

1.)  $(4, 9)$  and  $(12, y)$

$k = \frac{y}{x}$

$k = \frac{y}{x} = \frac{9}{4}$

$y = \frac{9}{4}x$

$y = \frac{9}{4} \left(\frac{12}{1}\right)^3 = \frac{27}{1} = \boxed{27}$

2.)  $(2, 6)$  and  $(x, 27)$

$k = \frac{y}{x} = \frac{6}{2} = 3$

$y = kx$   
 $y = 3x$

$\frac{27}{3} = \frac{3x}{3}$   $x = 9$

$-4 \quad -4 \quad -4$   
[ 38, 34, 30, 26, ... ]

Start + difference (n-1)

$38 - 4(n-1)$

Find

- 5<sup>th</sup>
- 10<sup>th</sup>
- 100<sup>th</sup> term

5<sup>th</sup>

$38 - 4(5-1)$

$38 - 4(4)$

$38 - 16 = \boxed{22}$

$10^{\text{th}}$  term

$$38 - 4(n-1)$$

$$38 - 4(10-1)$$

$$38 - 4(9)$$

$$38 - 36 = \boxed{2}$$

$100^{\text{th}}$

$$38 - 4(n-1)$$

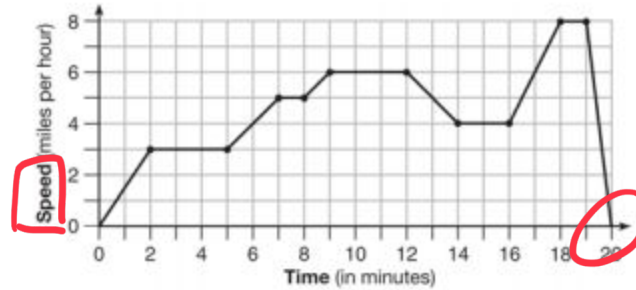
$$38 - 4(100-1)$$

$$38 - 4(99)$$

$$38 - 396 = \boxed{-358}$$

Algebra 1 Chapter 5 Pre-Test

- 1.) (2.5 pts each, 10 pts total) (5-1) The graph below represents Arlene's speed during her 20-minute jog around her neighborhood. Use the graph to answer the following questions.



- a) During which intervals was Arlene's speed increasing?

$0 \rightarrow 2, 5 \rightarrow 7, 8 \rightarrow 9, 16 \rightarrow 18$

- b) During which intervals was Arlene's speed decreasing?

$12 \rightarrow 14, 19 \rightarrow 20$

- c) During which intervals was Arlene's speed constant?

$2 \rightarrow 5, 7 \rightarrow 8, 9 \rightarrow 12, 14 \rightarrow 16, 18 \rightarrow 19$

- d) What time(s) did Arlene stop?

$20$   
x's y's

- 2.) (5 pts total) (5-2) Find the domain and range of each relation.

- a)  $\{(-2,7), (-1,4), (0,9), (3,2)\}$

Domain:

$\{-2, -1, 0, 3\}$

Range:

$\{7, 4, 9, 2\}$

# NO PARTIAL CREDIT!!

3.) (5 pts each, 10 pts total) (5-2) Determine whether each relation is a function.

a)  $\{(-8,4), (-4,4), (-1,2), (7,2)\}$

Yay! function!

Every input must have one, and only one, output

b)  $\{(-6,3), (-5,-9), (-5,0), (-2,3)\}$

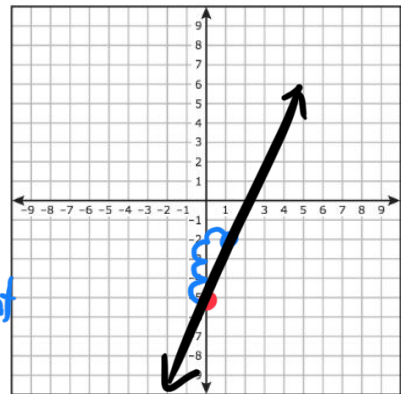
Now!

4.) (10 pts each, 20 pts total) (5-3) Use a table to graph each of the following functions.

a)  $y = 3x - 5$

x	$y = 3x - 5$	y
-2		
-1		
0		
1		
2		

1.) Plot y-int  
2.) Use slope  
 $3 \rightarrow \frac{3}{1} \rightarrow \frac{up\ 3}{1\ right}$

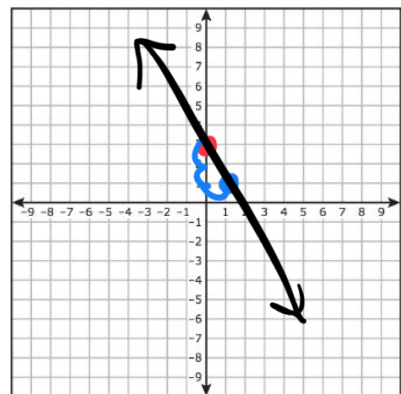


You do not need to complete the table

b)  $y = -2x + 3$

x	$y = -2x + 3$	y
-2		
-1		
0		
1		
2		

down 2  
1 right



5.) (5 pts each, 15 pts total) (5-4) Analyze table and write the function rule.

x	f(x)
1	4
3	6
7	10
8	11

*Handwritten notes:* A red arrow points to the x=1 row. A bracket on the left side of the table spans rows 1, 3, 7, and 8. Red arrows with '+3' are drawn between rows 1 and 3, 3 and 7, and 7 and 8. A circled '-2.5' is written above the table. A '+3' is written to the right of the table. Three boxes contain the following equations:  $f(x) = x + 3$ ,  $y = x + 3$ , and  $x + 3 = y$ . A box below the first table contains  $x + 3 = f(x)$ .

x	f(x)
0	0
2	7
4	14
10	35

x	f(x)
-4	10
-2	12
1	15
3	17

6.) (5 pts each, 10 pts total) (5-5) For the data in the table, tell whether y varies directly with x. If it does, write an equation for direct variation.

x	f(x)
-3	9
0	0
2	14
8	20

$k = \frac{y}{x}$   
 $9 / -3 = -3 \leftarrow$   
 $0 / 0 \checkmark$   
 $14 / 2 = 7 \leftarrow$

$y = kx$   
 $\{ (0,0) \}$  is a characteristic of direct variation - good thing!  
 Naw! Not direct variation!

x	f(x)
-2	4
0	0
3	-6
4	-8

$4 / -2 = -2 \leftarrow$   
 $0 / 0 \checkmark$   
 $-6 / 3 = -2 \leftarrow$   
 $-8 / 4 = -2 \leftarrow$

$y = -2x$   
 ymw!

7.) (2.5 pts each, 5 pts total) (5-5) Is each of the following equations an example of direct variation? If so, find the constant of variation.

a)  $-3x + 4y = 0$

$+3x \quad +3x$   
 $\frac{4y}{4} = \frac{3x}{4}$   
 $y = \frac{3}{4}x$   
 $y = kx$   
 $\{ (0,0) \}$  works?

b)  $y + 5 = 2x$

$-5 \quad -5 \downarrow$   
 $y = 2x - 5$   
 $y = \frac{3}{4}x$   
 $k = \frac{3}{4}$   
 $\{ (0,0) \}$   
 $0 = 2(0) - 5$   
 $0 \neq -5$   
 Naw!

8.) (5 pts each, 10 pts total) (5-5) Each of the following ordered pairs are examples of direct variation. Find each missing value.

a) (3, 8) and (x, 20)

$$k = \frac{y}{x} = \frac{8}{3}$$
$$y = kx$$
$$y = \frac{8}{3}x$$
$$\frac{3}{8} \cdot 20 = \frac{8}{3}x \cdot \frac{3}{8}$$
$$\frac{3}{8} \cdot \frac{20}{1} = \boxed{\frac{15}{2}}$$

b) (4, y) and (12, -9)

9.) (5 pts each, 15 pts total) (5-6) Find the fifth, tenth, and hundredth terms of each sequence.

a) 6, 14, 22, 30, ...

+8

start + difference

$$6 + 8(n-1)$$

b) 12, 5, -2, -9, ...

c) -18, -23, -28, -33