

Absolute Value Form

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

Vertex: $(-h, k)$

Stretch Factor: a

Always positive !!

dir: direction + up/- down

What is the stretch factor???

- The stretch factor tells you whether the graph opens up or down. It also tells you how much to stretch the graph by.

$$\underline{y = a |x+h| + k}$$

#1 $y = |x - 2| - 4$

When no stretch factor is given
assume that the stretch factor is "1" !

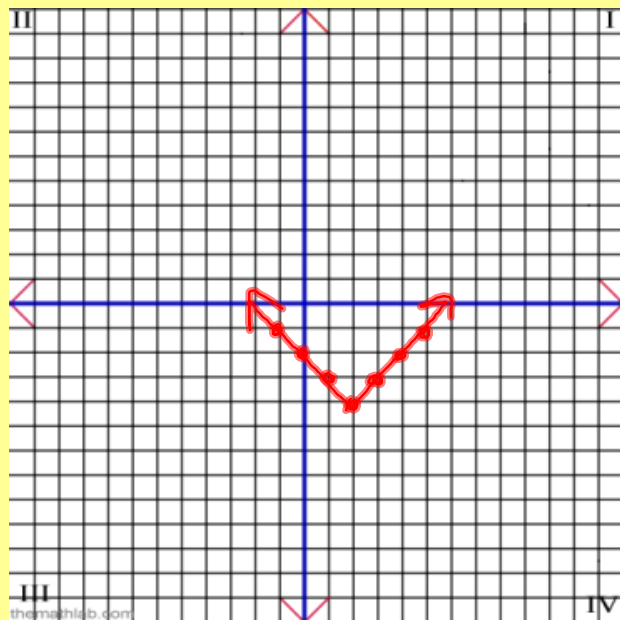
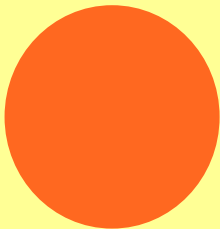
Vertex : $(2, -4)$
Dir: UP
Stretch Factor: 1

Over	Up
1	1 x 1 = 1
2	2 x 1 = 2
3	3 x 1 = 3
4	4 x 1 = 4

****When the stretch factor is "1" nothing changes !!**

$$y = |x - 2| - 4$$

Vertex : (2, -4)
Dir: Up
Stretch Factor: 1



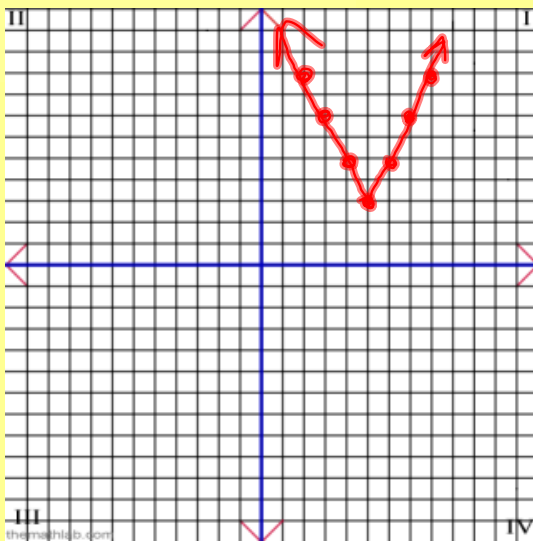
#2

$$y = 2|x - 5| + 3$$

Vertex: $(5, 3)$

Dir: up

Stretch Factor: 2



Over

Up

1

$$1 \times 2 = 2$$

2

$$2 \times 2 = 4$$

3

$$3 \times 2 = 6$$

4

$$4 \times 2 = 8$$

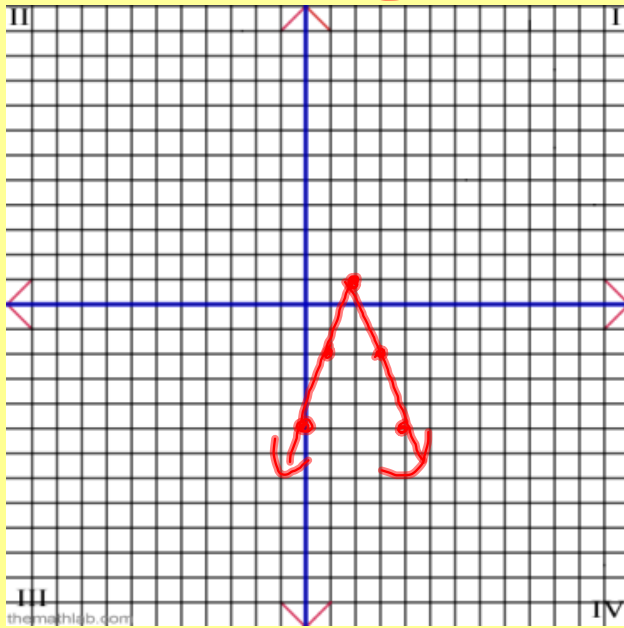
#3

$$y = -3|x - 2| + 1$$

Vertex: $(2, 1)$

Dir: Down

Stretch Factor: 3



Over

Down

1

$$1 \times 3 = 3$$

2

$$2 \times 3 = 6$$

3

$$3 \times 3 = 9$$

4

$$4 \times 3 = 12$$

#4

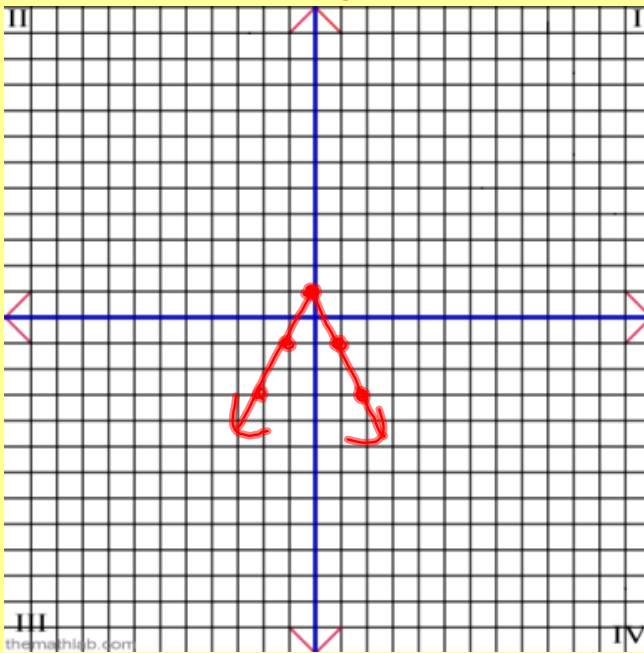
$$y = -2|x| + 1$$

$$y = -2|x+0|+1$$

Vertex: $(0, 1)$

Dir: down

Stretch Factor: 2



Over

Down

1

$$1 \times 2 = 2$$

2

$$2 \times 2 = 4$$

3

$$3 \times 2 = 6$$

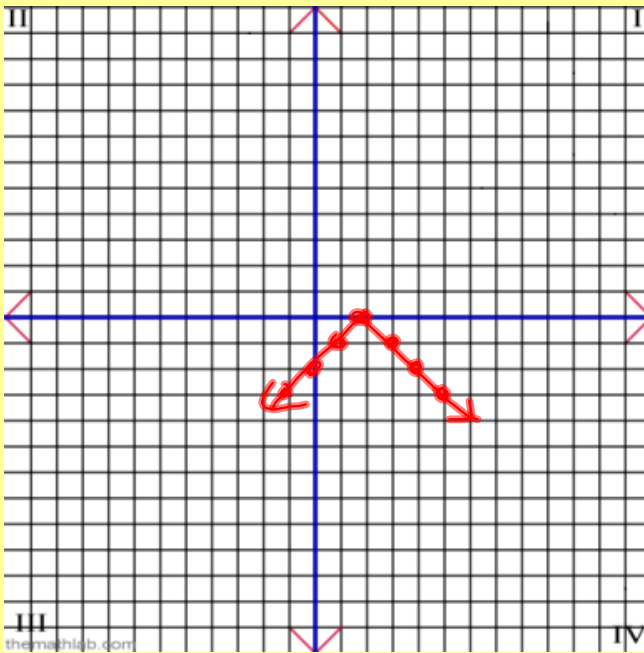
4

$$4 \times 2 = 8$$

#5

$$y = -|x - 2| + 0$$

Vertex: $(2, 0)$
Dir: down
Stretch Factor: 1



Over	Down
1	1
2	2
3	3
4	4

When the stretch factor is "1" everything stays the same !!

$$\frac{3y}{3} = \frac{6}{3}|x-2| + \frac{9}{3}$$

$$y = 2|x-2| + 3$$

$$V: (2, 3)$$

$$SF: 2$$

$$dir: up$$

$$\frac{1}{2}(y-2) = 3|x|$$

$$1(y-2) = 6|x|$$

$$y-2 = 6|x|$$

$$y = 6|x| + 2$$

6x

(0,2)

SF = 6

dir: up