MS Algebra: 2.6.5

Warm-up

Any ?s on HW: 2.6.4

Goal: I can identify properties of linear functions including slopes and intercepts.

HW: Worksheet 2.6.5

Warm- Up

1. Ms. Welch graphed the equation y = 5x + 6. Ms. Pogalz graphed a line that was steeper than Ms. Welch's line.

Which equation did Ms. Pogalz graph?

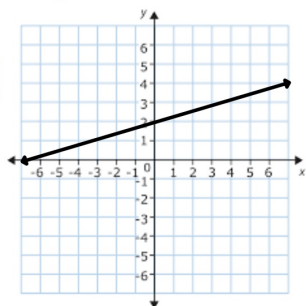a. y = 2x + 8   b. y = -7x + 1   c. y = 5x + 10

Explain your answer:
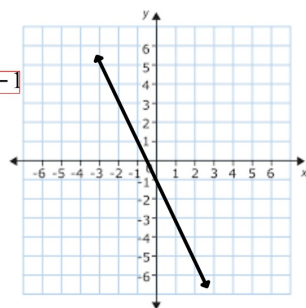A slope of -7 is steeper than a slope of 5.
Multiplying by -7 changes faster than multiplying by 5.

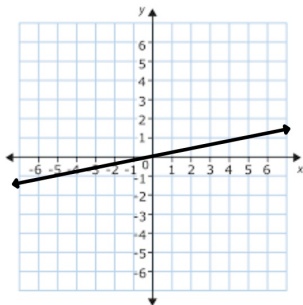1. Graph each equation on the coordinate plane.
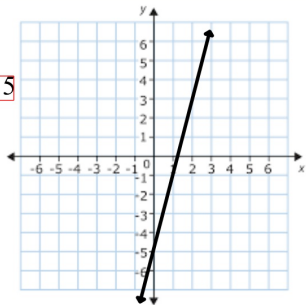
a.
$y = \frac{1}{3}x + 2$
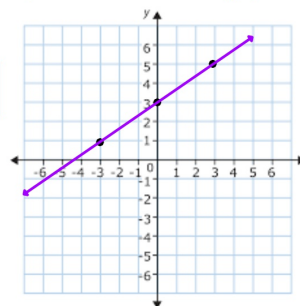
b.
$y = -2x - 1$

c.
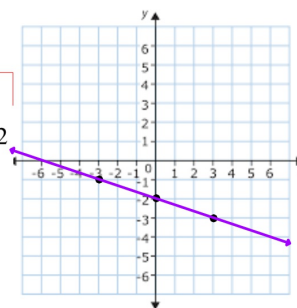$y = \frac{1}{4}x$

d.
$y = 4x - 5$
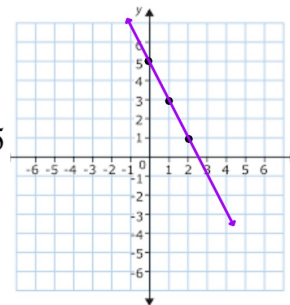
2. Write the equation for the lines graphed below.

a.
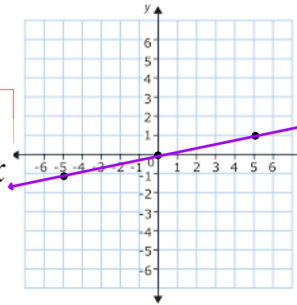equation:
$y = \frac{2}{3}x + 3$

b.
equation:
$y = -\frac{1}{3}x - 2$

c.
equation:
$y = -2x + 5$

d.
equation:
$y = \frac{1}{5}x$

3. Situation: There are 15 people in line at the store on Black Friday. Every minute, 10 more people are added to the end of the line. The table below represents this situation.

x	y
0	15
1	25
2	35
3	45

a. What is the rate of change (slope) represented in the situation? __10__

b. What is the starting value (y-intercept)? __15__

c. Write the equation that represents the data in the table. __y=10x+15__

d. Find f(8). __95__ Explain your solution in the context of the problem:
After 8 minutes, there are 95 people in line.

6. Situation: Sam has some baseball cards. Each week, his dad gives him 6 more cards to add to his collection.

x	y
1	18
2	24
3	30
4	36

a. What is the rate of change (slope) represented in the situation? __6__

b. What is the starting value (y-intercept)? __12__

c. Write the equation that represents the data in the table. __y=6x+12__

d. Find f(9). __66__ Explain your solution in the context of the problem:
After 9 weeks, Sam will have 66 baseball cards.

4 & 5. Find m and b and write the equation that represents the data given in the table.

4.

x	y
0	18
2	24
4	30
6	36

$\frac{6}{2}=3$

m= __

b= __18__

equation:
y=3x+18

5.

x	y
0	7
3	19
6	31
9	43

$\frac{12}{3}=4$

m= __

b = __7__

equation:
y=4x+7

7. & 8. Find m and b and write the equation that represents the data given in the table.

7.

x	y
1	3
2	6
3	9
4	12

m= __3__

b = __0__

equation:
y=3x

8.

x	y
1	10
3	18
5	26
7	34

$\frac{8}{2}=4$

m= __

b = __6__

equation:
y=4x+6

9. The equation f(x) = 20x+100 gives the amount of money, in dollars, in my bank account after x weeks.

a. What is the slope of the equation? __20__

b. What does the slope represent in the context of the problem? $20 added each week

c. What is the y-intercept of the equation? __100__

d. What does the y-intercept represent in the context of the problem? There was $100 in the account to start

e. Find f(8). __$260__ Explain your solution in the context of the problem.
After 8 weeks, there is $260 in my bank account.

10. The equation f(x) = 7x represents the amount of money, in dollars, that I earn at my job for every hour, x, that I work.

a. What is the slope of the equation? __7__

b. What does the slope represent in the context of the problem? __$7 per hour__

c. What is the y-intercept of the equation? __0__

d. What does the y-intercept represent in the context of the problem? I had $0 before I starting working.

e. Find f(8). __56__ Explain your solution in the context of the problem.
After working 8 hours, I make $56

Additional practice with increasing the input of a function:

11. Given the function f(x) = 3x, if x increases by 4, by how much does f(x) change? __12__

Explain how you found your answer: $3 \cdot 4 = 12$

12. Given the function f(x) = -2x + 6, if x increases by 5, by how much does f(x) change? __-10__

Explain how you found your answer: $-2 \cdot 5 = -10$