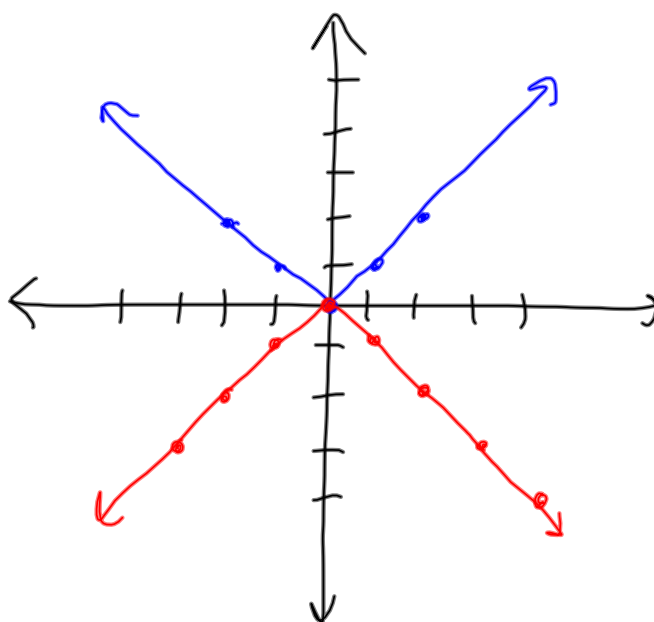


$$y = -|x|$$

$y$	$ x $	$- x $
-3	3	-3
-2	2	-2
-1	1	-1
0	0	0
1	1	-1
2	2	-2
3	3	-3

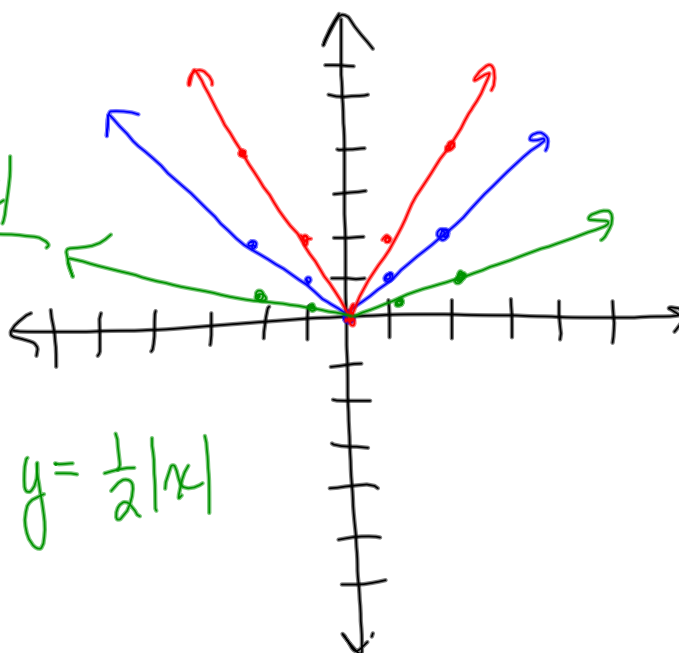


\*  $y = -|x|$

Reflect graph over the x-axis  
(flip)

$$y = 2|x|$$

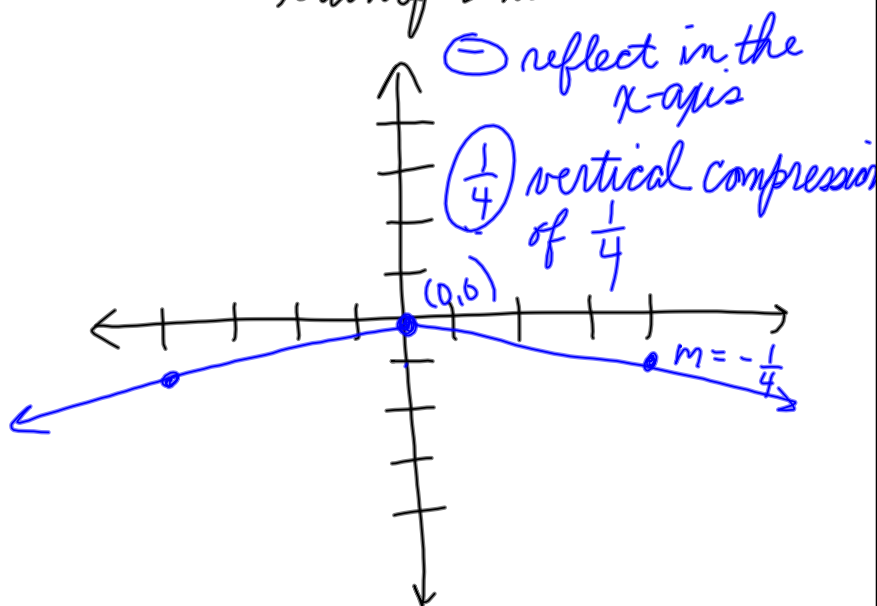
$x$	$ x $	$2 x $	$\frac{1}{2} x $
-2	2	4	$\frac{1}{2}$
-1	1	2	$\frac{1}{2}$
0	0	0	0
1	1	2	$\frac{1}{2}$
2	2	4	1



\*  $y = a|x|$   $\left\{ \begin{array}{l} |a| > 1, \text{ vertical stretch} \\ |a| < 1, \text{ vertical compression} \\ \text{(fraction)} \end{array} \right.$

Graph  $y = -\frac{1}{4}|x|$ , and name the transformations

$v: (0,0)$   
 "m":  $-\frac{1}{4}$



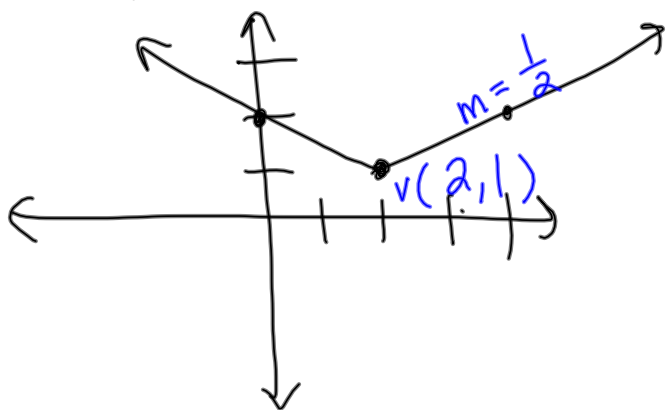
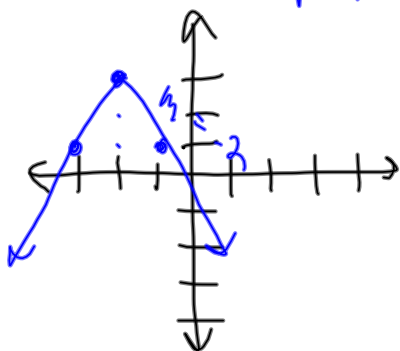
$$y = -2|x + 2| + 3$$

$x - (-2)$  ↓ left 2      $+ 3$  ↓ up 3

vertex:  $(-2, 3)$   $(h, k)$

axis of sym:  $x = -2$   $x = h$

transformations: translated 2 units left  
 "m": -2     3 units up



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

$a$  ↓ + opens up     left, rt. ↓ up/down  
 $-$  opens down  
 $|a| > 1$  stretch      $v: (h, k)$   
 $|a| < 1$  compress.

reflected in the x-axis  
 vertically stretched by the factor 2

$$y = a^{(m)}|x - h| + k$$

$v: (h, k)$

$$y = \frac{1}{2}|x - 2| + 1$$