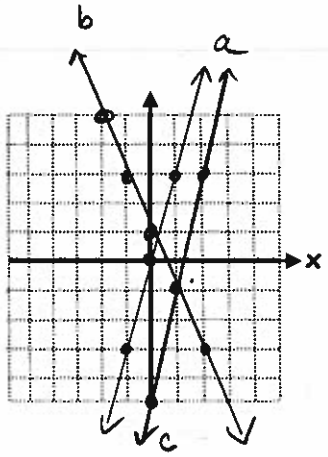
Slope - Intercept

Ex/ Use a table of values and graph the following:

a) $y = 3x$ b) $y = -2x + 1$ c) $y = 4x - 5$

x	y	
-2	-6	← 3(-2)
-1	-3	← 3(-1)
0	0	← 3(0)
1	3	
2	6	



x	y	
-2	5	← -2(-2)+1
-1	3	← -2(-1)+1
0	1	
1	-1	
2	-3	

x	y
-2	-13
-1	-9
0	-5
1	-1
2	3

- For equations written in the form $y = ax + b$, we've always called the b value the initial value. This is also the point where the line crosses through the y-axis. We can also call it the y-intercept.
- The a value is the rate, which can also be called slope. Using $a = \frac{rise}{run}$ we can find more points.

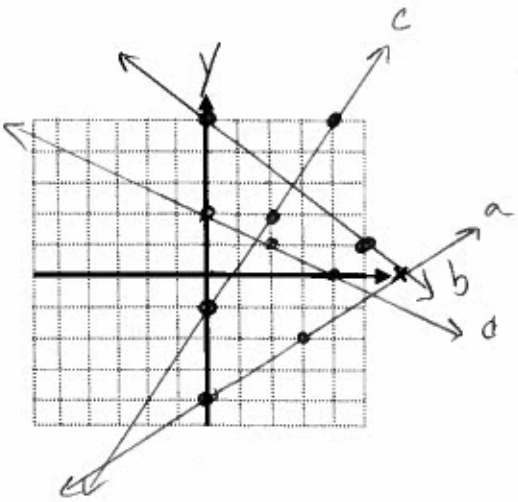
Ex/ Sketch the following.

a) $y = \frac{2}{3}x - 4$ — start at y-int; y-int; go up 2, right 3

b) $y = \frac{-4}{5}x + 5$ — start at 5 on y; then go down 4, right 5

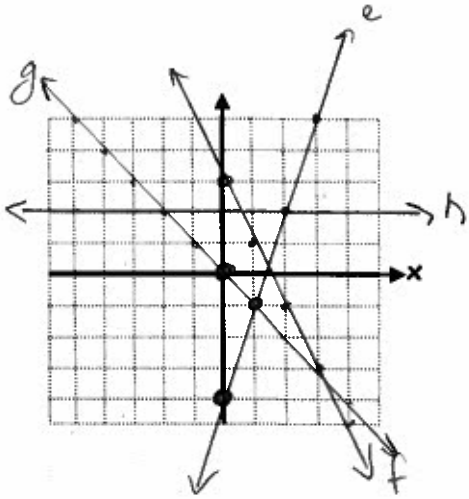
c) $y = \frac{3}{2}x - 1$ — start at -1; go up 3, right 2

d) $y = -\frac{1}{2}x + 2$



e) $y = 3x - 4$ — start at -4; always over 1; go up 3, right 1

f) $y = -2x + 3$



g) $y = -x$ — No y-int, starts at zero; $-\frac{1}{1}$; down 1, right 1

h) $y = 2$ ← starts at 2; stays at 2

* Wrong order * Get y by itself

i) $4x + y = -4$

$y = -4x - 4$ ↖ start at -4

down 4
right 1

doesn't fit so

do opposite up 4
left 1

j) $3x - y = -4$

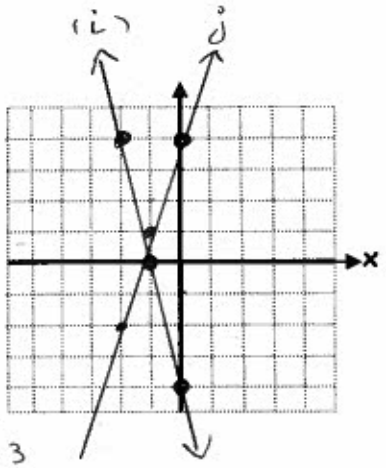
$3x + 4 = y$

same as

$y = 3x + 4$ ↖ start at 4

up 3
right 1

or down 3
left 1

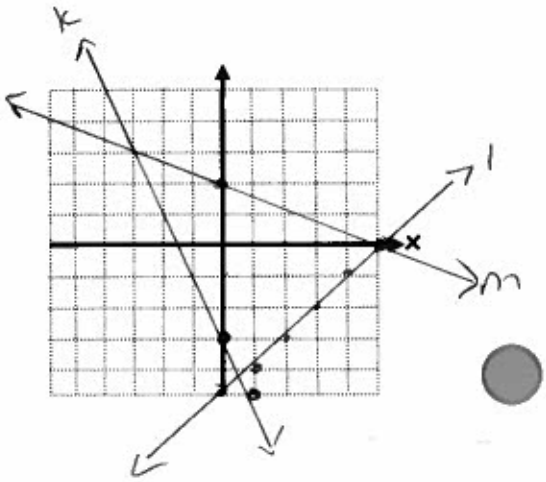


k) $2x + y = -3$

$y = -2x - 3$

l) $x - y = 5$

$x - 5 = y$



m) $2x + 5y = 10$

$5y = -2x + 10$ ↙ divide everything by 5

$\frac{5y}{5} = -\frac{2}{5}x + \frac{10}{5}$

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