9/30

Student Notes – Solutions to Linear Equations

A SOLUTION TO A LINEAR EQUATION IS...

★ a point on the line
★ (x, y) that makes equation true!

1. Given the equation $y = 2x + 1$, complete the table to find some of the solutions to the equation.

x	Process	y	(x , y)
-2	2(-2)+1	-3	(-2, -3)
-1.5	2(-1.5)+1	-2	(-1.5, -2)
-1	2(-1)+1	-1	(-1, -1)
0	2(0)+1	1	(0, 1)
1	2(1)+1	3	(1, 3)
2	2(2)+1	5	(2, 5)

2. Are these the only solutions to the equation? $y = 2x + 1$? Why or why not?
No... there are an infinite number of points on a line.

3. Is (6.5, 14) a solution? Justify your answer.
x y
$14 \stackrel{?}{=} 2(6.5)+1$
$14 = 14$ ✓
Yes!

4. Is (-2, 1) a solution to the equation $3x + y = -5$? Yes Justify your answer:
x y
$3(-2)+1 \stackrel{?}{=} -5$
$-5 = -5$ ✓

5. Which of these ordered pairs is not a solution to the equation $2x - y = 12$?

A (3, -6) ✓ B (7, 2) ✓ C (-4, -18) -20 D (-8, -28) ✓

Solve for y
$2x - y = 12$
$-2x \quad -2x$
$\frac{-y}{-1} = \frac{-2x+12}{-1}$

Put into Y= 2nd GRAPH

6. A. Solve the equation $\frac{4y}{4} = \frac{4x - 12}{4}$ given the domain: $\left\{-3, 0, \frac{1}{2}\right\}$.
x

$y = \frac{4x-12}{4}$

x	y
-3	-6
0	-3
1/2	-2.5

Range: {-6, -3, -2.5}

B. For the same equation, what is the value of y, if (5, y) is a solution? 2
$x = 5$

7. Solve the equation $5y = 10x - 5$ given the range: $\{-7, 7, 11\}$. Fill out the table.

x	y
-3	-7
4	7
6	11

$\frac{5y}{5} = \frac{10x-5}{5}$

$y = \frac{10x-5}{5}$

Domain: {-3, 4, 6}

8. Randy earns money by washing cars in his neighborhood. He spent $215 on supplies and charges $15 for each car washed, n.

A Determine the function that represents Randy's profit, p.

$p = -215 + 15n$

B How many cars does Randy need to wash in order to make a profit of $130? Write a complete statement about your solution.

$130 = -215 + 15n$

$+215 \quad +215$

$\frac{345}{15} = \frac{15n}{15}$

23 cars

Randy needs to wash 23 cars to make a profit of $130.

9. In the equation $6.5x + 1.4y = 59$, what is the value of x when $y = 5$? Record your answer and fill in the bubbles.

Plug in 5 for y!

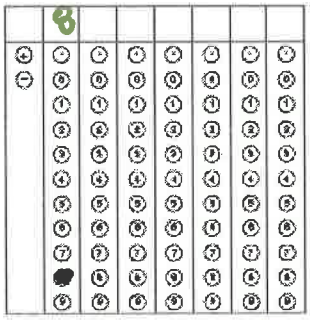
$6.5x + 1.4(5) = 59$

$6.5x + 7 = 59$

$-7 \quad -7$

$\frac{6.5x}{6.5} = \frac{52}{6.5}$

$x = 8$



GRIDDABLES

- only have to bubble for negative
- can start anywhere (left, middle, right)
- shouldn't have to round
- don't have to put leading zeros or zeros after decimal