

3/8/04 am ①

Solve

$$\begin{array}{r} \textcircled{1} \quad 4x + 2 = x - 1 \\ \quad \quad \quad -x \quad \quad -x \\ \hline 3x + 2 = -1 \\ \quad \quad \quad -2 \quad \quad -2 \\ \hline 3x = -3 \\ \quad \quad \quad \underline{3} \quad \quad \underline{3} \\ \quad \quad \quad \textcircled{x = -1} \end{array}$$

$$\begin{array}{r} \textcircled{2} \quad (x+2)(x+3) = 3 \\ x^2 + 5x + 6 = 3 \\ \quad \quad \quad -3 \quad -3 \\ \hline x^2 + 5x + 3 = 0 \\ \text{no solution by factor} \end{array}$$

Evaluate when $x = 2$

$$\begin{array}{l} \textcircled{3} \quad 4x + 2 \\ 4(\quad) + 2 \\ 4(2) + 2 \\ 8 + 2 \\ \textcircled{10} \end{array}$$

$$\begin{array}{l} \textcircled{4} \quad x - 1 \\ (\quad) - 1 \\ (2) - 1 \\ \textcircled{1} \end{array}$$

$$\begin{array}{l} \textcircled{5} \quad (x+2)(x+3) \\ ((\quad)+2)((\quad)+3) \\ ((2)+2)((2)+3) \\ (4)(5) \\ \textcircled{20} \end{array}$$

$$\begin{array}{l} x^2 + 5x + 6 \\ (\quad)^2 + 5(\quad) + 6 \\ (2)^2 + 5(2) + 6 \\ 4 + 10 + 6 \textcircled{20} \end{array}$$

Math languages

Spoken Math Mathematics

"one more than a number"

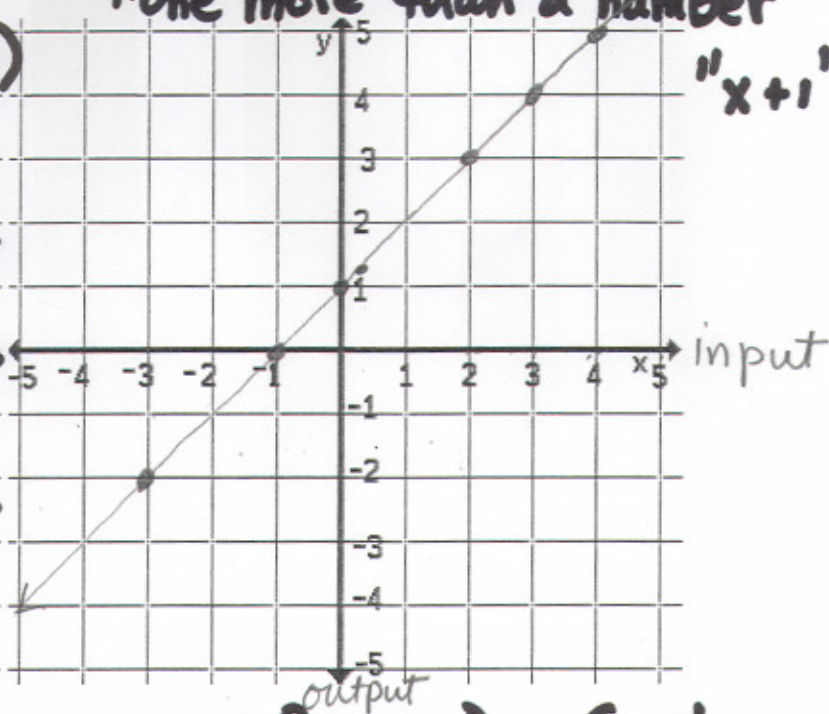
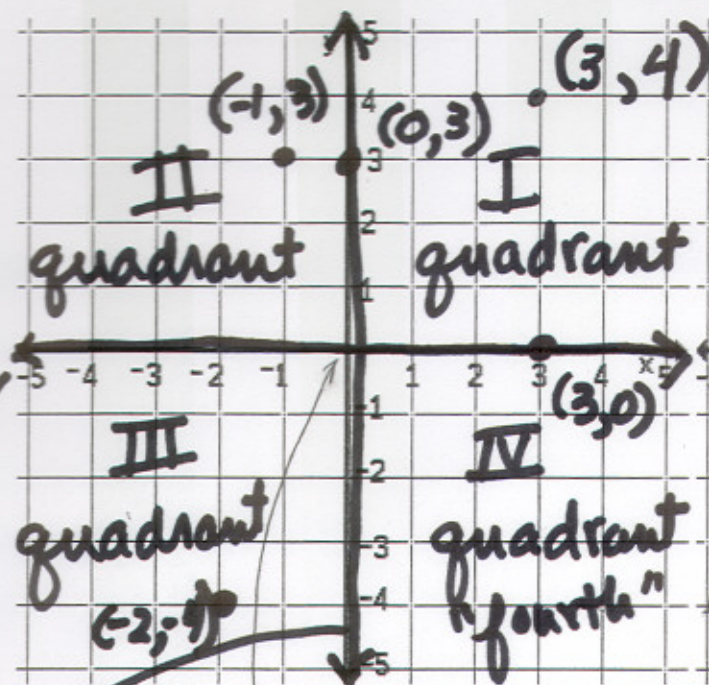
written Symbols

"x+1"

"eks plus won"

pictorial graph

"one more than a number"
"x+1"



Rene Des Cartes
"I think, therefore, I am"

origin - (0,0) - point where
x number line = x-axis
y number line = y-axis

Cartesian
Coordinate system

(x, y)
↑ ↑ ↑
value value
abscissa ordinate coordinates

(abscissa, ordinate) to name a point =
Coordinate

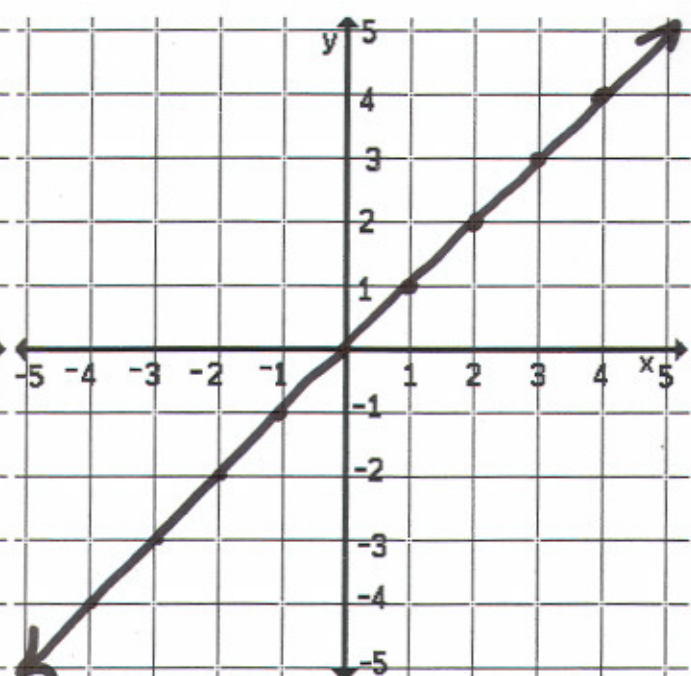
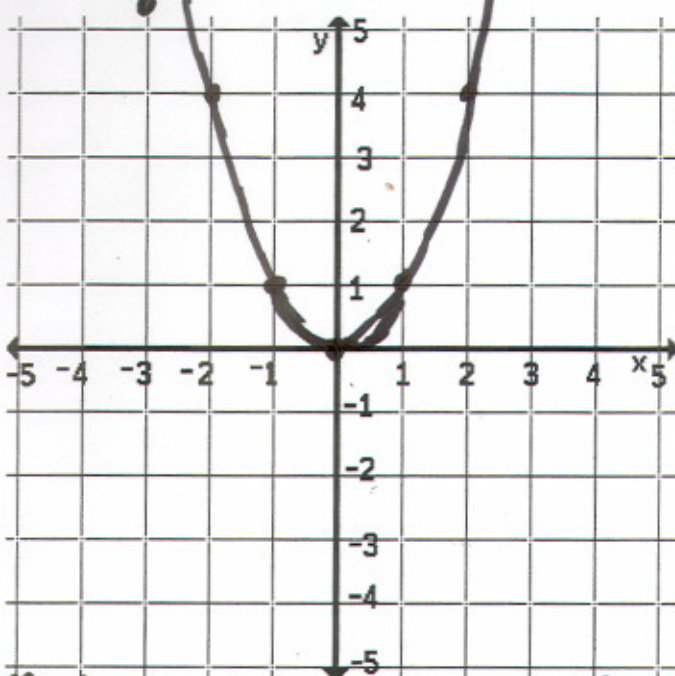
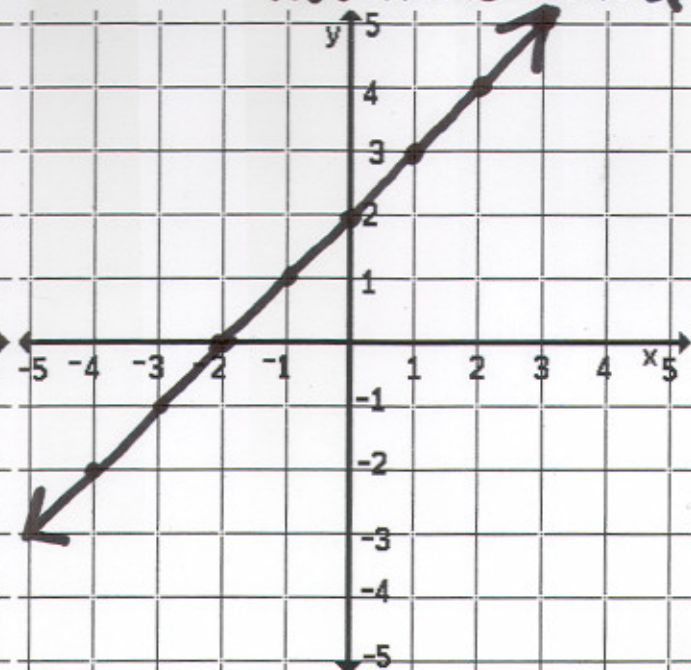
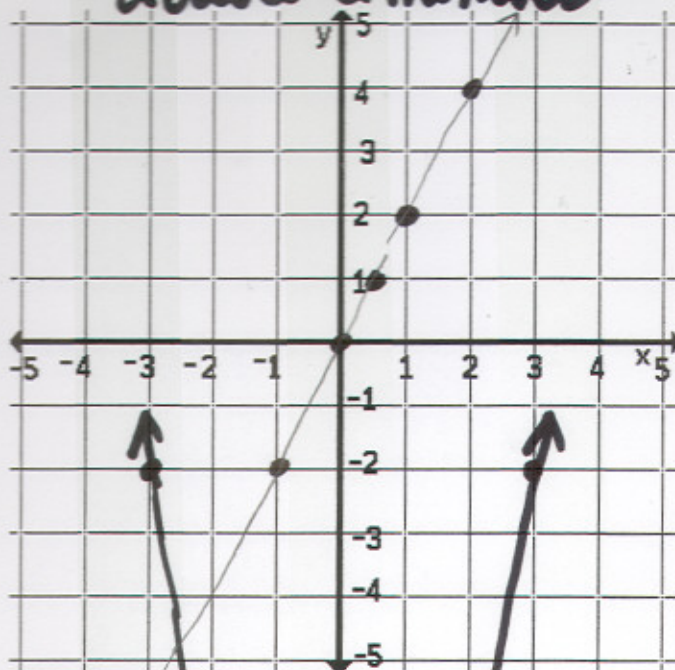
(x, y) a set of ordered pairs

n. a graph - a stylized picture

v. to graph - to produce this picture 1st, 2nd, ... two

Name _____

www.mathstuff.com/papers/sheet/5x5b.htm © A2, 2001

"double a number"**"two more than a number"****"the square of a number"****"a number"**

point-plotting

$$(-2)^2 = (-2)(-2) = 4$$

$$(-1)^2 = 1$$

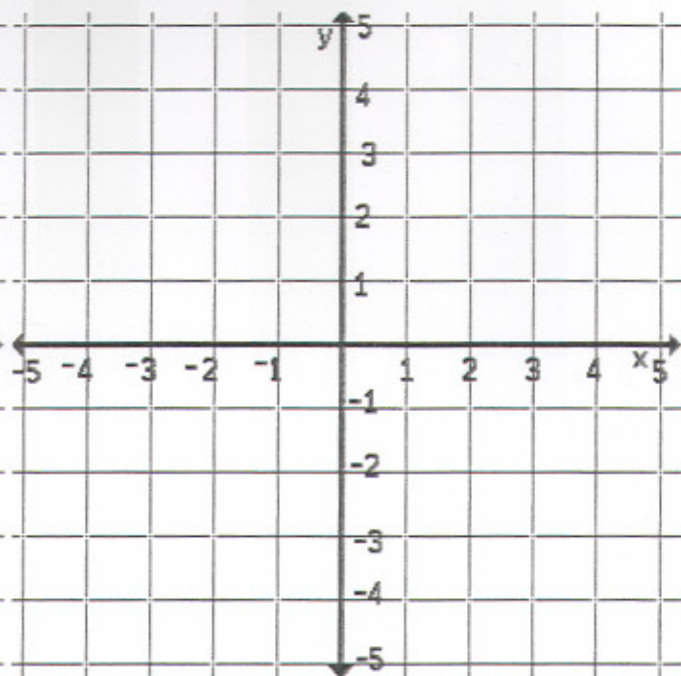
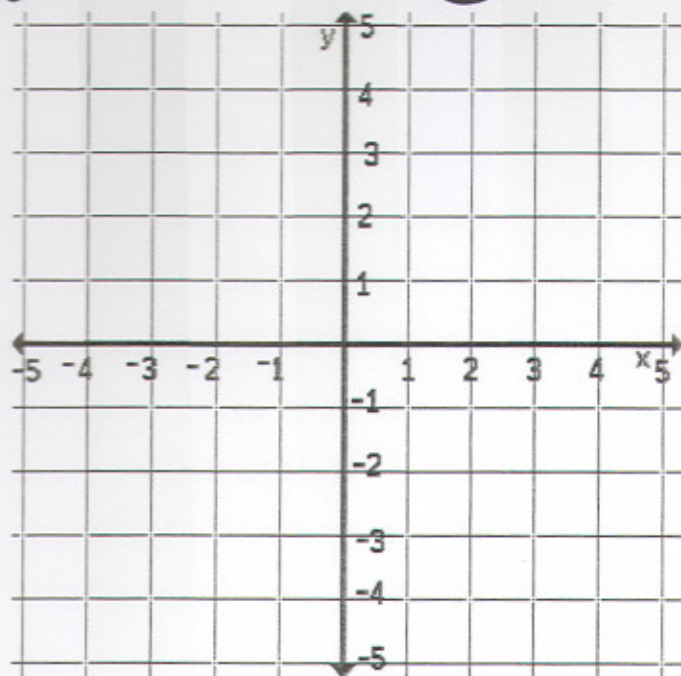
$$\left(\frac{1}{2}\right)^2 = \frac{1}{4}$$

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5 by 5 coordinate plane paper

(2) am

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on the same plane

1st triple a number

2nd a number

3rd the opposite
of a number.

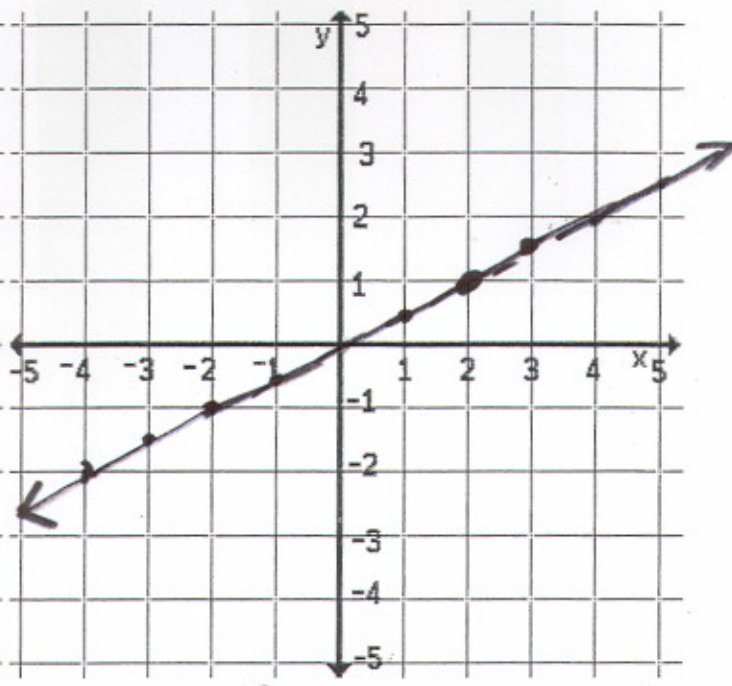
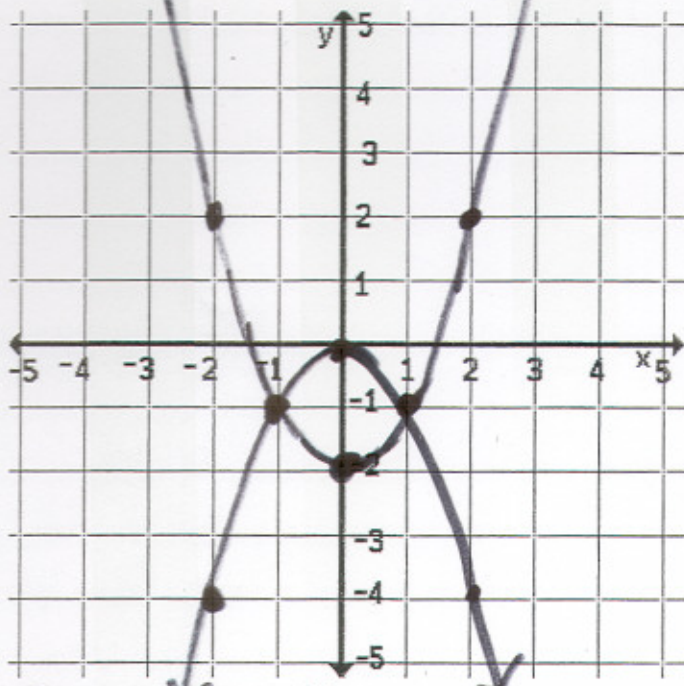
on the same plane

1st a number

2nd one less than
a number

3rd two more than
a number

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• one more than the square of a number

• two less than the square of a number. $x^2 - 2$

• the opposite of the square of a number. $-x^2$

• one half of a number

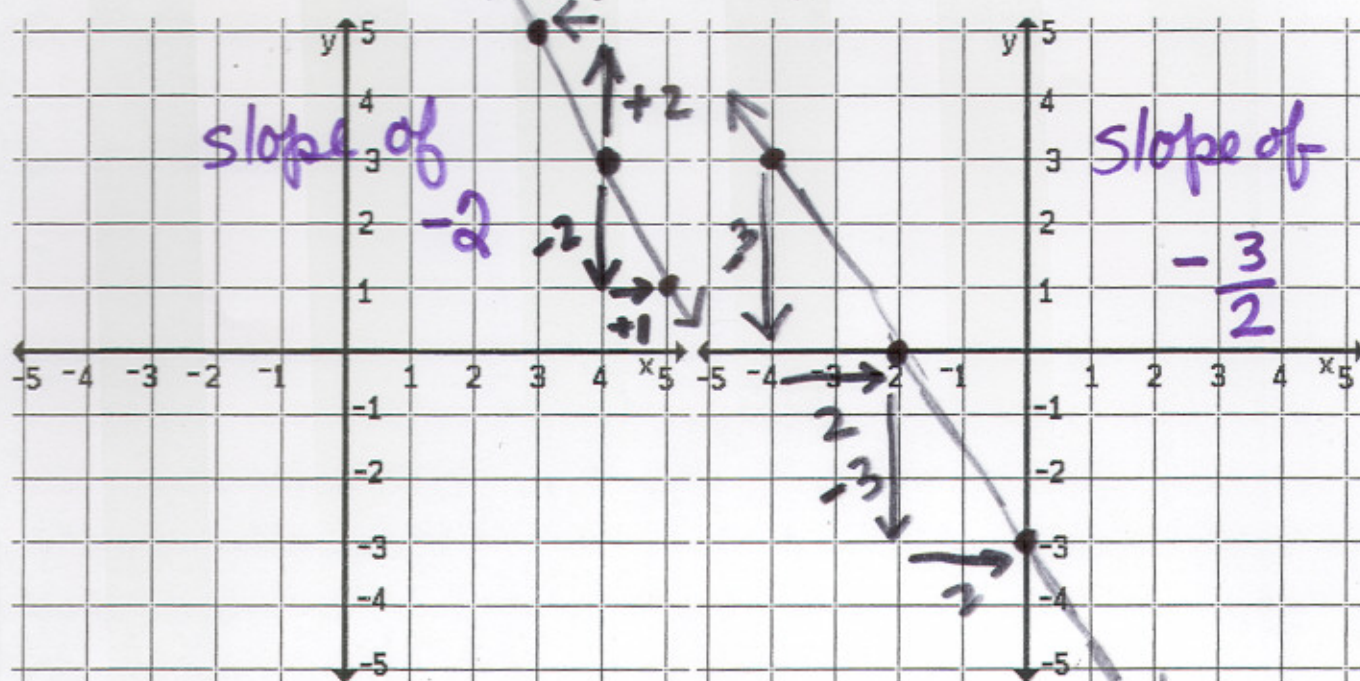
x | -3 -2 -1 0 1 2 3

(x, y)

x	$y = x^2 - 2$
1	-1
2	2
3	7
-2	2

$3^2 - 2$
 $(-2)^2 - 2$

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put point on $(4, 3)$

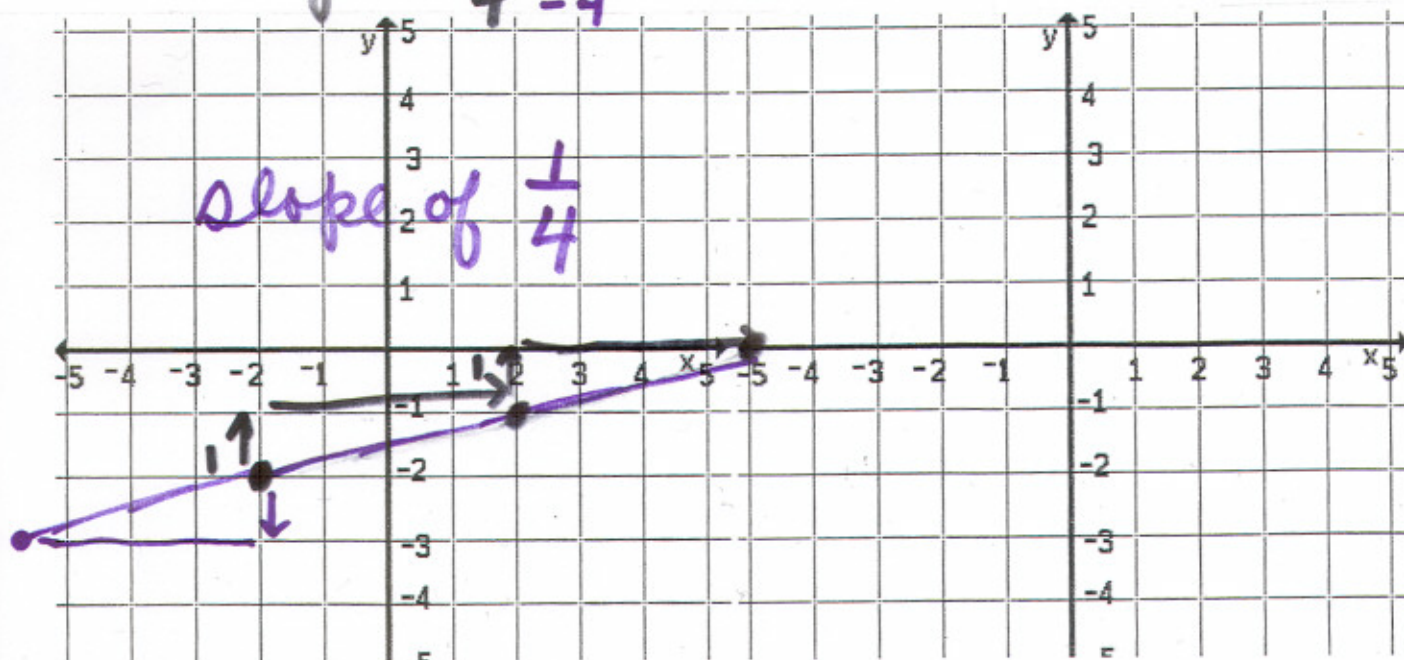
$$\textcircled{-2} = \frac{-2}{1} \text{ down 2 right 1}$$

$$\textcircled{-2} = \frac{+2}{-1} \text{ up 2 left 1}$$

start $(-2, -2)$

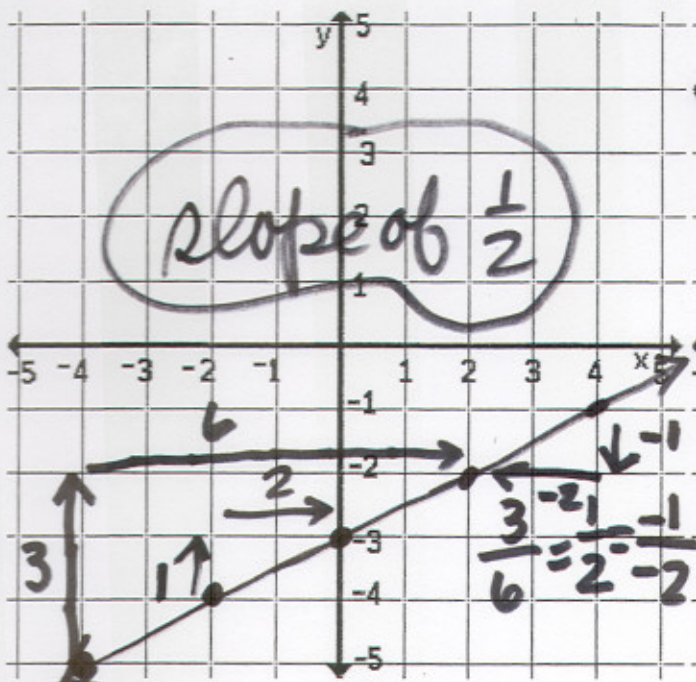
$$\text{go } \frac{1}{4} = \frac{-1}{-4}$$

$(-4, 3)$ $\frac{-3}{+2}$ down 3 right 2 repeated



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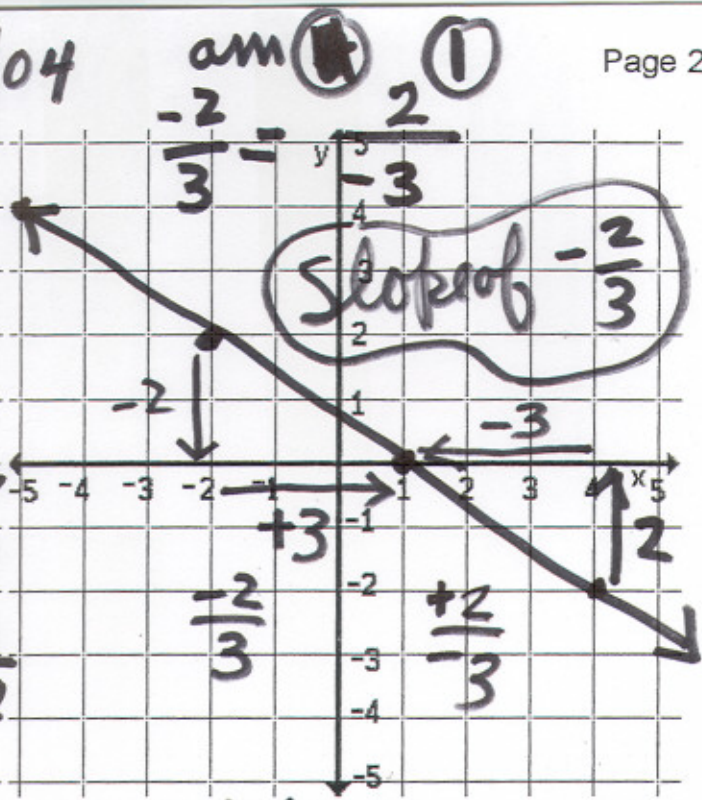


"three less than
half a number"

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

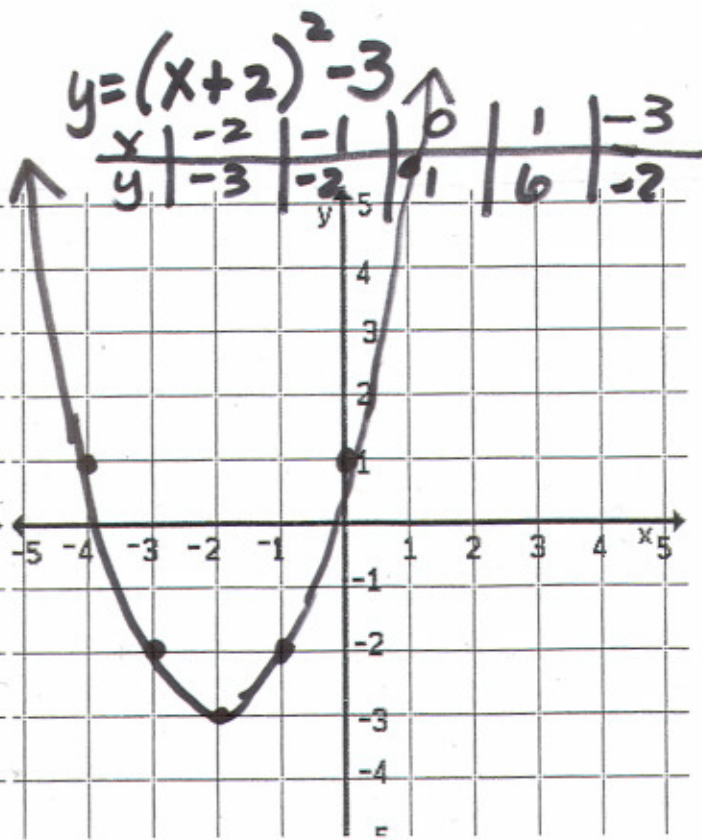
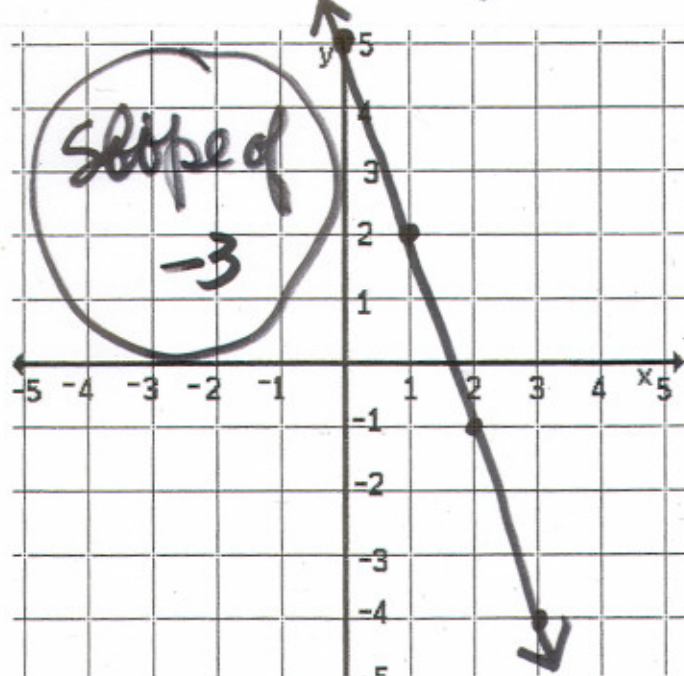
↑ tilt or slope

top → ☐ up or down
bottom → ☐ right or left



start at $(-2, 2)$ slope $-\frac{2}{3}$

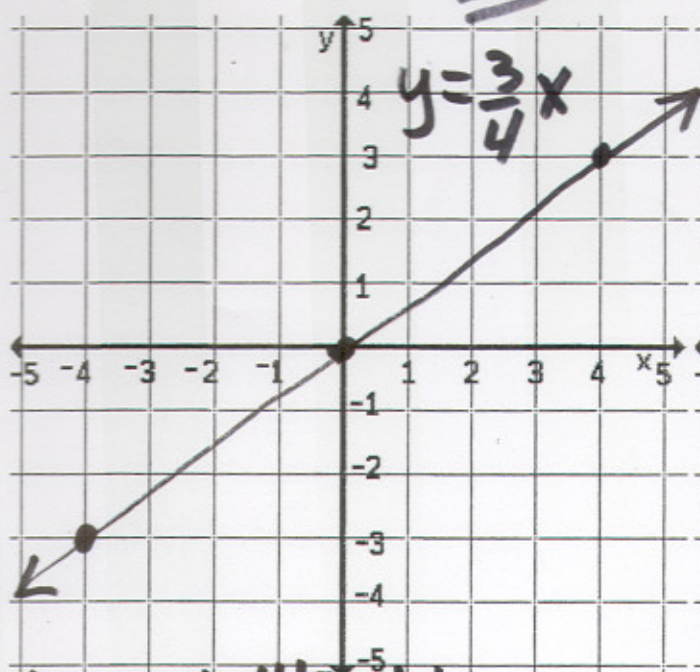
start at $(0, 5)$ $-\frac{3}{1}$



HW

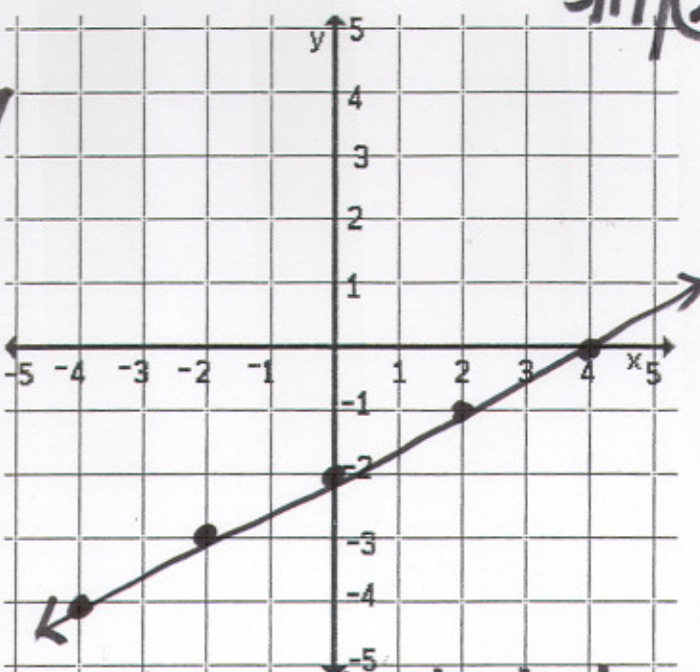
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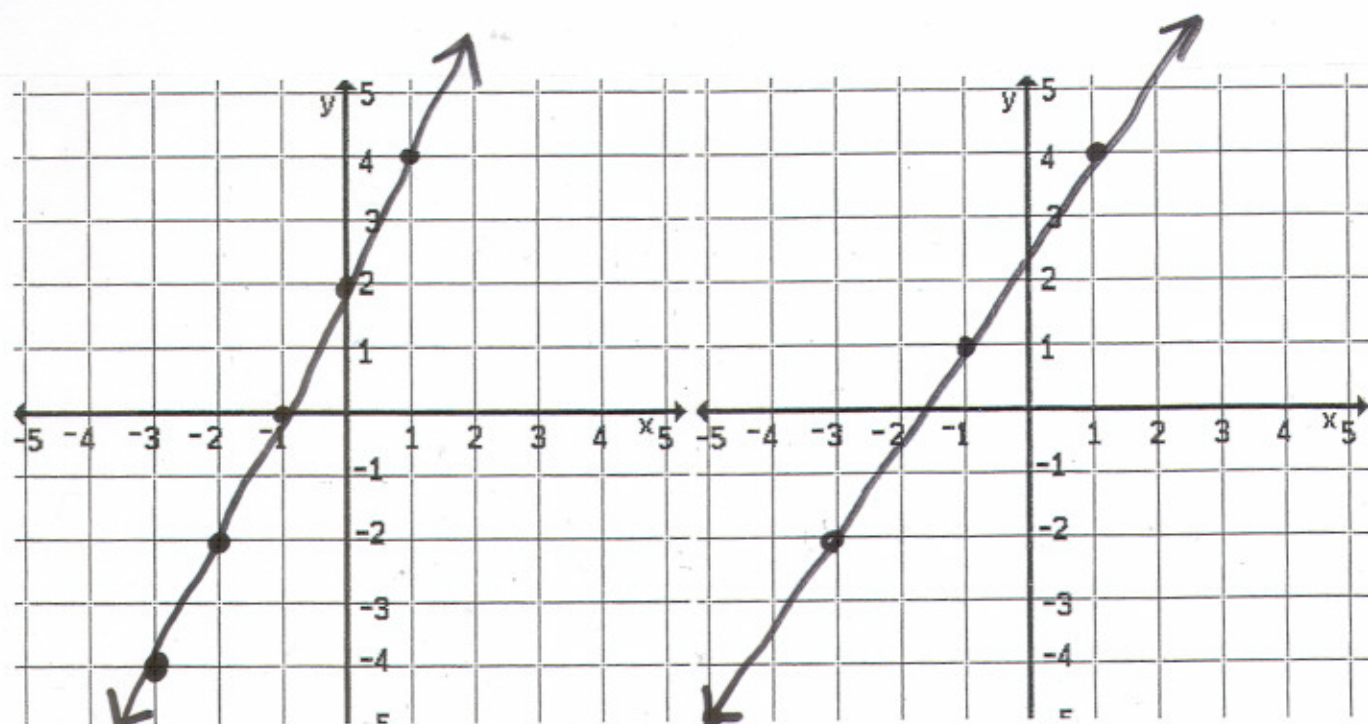
x	-4	0	4
$y = \frac{3}{4}x$	-3	0	3

HW



x	-4	-2	0	2	4
$y = \frac{1}{2}x$	-2	-1	0	1	2

- three-fourths of a number
- two less than half a number
- start at $(-3, -4)$ and go +2 ~~then~~ up then 1 to the right
- start at $(-5, -5)$ go $\frac{3}{2}$ up $\frac{2}{1}$ right



X	-4	0	4
$y = \frac{3}{4}x$	-3	0	3
	$\frac{3}{4}(-4)$	$\frac{3}{4}(0)$	$\frac{3}{4}(4)$
	-3		

0 is always
the best number
to input, use
as an x value.

3/11/ am (3) x+1a

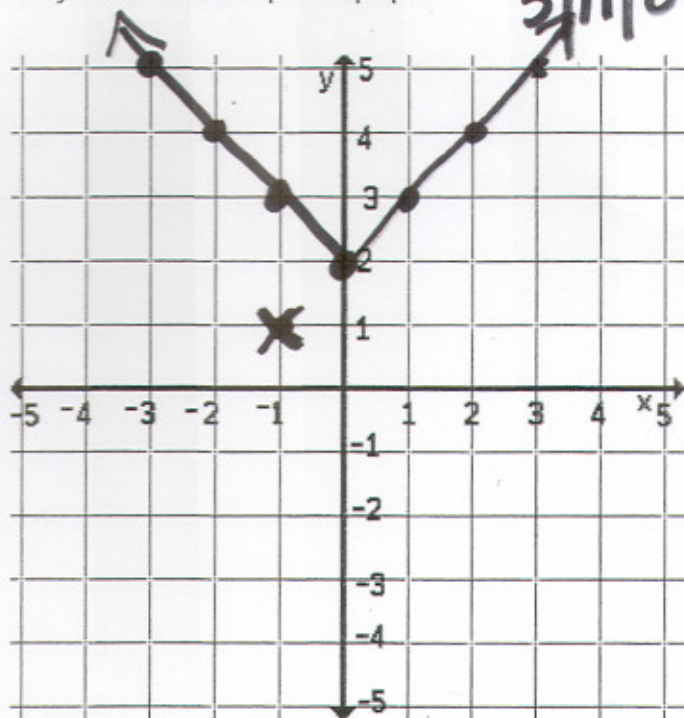
X	-4	-2	0	2	4
$y = \frac{1}{2}x - 2$	-4	-3	-2	-1	0
	$\frac{1}{2}(-4) - 2$	$\frac{1}{2}(-2) - 2$	$\frac{1}{2}(0) - 2$		
	-2 - 2	-1 - 2	0 - 2		
	-4	-3	-2		

X	2	-1	0	1	2
$y = (x+2)^2 - 3$	3	-2	1	6	

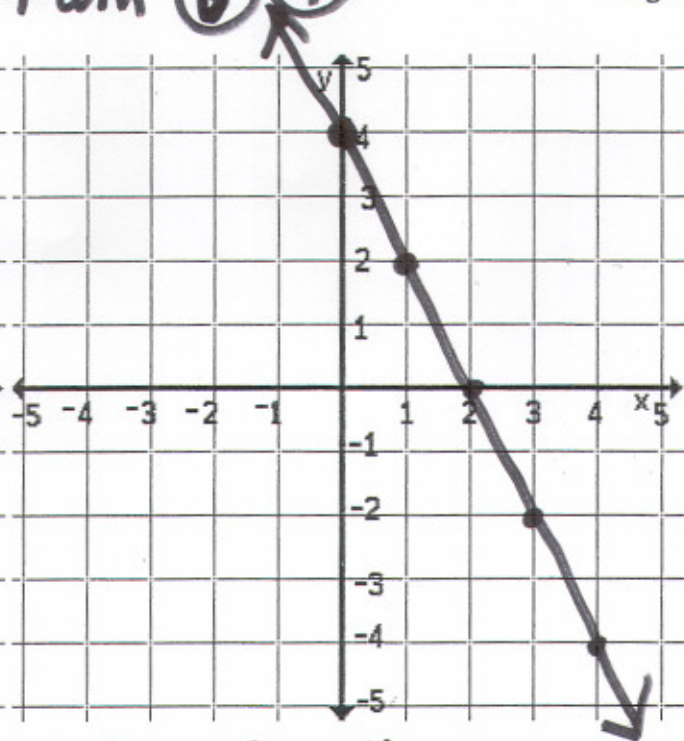
$y = (x+2)^2 - 3$ $(-1+2)^2 - 3$ $(0+2)^2 - 3$
 $(-2+2)^2 - 3$ $1 - 3$ $4 - 3$
 -3 -2 1
 $(1+2)^2 - 3$
 $9 - 3$
 6

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⑥ ④



$$y = |x| + 2$$



$$y = -2x + 4$$

slope $\frac{\text{down } 2}{\text{right } 1}$

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