Warm Up October 30, 2018

1.) Solve the inequality and name three solutions:

$$-2x + 7 < 17$$

2.) Find the slope: (-2, 4) and (-6, 9).

3.) Twice a number added to four is the same as one subtracted from the number? What is the number?

Write the equation of the table below.

X	3	6	9	12	15	18	21
Y	4	6	8	10	12	14	16

Unfortunatley, the y-intecept cannot always be found by looking at the table.

$m =$ _____

Option #1: Work Backwards
Fill in the table for $x = 0$

X	3	6	9	12	15	18	21
Y	4	6	8	10	12	14	16

Option #2: Use the Point-Slope Formula

Main Ideas/Questions	Notes/Examples
WRITING LINEAR EQUATIONS (Given a Point and Slope)	To write the equation of the line passing through point (x_1, y_1) with slope (m), you can use the point-slope formula: **Point-Slope Formula:** *Be sure to distribute and solve for y!*

For tables without x = 0

X	3	6	9	12	15	18	21
Y	4	6	8	10	12	14	16

Writing an equation given a point and the slope.

1. (4, 1); slope = 2	**2.** (2, 4); slope = $\frac{1}{2}$
3. (-6, 0); slope = $\frac{2}{3}$	**4.** (-8, -1); slope = $-\frac{3}{4}$

Warm Up November 1, 2018

1.) If x is an integer, what is the minimum value of x that satisfies the inequality?

2

$-7(x-2)+1 < x$

$-7x+14+1 < x$

$-7x+15 < x$

$+7x \quad +7x$

$15 < 8x$

$\frac{8x}{8} > \frac{15}{8}$

$x > 1.88$

2.) Arianna went to Marshall's and purchased a shirt for $21.75 and socks for $3.99. If tax was 7.5%, what was her total bill?

$21.75 + 3.99 = 25.74$

$25.74 \cdot (.075) = 1.93$

$+$

$=$

$\$27.68$

$0\% \rightarrow .$

$7.5\% \rightarrow .075$

3.) Identify the slope and y-intercept :

$2y + 5x = 16.$

Std. form $= 5x+2y=16$

$2y+5x=16$

$-5x \quad -5x$

$\frac{2y}{2} = \frac{-5x}{2} + \frac{16}{2}$

$y = -\frac{5}{2}x + 8$

$m = -\frac{5}{2}$

$b = 8$

Writing Equations from Tables
Using Point-Slope

# of hours	total charges	
1	145	
2	230	+85
3	315	+85
4	400	+85
5	485	+85
6	570	+85
		+1
		+1
		+1
		+1
		+1

$y = mx + b$

$m = 85$ $(2, 230)$

$y - y_1 = m(x - x_1)$

$y - 230 = 85(x - 2)$

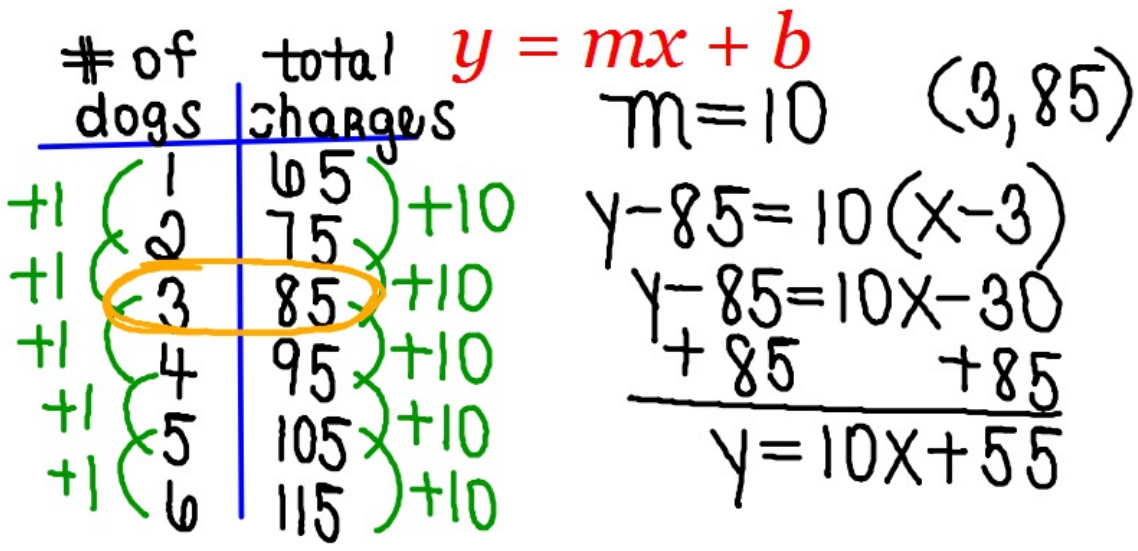
$y - 230 = 85x - 170$

$+230 \qquad +230$

$y = 85x + 60$

The total charges increase by $85 every hour.
The initial fee is $60 for zero hours worked.

Writing Equations from Tables Using Point-Slope



The total charges increase by $10 for every dog.
The initial fee is $55 for pet sitting.

What if you are given two points?

To write a linear equation given two points, (x_1, y_1) and (x_2, y_2), follow this process:

Use the Slope Formula

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Use the Point-Slope Formula

$$y - y_1 = m(x - x_1)$$

slope

coordinates of a point on the line

$X_1, Y_1 \quad X_2, Y_2$

7. (-3, 7) and (1, -1)

$m = \frac{-1-7}{1-(-3)} = \frac{-8}{4} = -2$

$y - 7 = -2(x - (-3))$

$y - 7 = -2(x + 3)$

$y - 7 = -2x - 6$

$+7 \qquad +7$

$y = -2x + 1$

$X_1, Y_1 \quad X_2 \quad Y_2$

8. (-6, -7) and (3, -4)

$m = \frac{-4-(-7)}{3-(-6)} = \frac{3}{9} = \frac{1}{3}$

$y - (-7) = \frac{1}{3}(x - (-6))$

$y + 7 = \frac{1}{3}(x + 6)$

$y + 7 = \frac{1}{3}x + 2$

$-7 \qquad -7$

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

$x_1\ y_1\quad x_2\ y_2$

9. (2, -1) and (4, -6)

$$m=\frac{-6-(-1)}{4-2}=\frac{-5}{2}$$

$$y-(-1)=\frac{-5}{2}(x-2)$$

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

$$-1\qquad\qquad -1$$

$$y=-\frac{5}{2}x+4$$

$x_1\ y_1\quad x_2\ y_2$

10. (-3, -8) and (2, 7)

$$m=\frac{7-(-8)}{2-(-3)}=\frac{15}{5}=3$$

$$y-(-8)=3(x-(-3))$$

$$y+8=3(x+3)$$

$$y+8=3x+9$$

$$y=3x+1$$