Assignment Self-Monitoring Sheet

Welcome 9th Grade!	Assignment Effort Grade (Circle One)	Comments (What was interesting or challenging?)
Monday Date: 9/11 Topic: No Homework	0 1 2	I read more about Dr. Okikiolu
Tuesday Date: 9/12 Topic: Gradient Practice	0 1 2	
Wednesday Date: 9/13 Topic: Equations of a line and Graphing	0 1 2	I translated between intercept and general form!
Thursday Date: _____ Topic: _____	0 1 2	
Friday Date: _____ Topic: _____	0 1 2	

Class Plan:

1. Warm-up 

2. Examples - Writing Equations
   Given an assortment of information!
   And a joke break :) !!

3. Practice:
"Writing Linear Equations & Graphing"

Warm-up:

(13,14)

Adrian is running a concession stand at the football game. He sells hotdogs for $4 and sodas for $2. Write an equation to model Adrian's earnings.

x: # of hotdogs

y: # of sodas

$4x+2y=80$

(0,40) (10,20) (20,0)

If he wants to make $80, how can he do this?

Done? How can a graph show his earnings?

Warm-up:

Adrian is running a concession stand at the football game. He sells hotdogs for $4 and sodas for $2.
Write an equation to model Adrian's earnings.

Hotdogs	Sodas	Total Sales

Done? How can a graph show his earnings?

If he wants to make $80, how can he do this?

Warm-up:

Adrian is running a concession stand at the football game. He sells hotdogs for $4 and sodas for $2.
Write an equation to model Adrian's earnings.

General Form
$4x + 2y = 80$

-->Gradient-Intercept Form
$4x + 2y = 80$
$2y = -4x + 80$
$y = -2x + 40$

Hotdogs	Sodas	Total Sales
1	38	4(1)+38(2)
2	36	4(2)+36(2)
3	34	4(3)+34(2)
4	32	....
5	30	....
6	28	
7	26	

Done? How can a graph show his earnings?
If he wants to make $80, how can he do this?

Writing Linear Equations

Example: Given a point and the gradient, write an equation for the linear function.

Gradient: $\frac{2}{5}$ $y-y_1=m(x-x_1)$
Additional Point: (-10,-3)

$y+3=\frac{2}{5}(x+10)$
$y+3=\frac{2}{5}x+4$
$-3 \quad -3$

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

Method: Algebraic Solving

Gradient: $\frac{2}{5}$

Additional Point: (-10,-3)

$y = mx + b$

$-3 = \frac{2}{5}(-10) + b$

$-3 = -4 + b$

$+4 \quad +4$

$1 = b$

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

Writing Linear Equations

Example: Given a point and the gradient, write an equation for the linear function.

Gradient: $\frac{2}{5}$

Additional Point: (-10,-3)

$y = mx + b$

$-3 = \frac{2}{5}\left(\frac{-10}{1}\right) + b$

$b = 1$

$-3 = -4 + b$

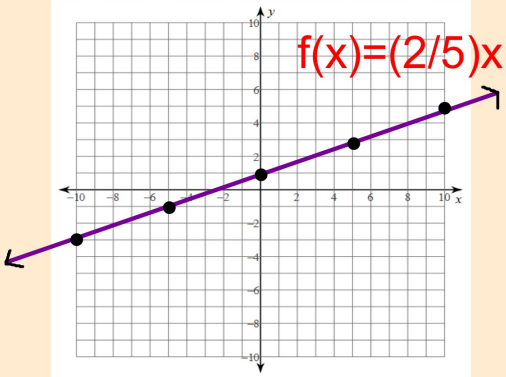
$+4 \quad +4$

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

Gradient: $\frac{2}{5}$

Additional Point: (-10,-3)

Method: Graphing



Gradient: $\frac{2}{5}$

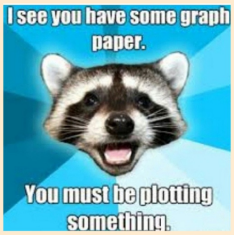
Additional Point: (-10,-3)

Method: Table

x	f(x)

Joke break!

I'll do algebra, I'll do trig, and I'll even do statistics, but graphing is where I draw the line!



Writing Linear Equations

Example: Given two points, write an equation for the linear function.

A function h(x) such that h(-6)=2 and h(-3)=6

x	y
-3	0
-3	6
-6	2

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

$-3(6) - 4y = -3x + 4$

Writing Linear Equations

Example: Given two points, write an equation for the linear function.

A function h(x) such that h(-6)=2 and h(-3)=6

$(-6,2)\ (-3,6)$ $\quad y-2=\frac{4}{3}(x+6)$

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

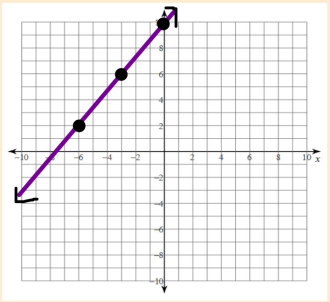
$$y=\frac{4}{3}x+10$$

Writing Linear Equations

Example: Given two points, write an equation for the linear function.

A function h(x) such that h(-6)=2 and h(-3)=6

$$y=\frac{4}{3}x+10$$



x	h(x)
-6	2
-3	6
0	10
3	14

Exercises for tonight:

Writing Linear Equations & Graphing

After school help in garages!

Work Together!

...No squishing anyone out!

Join the math team :) !!!

Additional textbook practice at the end of this file!...if needed.

Write the equation of a line that includes the given data.

1) A line including the points $(-4,2)$ & $(1,4)$.

Write the equation of a line that includes the given data.

2) A function k(x) such that $k(2) = 5$ & $k(0) = -4$

Write the equation of a line that includes the given data.

3) A function g(x) such that $g(-1) = -5$ & $g(3) = -1$

$(-1, -5)$ $g(x) = x - 4$ $(3, -1)$

$m = \frac{-1+5}{3+1} = \frac{4}{4} = 1$

$-5 = 1(-1) + b \rightarrow -5 = -1 + b$

$+1 \quad +1$

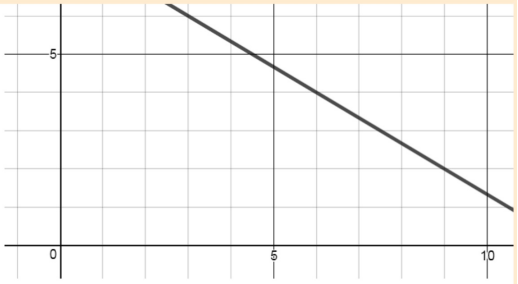
$-4 = b$

Write the equation of a line that includes the given data.

4) A function $q(x)$ with gradient $-\frac{5}{6}$ and $q(-1) = 1$

Write the equation of a line that includes the given data.

5) Write two different equations for the line graphed below.



Solving Review. Be as creative as you can. See if you can find more than one solution for each, and if you cannot, explain why you could not find more than one solution.

Directions: Use the digits 1 to 9, at most TWO times each, to fill in the boxes to make an equation with no solutions.

$$\square x + \square = \square x + \square$$

Solving Review. Be as creative as you can. See if you can find more than one solution for each, and if you cannot, explain why you could not find more than one solution.

Directions: Using whole numbers 1 through 9 at most once, create an equation such that the solution is closest to zero.

$$\square x + \square = \square x + \square$$

Solutions

Extended Level MYP 9 Mathematics

Write the equation of a line that includes the given data.

1) A line including the points $(-4,2)$ & $(1,4)$.

$\frac{4-2}{1-(-4)} = \frac{2}{5}$ $\quad 4-\frac{2}{5} = 3\frac{3}{5}$ $\quad y = 3\frac{3}{5} + \frac{2}{5}$

2) A function k(x) such that $k(2) = 5$ & $k(0) = -4$

x	2	0
$k(x)$	5	-4

$\frac{5-(-4)}{2-0} = \frac{9}{2}$ $\quad y = -4 + \frac{9}{2}x$

3) A function g(x) such that $g(-1) = -5$ & $g(3) = -1$

x	-1	3
$g(x)$	-5	-1

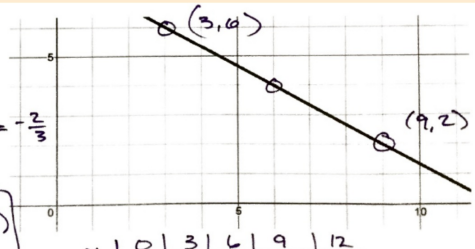
$\frac{-5-(-1)}{-1-3}$ $\quad \frac{-4}{-4} = 1$ $\quad y = -4 + x$

4) A function $q(x)$ with gradient $-\frac{5}{6}$ and $q(-1) = 1$

$1 - \frac{5}{6} = \frac{1}{6}$ $\quad y = \frac{1}{6} - \frac{5}{6}x$

Solutions

5) Write two different equations for the line graphed below.



$\frac{6-2}{3-9} = \frac{4}{-6} = -\frac{2}{3}$

$y - 6 = -\frac{2}{3}(x-3)$

$y = 8 - \frac{2}{3}x$

x	0	3	6	9	12
y	8	6	4	2	0

Solutions

Solving Review. Be as creative as you can. See if you can find more than one solution for each, and if you cannot, explain why you could not find more than one solution.

Directions: Use the digits 1 to 9, at most TWO times each, to fill in the boxes to make an equation with no solutions.

These two values must be different.

$$\boxed{1}x+\boxed{6}=\boxed{1}x+\boxed{7}$$

These two values must be the same.

$x+6=x+7$

$0 \neq 1$

Solutions

Directions: Using whole numbers 1 through 9 at most once, create an equation such that the solution is closest to zero.

$$\boxed{9}x+\boxed{3}=\boxed{13}x+\boxed{24}$$

$-1x=+1$

Many equations get you close to $\frac{1}{8}$ or $-\frac{1}{8}$.

$9x+3=1x+4$ and $1x+7=9x+8$ get you close.

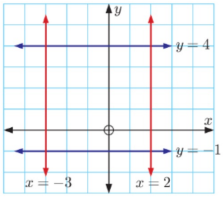
Additional Practice

VERTICAL AND HORIZONTAL LINES

In previous years, we have seen that:

All **vertical lines** have equations of the form $x = a$ where a is a constant.

All **horizontal lines** have equations of the form $y = c$ where c is a constant.



EXERCISE 8F.2

1 Draw the graph of the line with equation:

a $x = 4$ **b** $y = -3$ **c** $x = -6$ **d** $y = -5$

e $x = 0$ **f** $y = \frac{7}{2}$ **g** $y = -\frac{2}{3}$ **h** $x = \frac{5}{4}$

2 Find a such that $(a, 2)$ lies on the line with equation $x = 5$.

3 Find b such that $(b, 3)$ lies on the line with equation $y = 3$.

Additional Practice

2 Find the equation of the line which has gradient:

a 2 and which passes through $(1, 8)$ **b** -3 and which passes through $(4, -16)$

c 5 and which passes through $(-3, -1)$ **d** $\frac{3}{4}$ and which passes through $(8, 12)$

e 0 and which passes through $(-2, 4)$ **f** $-\frac{1}{2}$ and which passes through $(5, -9)$.

5 Find the equation of the line which passes through:

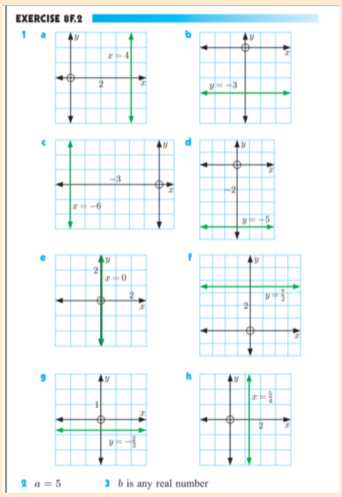
a $(2, 7)$ and $(5, 13)$ **b** $(3, 6)$ and $(6, 0)$

c $(-3, -4)$ and $(6, 2)$ **d** $(-4, -3)$ and $(3, -3)$

e $(-6, -14)$ and $(2, -2)$ **f** $(-8, 11)$ and $(-2, 3)$.

Additional Practice

Solutions



EXERCISE 8F.2

1 a

b

c

d

e

f

g

h

2 $a = 5$ 3 b is any real number

Additional Practice

Solutions

EXERCISE 8G

1	a $y = 3x + 4$	b $y = 7x - 1$	c $y = -x + \frac{1}{3}$
	d $y = \frac{1}{2}x$	e $y = 5$	f $y = -\frac{5}{2}x - \frac{2}{3}$
2	a $y = 2x + 6$	b $y = -3x - 4$	c $y = 5x + 14$
	d $y = \frac{3}{4}x + 6$	e $y = 4$	f $y = -\frac{1}{2}x - \frac{13}{2}$
3	a $y = 2x + 2$	b $y = \frac{2}{5}x + 3$	c $y = -x - 1$
	d $y = -2x + 4$	e $y = \frac{1}{2}x - \frac{1}{2}$	f $y = -\frac{2}{5}x$
4	a $y = 4x - 5$	b $y = -3x + 7$	c $y = \frac{3}{8}x - 1$
5	a $y = 2x + 3$	b $y = -2x + 12$	c $y = \frac{2}{3}x - 2$
	d $y = -3$	e $y = \frac{3}{2}x - 5$	f $y = -\frac{4}{3}x + \frac{1}{3}$