Warm Up February 21, 2019

1.) Find the first 5 terms of the arithmetic sequence defined as follows:

$a_n = a_{n-1} - 22;\ a_1 = 11$

$11, -11, -33, -55, -77$

$a_n = -22(n-1) + 11$

$a_n = -22n + 33$

2.) What is the sum of the y-intercepts of the functions $2x - y = 5$ and $8x + 4y = 12$?

$2x - y = 5$

$-2x \quad -2x$

$-y = -2x + 5$

$y = 2x - 5$

$8x + 4y = 12$

$-8x \quad -8x$

$4y = -8x + 12$

$y = -2x + 3$

$-5 + 3$

-2

3.) Ashtyn is saving the same amount of money each week from babysitting. After 3 weeks, she saves $105. After 5 weeks, she saves $165. Write an equation that models the amount of money Ashtyn will have saved, y, after x weeks?

$y = mx + b$

$(3, 105)(5, 165)$

$m = \frac{165 - 105}{5 - 3} = \frac{60}{2}$

$m = 30$

$y - 105 = 30(x - 3)$

$y - 105 = 30x - 90$

$+105 \quad +105$

$y = 30x + 15$

Which function has a greater rate of change? A

Which function has the greater y-intercept ? B

Function A

x	$f(x)$
−4	12
−1	0
2	−12
3	−16

+3 → −12

+3 → −12

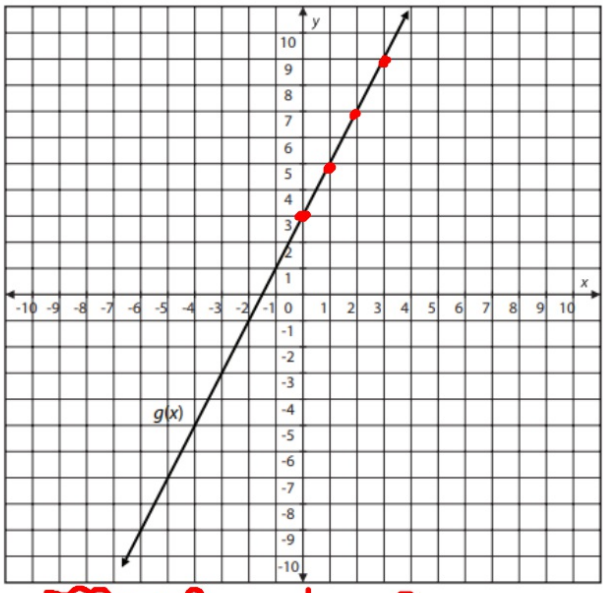
+1 → −4

$m = -4$ $b = -4$

−1	0
0	−4

+1 → −4

Function B



$m = 2$ $b = 3$

Which function has a greater rate of change? B

Which function has the greater y-intercept ? A

Function A

x	$f(x)$
−8	1
0	2
4	2.5
8	3

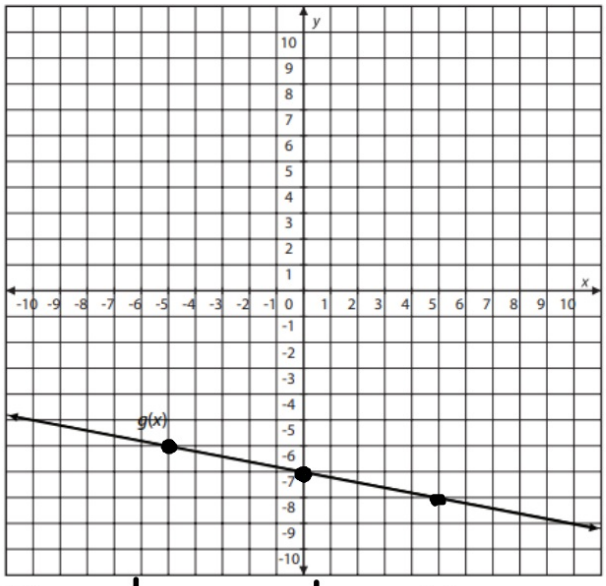
+8 (−8 → 0) +1

+4 (0 → 4) +0.5

+4 (4 → 8) +0.5

$m = \frac{1}{8}$ $b = 2$

Function B



$m = \frac{-1}{5}$ $b = -7$

Brothers Paul and Pete walk 2 miles to school from home. Paul can walk to school in 24 minutes. Pete has slept in again and needs to run to school. Paul walks at a constant rate, and Pete runs at a constant rate. The graph of the function that represents Pete's run is shown below. Which brother is moving at a greater rate?

Paul

$m = \frac{2 \text{ miles}}{24 \text{ min}}$

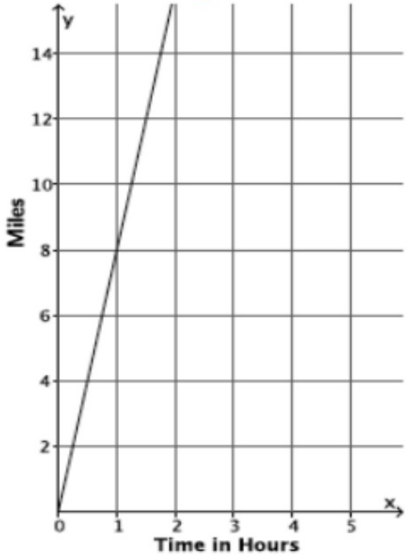
$m = \frac{1 \text{ mi}}{12 \text{ min}}$

$m = \frac{5 \text{ mi}}{h}$

Pete

$m = \frac{8 \text{ mi}}{h}$

Pete



For the two linear functions, f(x) and g(x):

f(x) = 3x + 9

y-int.

g(x):

b=-2

x	y
0	-2
1	2
3	10
4	14
7	26

+2 +8

+1 +4

g(x) − f(x)

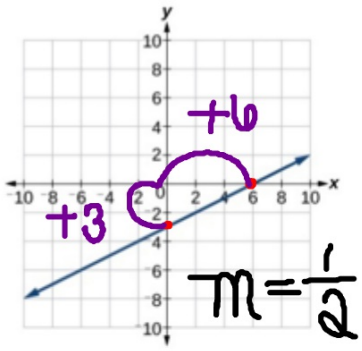
−2 − 9 = −11

What is the difference when the y-intercept of f(x) is subtracted from the y-intercept of g(x)?

A.) -11 B.) -7 C.) 2 D.) 7

Example #5

Dayanna compared the slope of the following two functions:

$f(x)$	$g(x)$
	Function with x-intercept at 3 and y-intercept at -2.5

(3,0)

(0,-2.5)

$m = \frac{-2.5-0}{0-3} = \frac{-2.5}{-3}$

$m = 5/6$

What is the slope of the function with the smaller slope?

A.) m = 1/2

B.) m = 5/6

C.) m = 6/5

D.) m = 2