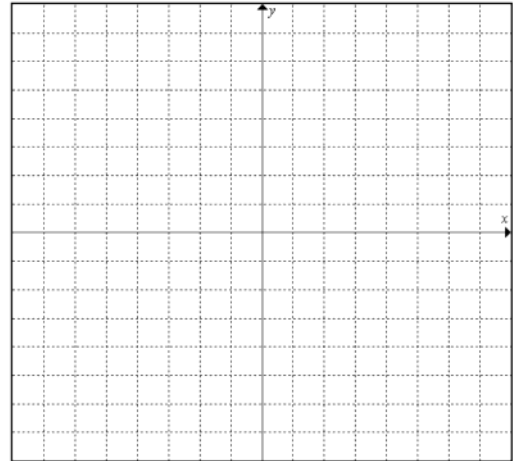
2) $x - y = -2$
 $4x + 2y = 16$

$x - y = -2$

$4x + 2y = 16$

x	y

x	y



Solution Set (,)

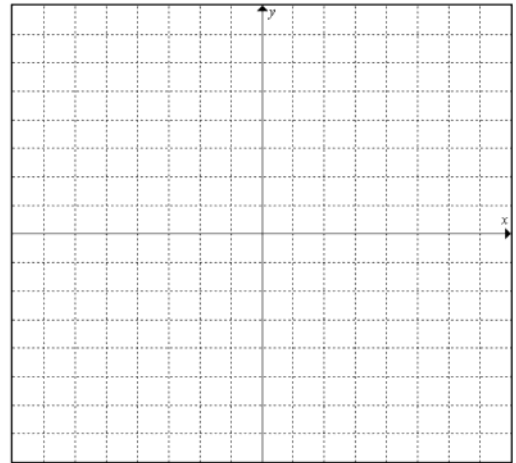
3) $x + y = 7$
 $3x + 4y = 24$

$x + y = 7$

$3x + 4y = 24$

x	y

x	y



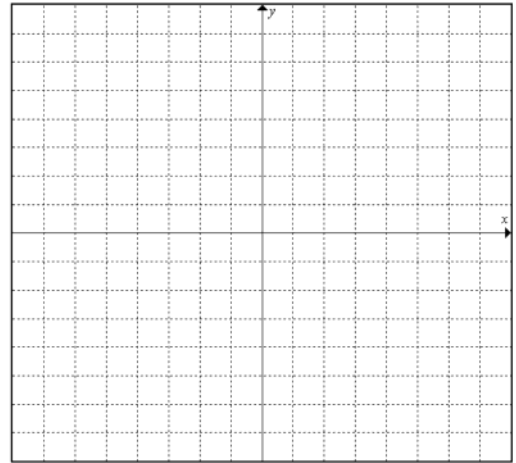
Solution Set (,)

4) $y = \frac{1}{2}x - 5$
 $3x - y = 0$

$y = \frac{1}{2}x - 5$ $3x - y = 0$

x	y

x	y



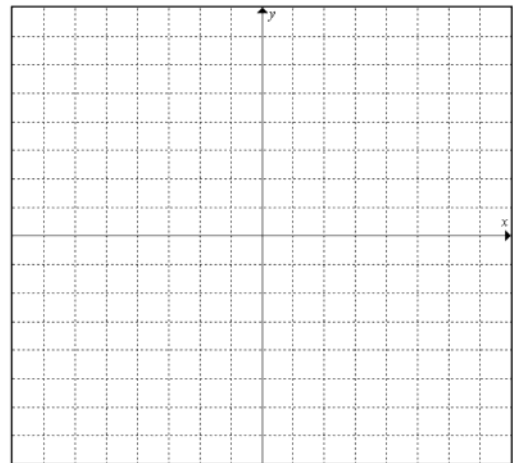
Solution Set (,)

5) $6x - 2y = -20$
 $2x - 3y = -9$

$6x - 2y = -20$ $2x - 3y = -9$

x	y

x	y



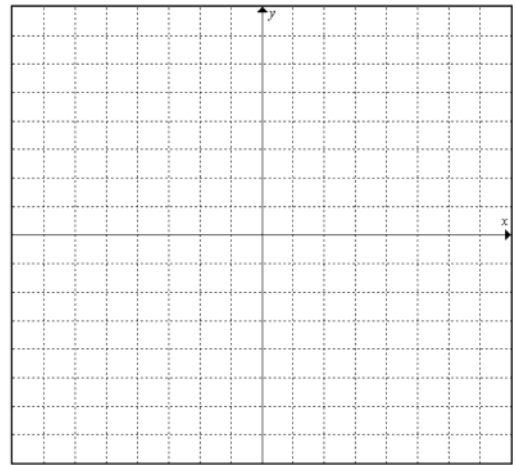
Solution Set (,)

6) $y = \frac{1}{4}x - 3$
 $y = -\frac{1}{2}x - 6$

$y = \frac{1}{4}x - 3$ $y = -\frac{1}{2}x - 6$

x	y

x	y



Solution Set (,)

Answers

1) (0, -4)

2) (2, 4)

3) (4, 3)

4) (-2, -6)

5) (-3, 1)

6) (-4, -4)