Lesson Digits 5.4/5.5

11/30/2018

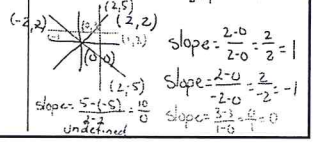
Goal: I will be able to **determine the y-intercept and use the equation y=mx+b**

Text Bag: Formula, equations, Vocabulary, etc. | Here's How: Notes & Examples

Review

Slope = tilt / direction of a line

$= \frac{\text{rise}}{\text{run}} = \frac{y_2 - y_1}{x_2 - x_1}$



slope: $\frac{2-0}{2-0} = \frac{2}{2} = 1$

slope: $\frac{5-(-5)}{2-2} = \frac{10}{0}$ undefined

slope: $\frac{2-0}{-2-0} = \frac{2}{-2} = -1$

slope: $\frac{3-3}{1-0} = \frac{0}{1} = 0$

Slope Face

Example $y = (2)x$ — Same

a) table b) graph c) slope

x	y
0	0
1	2
2	4
3	6

positive

slope: $\frac{2}{1} = (2)$

$y = (\frac{2}{3})x$ — Same

a) table b) graph c) slope

x	y
0	0
3	2
6	4

(3,2) (6,4)

positive

slope: $\frac{4-2}{6-3} = (\frac{2}{3})$

Slope

3) $y = (-4)x$

x	y
0	0
1	-4
2	-8
-1	4

slope: $\frac{-8-(-4)}{2-1} = \frac{-4}{1} = (-4)$

negative

(1,-4) (2,-8) Same

use the variable m

$y = mx$ ← slope

a) $y = \frac{5}{12}x$ slope: $m = \frac{5}{12}$

b) $y = -\frac{4}{7}x$ slope: $m = \frac{-4}{7}$

Example a) $y = 2x(+1)$

b) graph c) slope

$m = \frac{3-1}{1-0} = \frac{2}{1} = 2$

$y = 2(0)+1 = 1$

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

$y = 2(2)+1 = 5$

x	y
0	1
1	3
2	5
3	7

y=1 (0,1) (1,3)

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

a) table

x	y
0	-2
4	1
8	4
12	7

graph

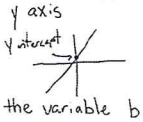
y=-2 (4,1)

slope: $m = \frac{4-1}{8-4} = \frac{3}{4}$

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

$= 3 - 2 = 1$

y intercept it is where the line crosses the y axis



use the variable b

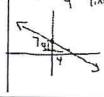
Equation of a Line

$y = mx + b$

m = slope b = y intercept

Example

a) $y = -\frac{3}{4}x + 7$ slope: $m = -\frac{3}{4}$ y-int: $b = 7$



b) $y = 5x - 2$ $m = 5$ $b = -2$