

1.2 Graphing Linear Equations

Study 1.2

probl # 1, 5, 9,...25

31, 37-44 all,

81-91

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1.2 Graphing Linear Equations

Ordered Pair (x,y) : 1) point on the curve of an equation
2) solution of the equation

Solution Set: set of all solutions

Consider $y = 2x + 1$ Let $x = 3$, Find: y

Therefore, $(_, _)$ is a solution of $y = 2x + 1$

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1.2 Graphing Linear Equations

Ordered Pair (x,y): 1) point on the curve of an equation
2) solution of the equation

Solution Set: set of all solutions

Consider $y = 2x + 1$ Let $x = 3$, Find: y

$$y = 2(3) + 1$$
$$y = 6 + 1 = 7$$

Therefore, (3, 7) is a solution of $y = 2x + 1$

Check by
substituting
values found
into original
equation:

$$7 \stackrel{?}{=} 2(3) + 1$$
$$7 = 7 \checkmark$$

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1.2 Graphing Linear Equations

Ordered Pair (x,y): 1) point on the curve of an equation
2) solution of the equation

Solution Set: collection of all solutions

Consider $y = 2x + 1$ Let $x = 3$, Find: y

Therefore, $(3, 7)$ is a solution of $y = 2x + 1$

Also $(3, 7)$ is a point on the graph of $y = 2x + 1$

Is $(3, 8)$ a solution of $y = 2x + 1$?

If $(3, 8)$ is a solution of $y = 2x + 1$, then substitution should result in a true statement.

$$8 \stackrel{?}{=} 2(3) + 1$$
$$8 \neq 6 + 1 = 7$$

Substitution results in a false statement. Therefore, $(3, 8)$ is NOT a solution.

No

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Consider $y = 2x + 1$

(3, 7) is a solution

(3, 8) is NOT a solution

Is (0, 1) a solution?

Is (1, 0) a solution?

Is (1, 3) a solution?

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1.2 Graphing Linear Equations

Consider $y = 2x + 1$ $(3, 7)$ is a solution $(3, 8)$ is NOT a solutionIs $(0, 1)$ a solution?

$$y = 2x + 1$$

$$1 ? 2(0) + 1$$

$$1 ? 0 + 1$$

$$1 = 1 \quad \text{true} \quad \text{YES}$$

Is $(1, 0)$ a solution?

$$y = 2x + 1$$

$$0 ? 2(1) + 1$$

$$0 ? 2 + 1$$

$$0 \neq 3 \quad \text{false} \quad \text{NO}$$

Is $(1, 3)$ a solution?

$$y = 2x + 1$$

$$3 ? 2(1) + 1$$

$$3 ? 2 + 1$$

$$3 = 3 \quad \text{true} \quad \text{YES}$$

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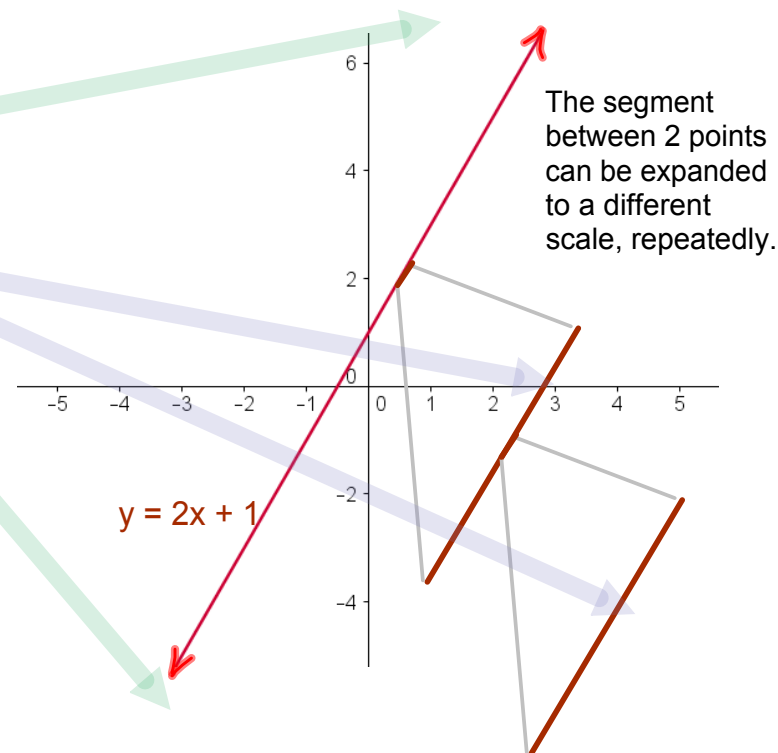
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1.2 Graphing Linear Equations

How many solutions are there
for $y = 2x + 1$?

Infinitely many solutions:

- > Line continues indefinitely in both directions.
- > Between any two points selected, there are an infinite number of points.



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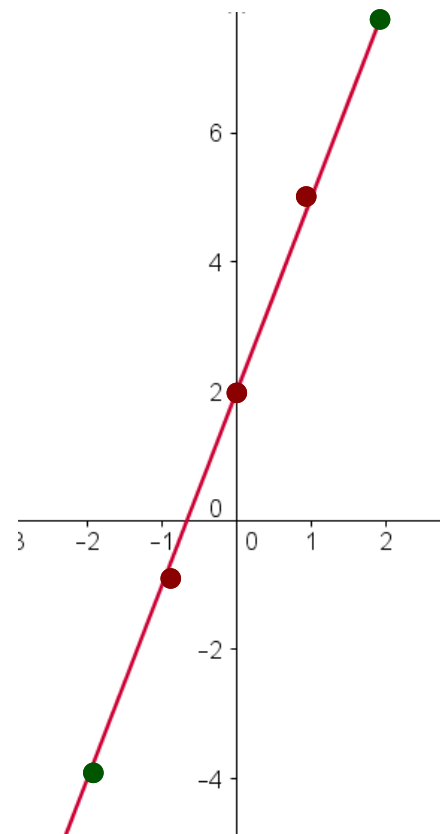
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1.2 Graphing Linear Equations

G: $y = 3x + 2$

x	$3x + 2 =$	y
-2	$-6 + 2$	-4
-1	$-3 + 2$	-1
0	$0 + 2$	2
1	$3 + 2$	5
2	$6 + 2$	8

F: graph by hand, by calc

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50.

$$6: 3 - 5x - 2 = 4x + 9 - 7x \quad \text{F: solve for } x$$

$$\begin{array}{rcl} -5x + 1 & = & -3x + 9 \quad \text{CLT} \\ +3x - 1 & = & +3x - 1 \\ \hline -2x & = & 8 \quad \text{APE} \end{array}$$

$$x = \frac{8}{-2} \quad \text{MPE}$$

$$x = -4$$

$$\text{Ch: } 3 - 5(-4) - 2 ? 4(-4) + 9 - 7(-4)$$

$$3 + 20 - 2 ? -16 + 9 + 28$$

$$20 + 1 ? -16 + 37$$

$$21 = 21 \checkmark$$