WARM-UP...

Sketch a graph of the linear function $f(x) = -2x + 7$.

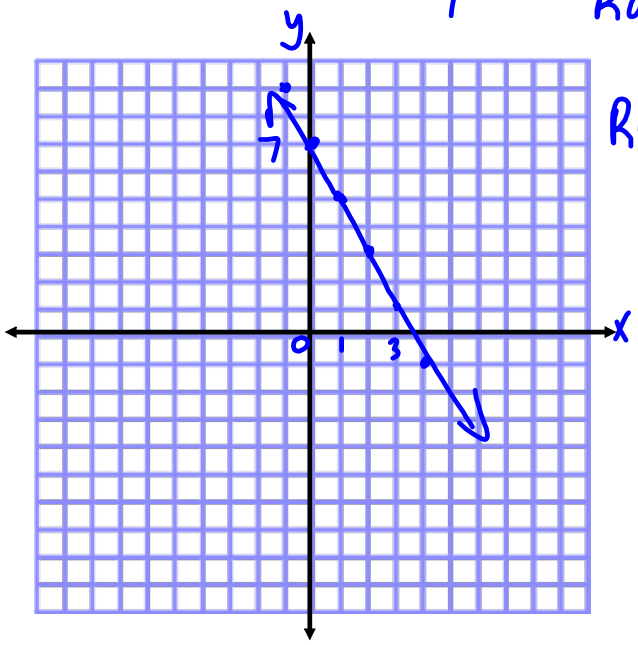
y-int

$\frac{-2}{1}$

ROC: $\frac{-2}{1}$

ROC = $\frac{\Delta y}{\Delta x}$

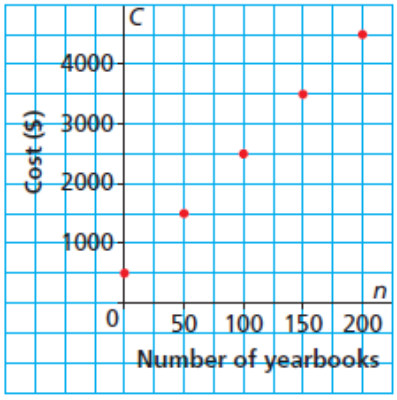
x	$f(x)$
-2	11
-1	9
0	7
1	5
2	3



Interpolating Data from a Graph...

EXAMPLE #1:

This graph shows the cost of publishing a school yearbook for Collège Louis-Riel in Winnipeg.



$y = ROC\,x + y\text{-int}$

$ROC = \frac{\Delta y}{\Delta x} = \frac{1000}{50} = 20$

$C = 20n + 500$

$4200 = 20n + 500$ (−500, −500)

$\frac{3700}{20} = \frac{20n}{20}$

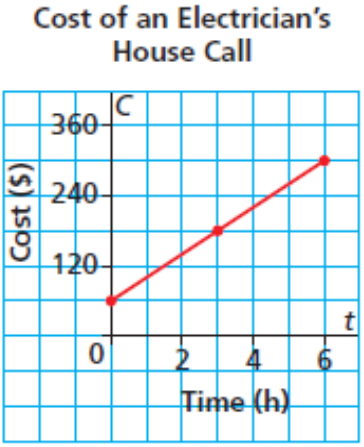
$185 = n$

Max books equals 185.

The budget for publishing costs is $4200. What is the maximum number of books that can be printed?

EXAMPLE #2:

This graph shows the total cost for a house call by an electrician for up to 6 h work.



The electrician charges $190 to complete a job. For how many hours did she work?

Determine the rate of change.

$y = \text{ROC}\,x + y\text{-int}$

$\text{ROC} = \frac{\Delta y}{\Delta x} = \frac{120}{3} = 40$

$y\text{-int} = 60$

$C = 40t + 60$

$190 = 40t + 60$ (−60, −60)

$\frac{130}{40} = \frac{40t}{40}$

$3.25 = t$

$t = 3\text{hrs } 15\text{min}$

Now try sketching each of the following:

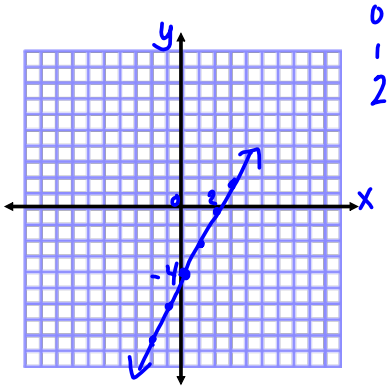
What do you think would be a good first step to get these sketches started?

1) $6x - 3y = 12$ (−6x, −6x)

$\frac{-3y}{-3} = \frac{-6x}{-3} + \frac{12}{-3}$

$y = \frac{2}{1}x - 4$

x	y
-2	-8
-1	-6
0	-4
1	-2
2	0



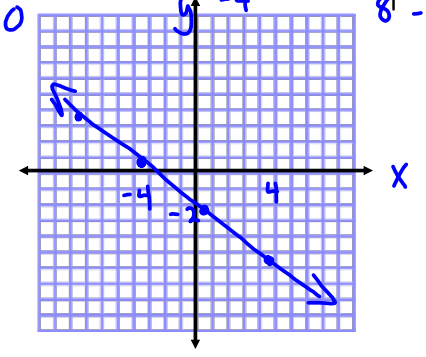
2) $3x + 4y + 8 = 0$

$\frac{4y}{4} = \frac{-3x}{4} - \frac{8}{4}$

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

$\text{ROC} = -\frac{3}{4}$ or $\frac{3}{-4}$

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



PRACTICE PROBLEMS from Thursday ...

p. 308: #3 - 8, 12, 14, 16

Practice Problems...

*Page 319: #4, 6, 7, 8, 10, 11, 14, 15 *

#4. y-int = 0 x-int = 0 (0,0)

ii) ROC = $\frac{\Delta y}{\Delta x}$ = $\frac{120}{3}$ = 40

iii) Domain: $\{x \mid 0 \le x \le 3, x \in R\}$

Range: $\{y \mid 0 \le y \le 120, y \in R\}$

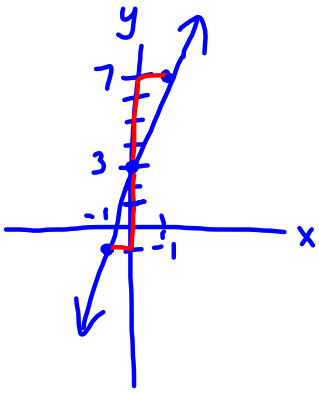
b) i) y-int = 100 (0,100) x-int = 4 (4,0)

ii) ROC = $\frac{\Delta y}{\Delta x}$ = $\frac{-100}{4}$ = -25

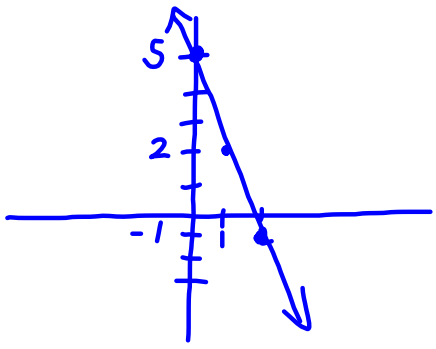
iii) Domain: $\{x \mid 0 \le x \le 4, x \in R\}$

Range: $\{y \mid 0 \le y \le 100, y \in R\}$

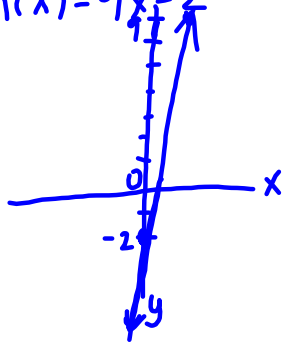
#6. a) $f(x) = 4x + 3$



b) $g(x) = -3x + 5$



c) $h(x) = 9x - 2$



d) $K(x) = -5x - 2$