

Things you will learn about Quadratics:

Standard Form	Zeros Form	Vertex Form
$y = ax^2 + bx + c$	$y = a(x-s)(x-t)$	$y = a(x-h)^2 + k$

Vertex	Zeros	y-int	Vertical Stretch	Horizontal Shift	Vertical Shift	Axis of Symmetry AoS	Max/Min Value
(h, k)	s and t	c	a	h	k	$x = h$	Max or min value of k

The Step pattern from the vertex for graphing $y = x^2$ is

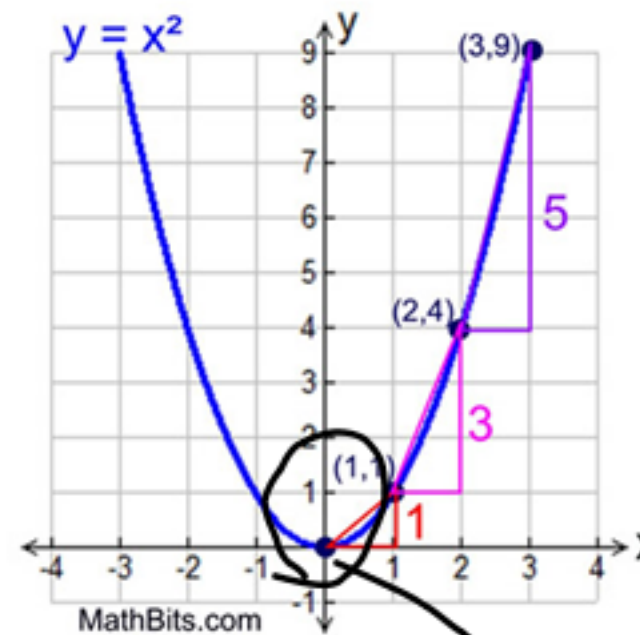
Over 1 - up 1 $\times 1$
 Over 1 - up 3
 Over 1 - up 5

The Step pattern for graphing $y = 2x^2$ is

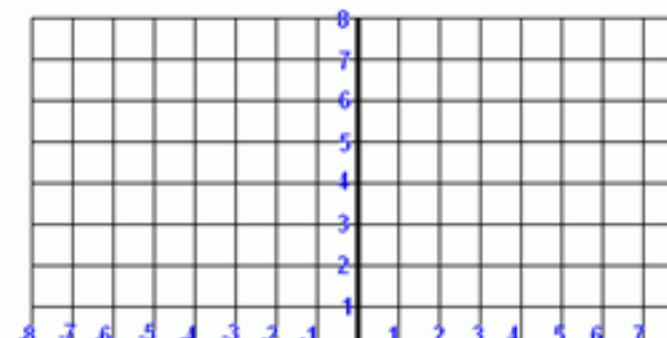
Over 1 - up $1 \times 2 = 2$
 Over 1 - up $3 \times 2 = 6$
 Over 1 - up $5 \times 2 = 10$

Make tables of values for $y = \frac{1}{2}x^2$ and $y = -2x^2$. Then, make a sketch of the graphs.

x	$y = \frac{1}{2}x^2$	x	$y = -2x^2$
2		2	
1		1	

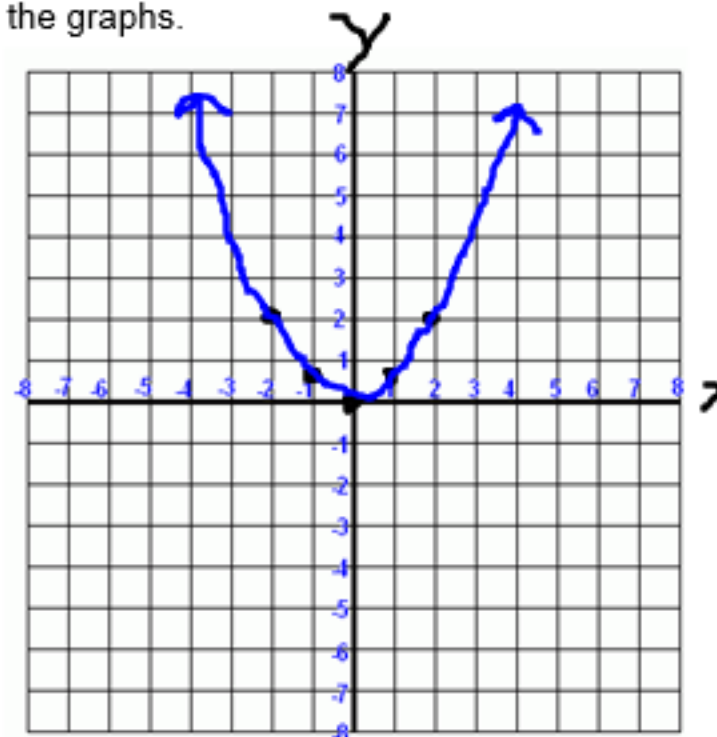


origin (0,0)



Make tables of values for $y = \frac{1}{2}x^2$ and $y = -2x^2$. Then, make a sketch of the graphs.

x	$y = \frac{1}{2}x^2$	x	$y = -2x^2$
2	2	2	-8
1	0.5	1	-2
0	0	0	0
-1	0.5	-1	-2
-2	2	-2	-8



$(2, 2)$
 $(1, 0.5)$
 $(0, 0)$
 $(-1, 0.5)$
 $(-2, 2)$

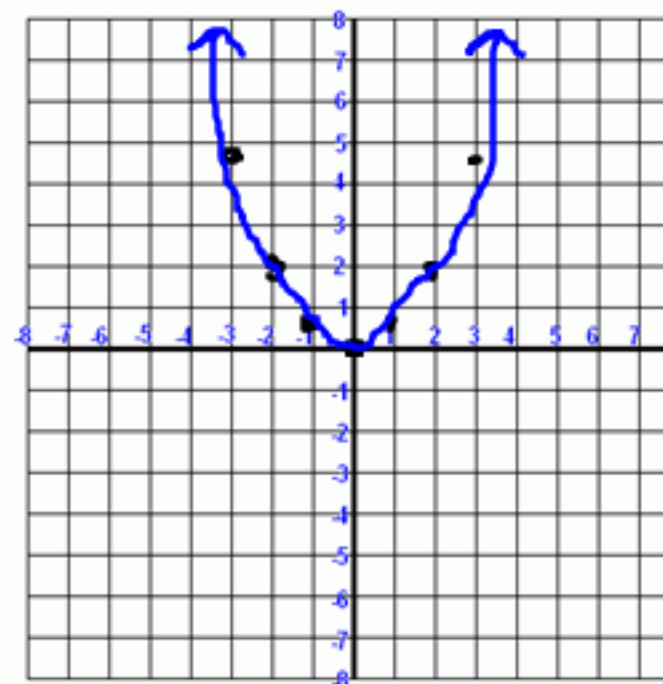
$y = \frac{1}{2}x^2$ FAST
 $y = \frac{1}{2}(2)^2$
 $y = \frac{1}{2}(4)$
 $y = 2$
 $y = \frac{1}{2}x^2$
 $y = \frac{1}{2}(1)^2$
 $y = \frac{1}{2}(1)$
 $y = \frac{1}{2}$

$y = \frac{1}{2}x^2$
 $y = \frac{1}{2}(-1)^2$
 $y = \frac{1}{2}(1)$
 $y = \frac{1}{2}$
 $y = \frac{1}{2}x^2$
 $y = \frac{1}{2}(-2)^2$
 $y = \frac{1}{2}(4)$
 $y = 2$

Make tables of values for $y = \frac{1}{2}x^2$ and $y = -2x^2$. Then, make a sketch of the graphs.

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

x	$y = -2x^2$
2	
1	
0	
-1	
-2	



$$y = \frac{1}{2}x^2$$

1) over 1, up $1 \times 0.5 \rightarrow$ over 1, up 0.5

2) over 1, up $3 \times 0.5 \rightarrow$ over 1, up 1.5

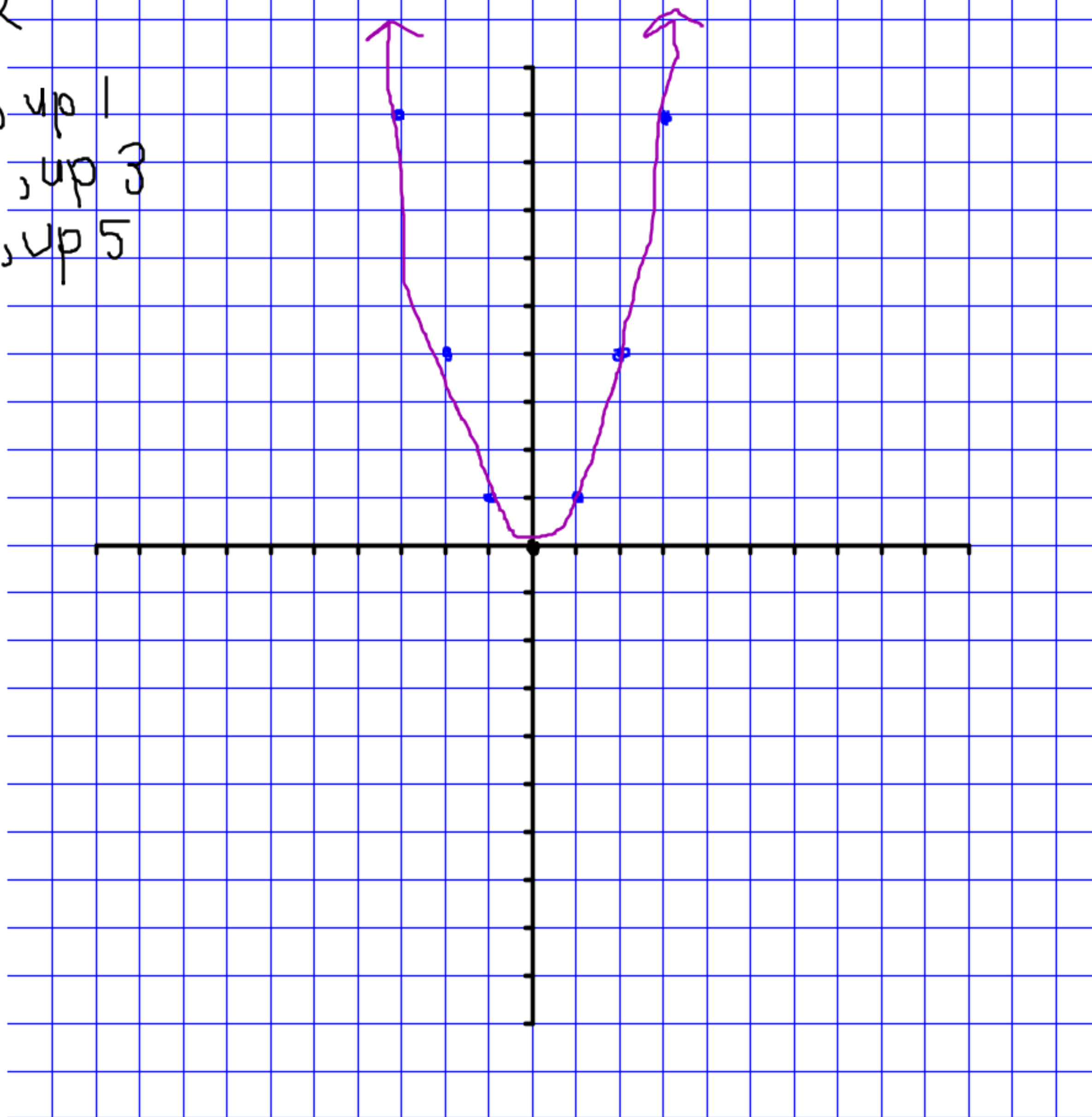
3) over 1, up $5 \times 0.5 \rightarrow$ over 1, up 2.5

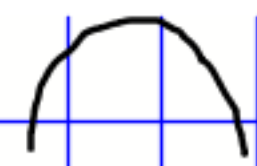
$$1) y = x^2$$

over 1, up 1

over 1, up 3

over 1, up 5



3) $y = -2x^2$ 

over 1, up $1 \times (-2) =$ over 1, down 2

over 1, up $3 \times (-2) =$ over 1, down 6

over 1, up $5 \times (-2) =$ over 1, down 10

