

Piecewise Function Example

WolframAlpha[®] computational knowledge engine

Plot [piecewise[{{-2x,x<-1},{x,x>=-1}}, {x,-3,3}]

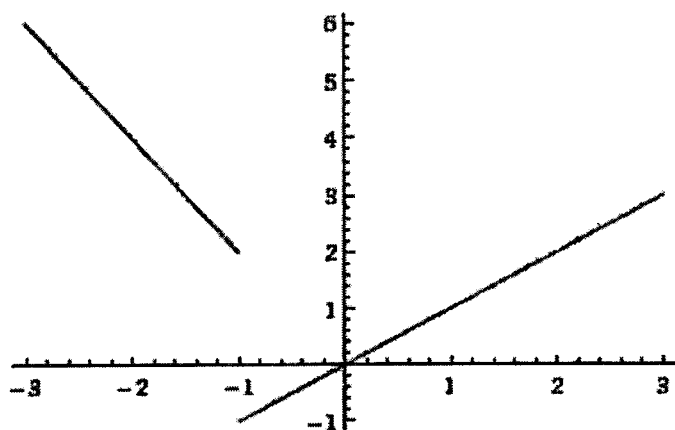


Examples Random

Input interpretation:

plot	$\begin{cases} -2x & x < -1 \\ x & x \geq -1 \end{cases}$	$x = -3 \text{ to } 3$
------	---	------------------------

Plot:



Enable interactivity

Computed by Wolfram Mathematica

Download page

<http://reference.wolfram.com>

<http://reference.wolfram.com>

① $f(x) = -\frac{1}{4}x^2 + \frac{1}{4}x + 3$

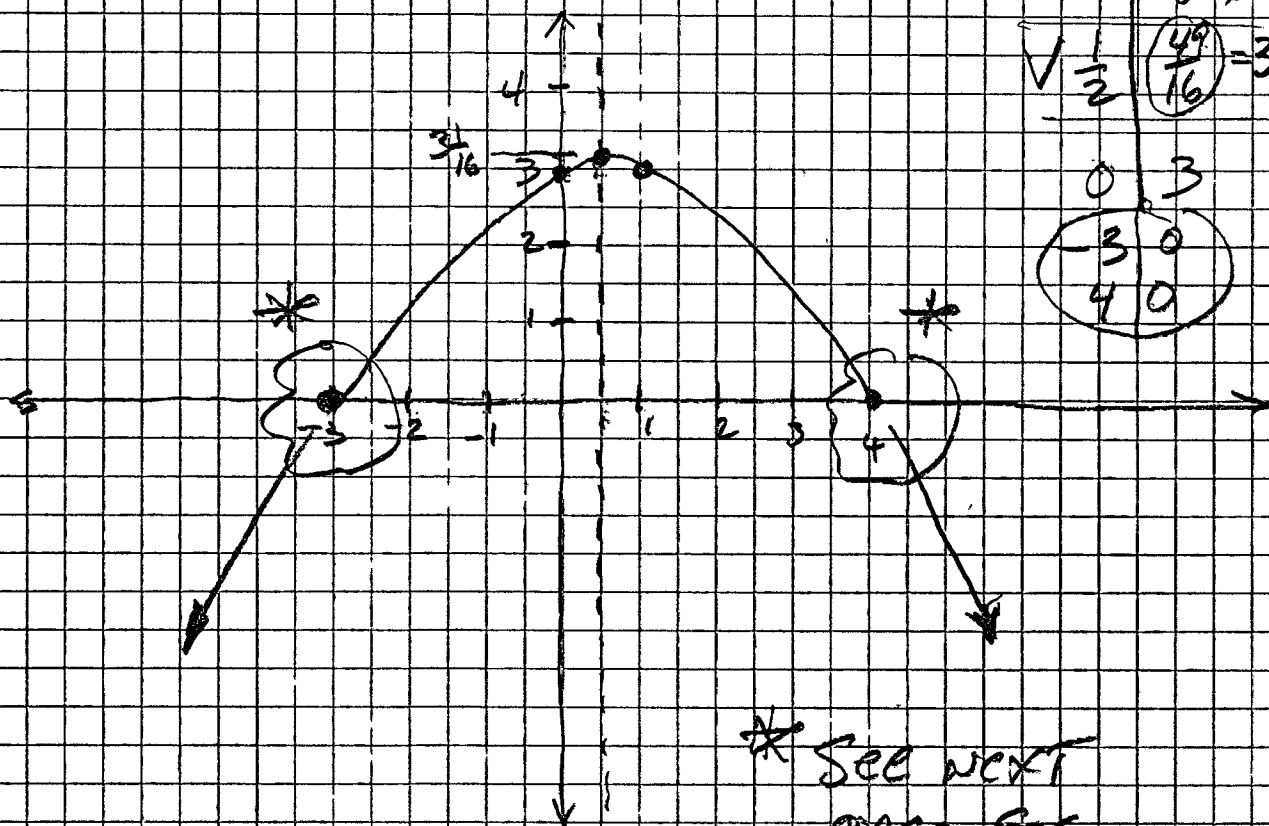
GRAPH



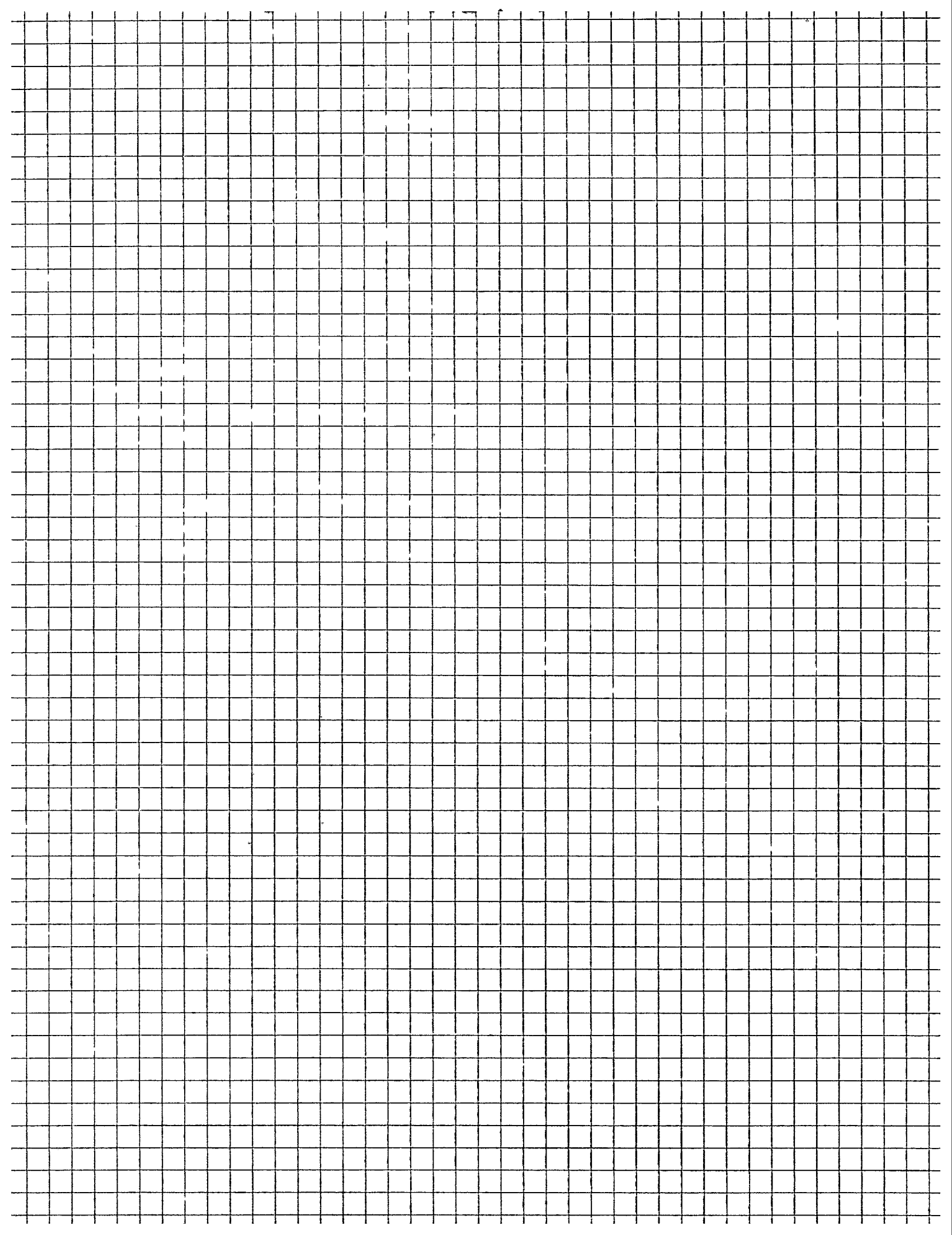
$$x = \frac{-b}{2a} = \frac{-\frac{1}{4}}{-\frac{1}{2}} = \frac{1}{2} = x$$

$ax^2 + bx + c = y$
 $a(x-h)^2 + k = y$

x	y
$\frac{1}{2}$	$-\frac{1}{16} + \frac{2}{16} + \frac{48}{16}$
$\frac{1}{2}$	$\frac{49}{16} = 3\frac{1}{16}$
0	3
-3	0
4	0



* See next
 page for
 x-intercepts



①

$$-\frac{1}{4}x^2 + \frac{1}{4}x + 3 = 0$$

Find
X-intercepts

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

$$b = \frac{1}{4}$$

$$c = 3$$

$$b^2 - 4ac$$

$$\left(\frac{1}{4}\right)^2 - 4\left(-\frac{1}{4}\right)(3)$$

$$\frac{1}{16} + \frac{48}{16}$$

$$= \frac{49}{16} = d$$

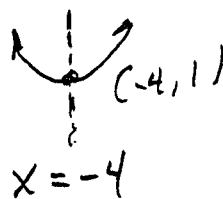
$$x = \frac{-\frac{1}{4} \pm \frac{7}{4}}{-\frac{1}{2}} = \{-3, 4\}$$

2.

(15) $f(x) = (x+4)^2 + 1$

Graph

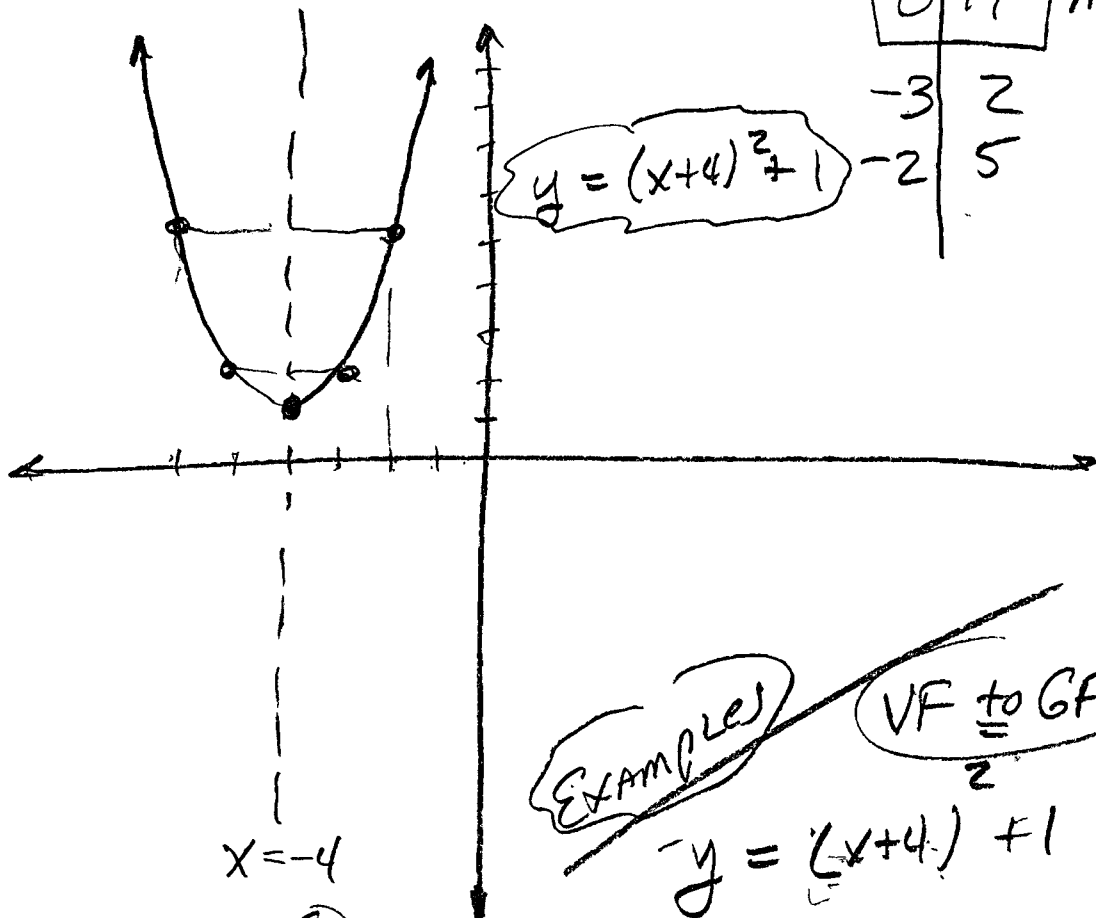
$V(-4, 1)$



NO X INTERCEPTS

x	y
V -4	1
0	17
-3	2
-2	5

y-intercept



~~EXAMPLES~~

~~VF to GF~~

$y = (x+4)^2 + 1$

$y = x^2 + 8x + 16 + 1$

$y = x^2 + 8x + 17$

GF

~~GF to VF~~

$y = x^2 + 8x + 17$

$y = 1(x^2 + 8x + 16) + 17 - 16$

$y = 1(x+4)^2 + 1$ VF