Notes 3.4

1. The table below shows different input and output values for the equation $y = \frac{2}{5}x + 4$.

		+5	+5	+5	+5	
x	-10	-5	0	5	10
$y = \frac{2}{5}x + 4$	0	2	4	6	8
		+2	+2	+2	+2	
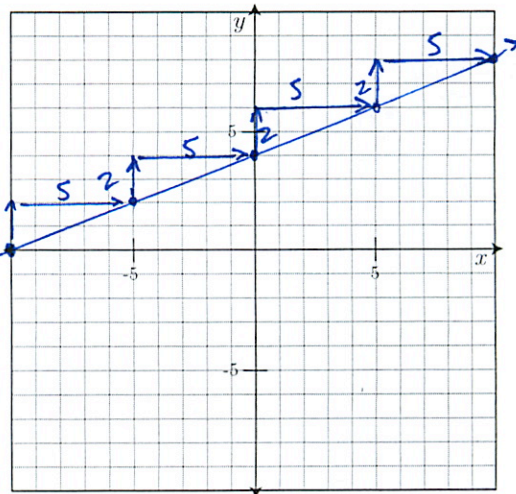
(a) Use the table to plot the graph of this formula .

(b) Note that the table shows the rates at which the input and output values change. Indicate these changes (using arrows) on your graph.

$$m = \frac{2}{5}$$

2. Use the table below to answer the following questions.

(a) What is the slope of the line that connects these points?

$$m = \frac{7}{4}$$

	+4	+4			
x	-8	-4	0	4	8
y	-9	-2	5	12	19
		+7	+7		

(b) What is the equation of the line that contains these points?

$m = \frac{7}{4}$
$y\text{-Int}: (0,5)$

$$y = \frac{7}{4}x + 5$$

3. (a) Assuming the table below describes a linear function, complete the table.

x	-7	-4	-1	2	5	8	11
y	13	9	5	1	-3	-7	-11

+3

-4 -4 -4 -4

(b) Find the slope of this line.

$$m = -\frac{4}{3}$$

4. Use the graph of the line below to answer these questions.

(a) What is the y-intercept?

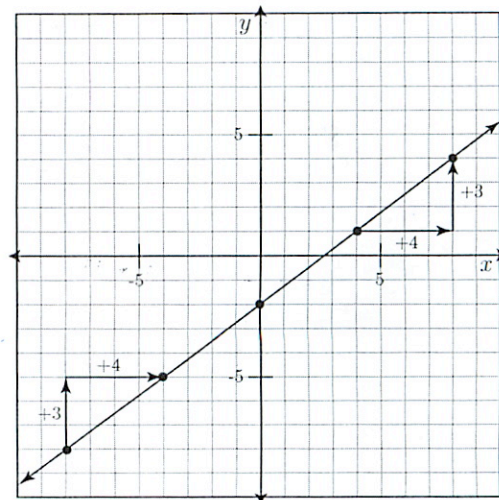$$(0, -2)$$

(b) Complete the table using points from the graph.

x	-8	-4	0	4	8
y	-8	-5	-2	1	4

(c) What is the slope of this line and how did you find it?

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

(d) Write the equation of the line.

$m = \frac{3}{4}$
$$y = \frac{3}{4}x - 2$$
$(0, -2)$

1

5. Use the graph shown on the right to do the following.

(a) Graph the line that passes through the point $(-6, -5)$ and has a table where the y values increase by 2 as the x values increase by 3. $\quad m = \frac{2}{3}$
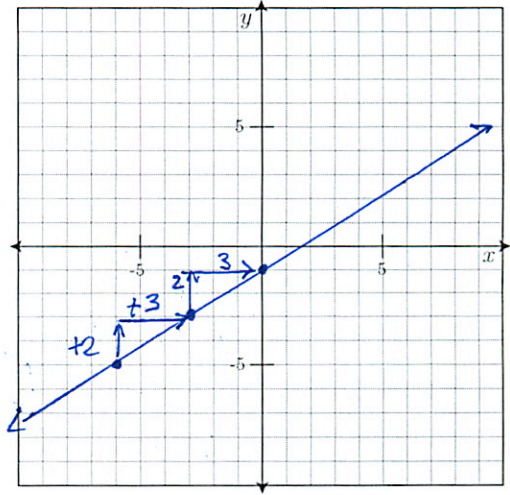
(b) Use your graph to estimate the y-intercept.

$(0, -1)$

(c) Write the equation of the line.

$y = \frac{2}{3}x - 1$

6. Use the graph shown on the right to do the following.

(a) Graph the line that passes through the points $(-7, 8)$ and $(5, -2)$.
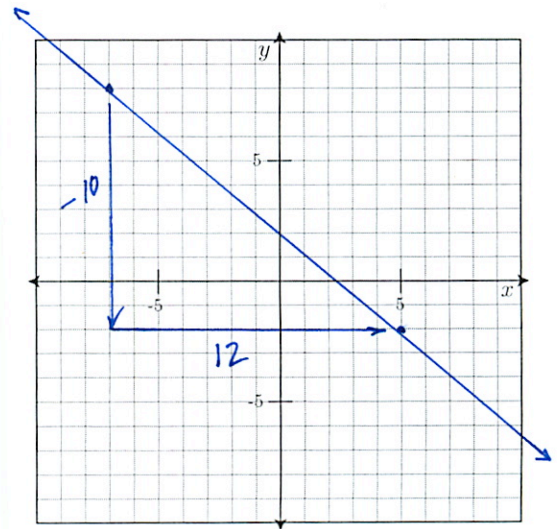
(b) Use your graph to determine the slope of the line.

$m = \frac{-10}{12} = \frac{-5}{6}$

(c) Use your graph to estimate the y-intercept.

$(0, 2)$

(d) Write the equation of the line.

$y = \frac{-5}{6}x + 2$

(e) Is the y-intercept you estimated exactly right or only an approximation? How do you know?

ONLY AN APPROXIMATION. USING SLOPE FROM $(-7, 8)$ THE NEXT POINT IS $(-1, 3)$ AND THEN $(5, -2)$. IF $(0, 2)$ WERE ON THE GRAPH, THE SLOPE WOULD HAVE GOTTEN THAT POINT.
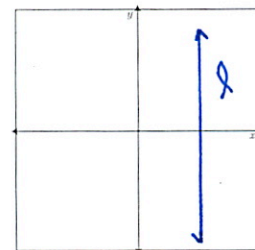
7. Sketch the graph of a line with 0 slope.

$m = 0$

8. Describe the slope of the line, ℓ, graphed to the right.

INFINITELY LARGE (UNDEFINED)

e.g. $\left(\frac{1}{0}\right)$

9. Hurts Rent-a-car charges \$24/day for an economy car rental and an additional \$45 (per rental) for their insurance package. Write a formula giving the cost, C, of renting a car for t days.

$C = 24t + 45$