	Vertex	Slope of sides	"V" opens
y = |x|	(0,0)	±1	up
y = |x-3|	(3,0)	±1	up
y = |x| + 2	(0,2)	±1	up
y = 2|x+1| - 3	(-1,-3)	±2	up
y = -3|x-2| + 4	(2,4)	±3	Down
y = 4|x+7| + 9	(-7,9)	±4	UP
y = -0.5|x-3| -1	(+3,-1)	± 1/2	down
y = a|x - h| + k	(h,k)	±a	a>0 up a<0 down

$$y = a|x - h| + k$$

h: Horizontal translation $x+h$

$x-h \Rightarrow$ Right h units Left h units Vertex: (h,k)

k: Vertical translation

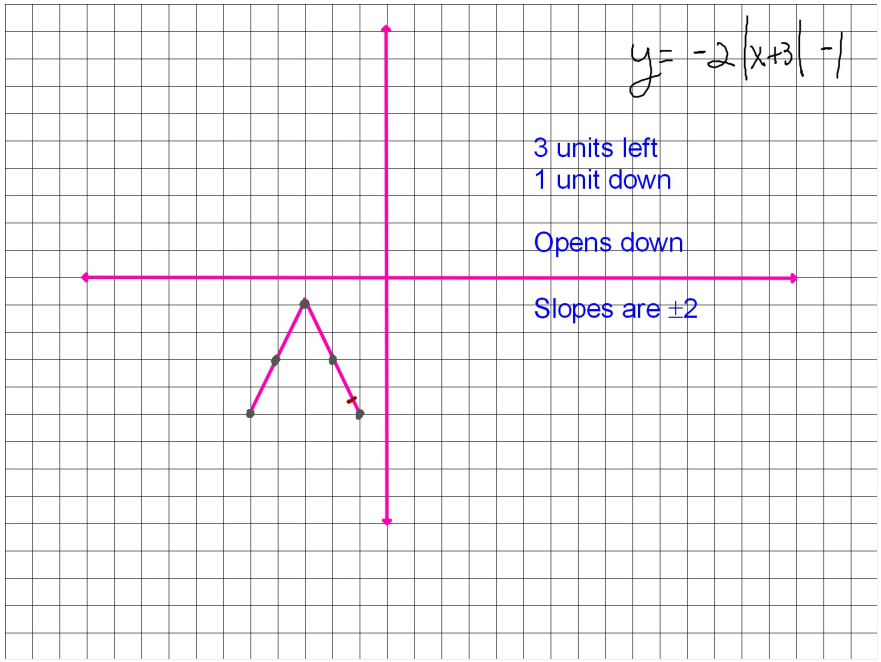
$+k$ up k units $-k$ down k units

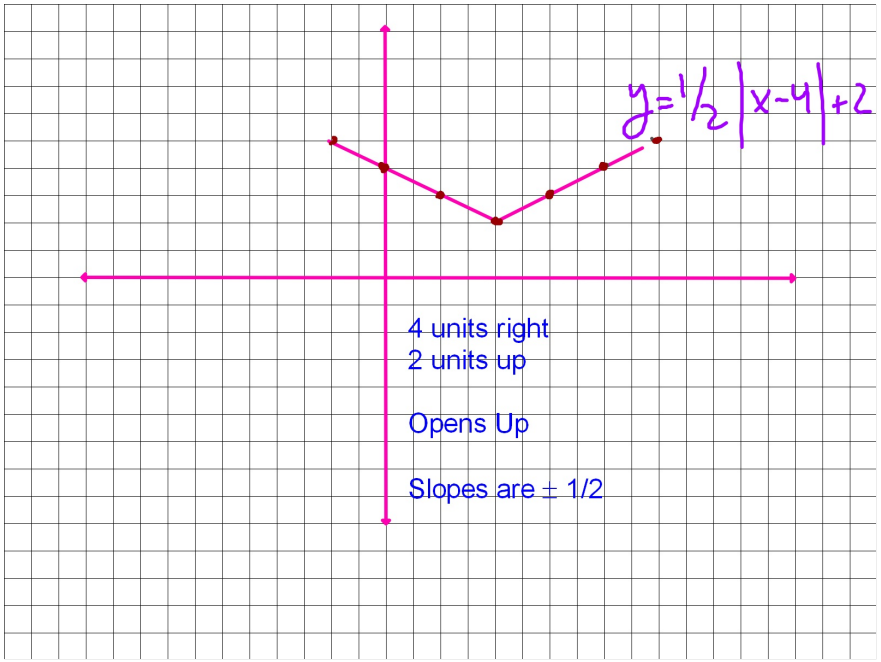
a: If a<0 upsidedown: (x-axis reflection)

If a>1 Vertical strecth

If 0<a<1 Vertical shrink

±a = slope of sides of "V"





A company makes baseballs and footballs. Materials for baseballs cost $2 each and for footballs $5 each. The budget for materials is $1200 a day. The capacity of the plant is 300 balls a day.

Baseballs are solf for $5 each and footballs for $30 each.

$I = 5b + 30f$

Write and solve a system of inequalities that maximizes the company's income.

$b + f \leq 300$ b-int = 300, f-int = 300

$2b + 5f \leq 1200$ b-int = 600, f-int = 240

$b \geq 0$

$f \geq 0$

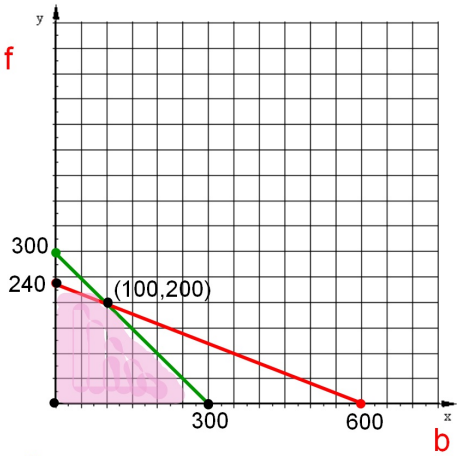
$b \geq 0$ $f \geq 0$

$b + f \leq 300$

$2b + 5f \leq 1200$

$I = 5b + 30f$

b	f	I
0	0	$0
300	0	$1500
0	240	$7200
100	200	$6500



Max income will occur when the company makes 240 footballs.and 0 baseballs