Convert From Vertex to Standard Form

$$y = 2(x+4)^2 - 6$$

$ax^2+bx+c=0$

$$y = 2(x+4)(x+4) - 6$$

$$y = 2(x^2 + 8x + 16) - 6$$

$x \cdot x = x^2$

$4 \cdot 2 = 8x$

$4^2 = 16$

$$y = 2x^2 + 16x + 32 - 6$$

$$y = 2x^2 + 16x + 26$$

$(x+4)(x+4)$

$= x^2 + 4x - 4x + 16$

$= x^2 + 8x + 16$

$$y = (x-2)^2 + 6$$

$$y = (x-2)(x-2) + 6$$

$$y = x^2 - 4x + 4 + 6$$

$$y = x^2 - 4x + 10$$

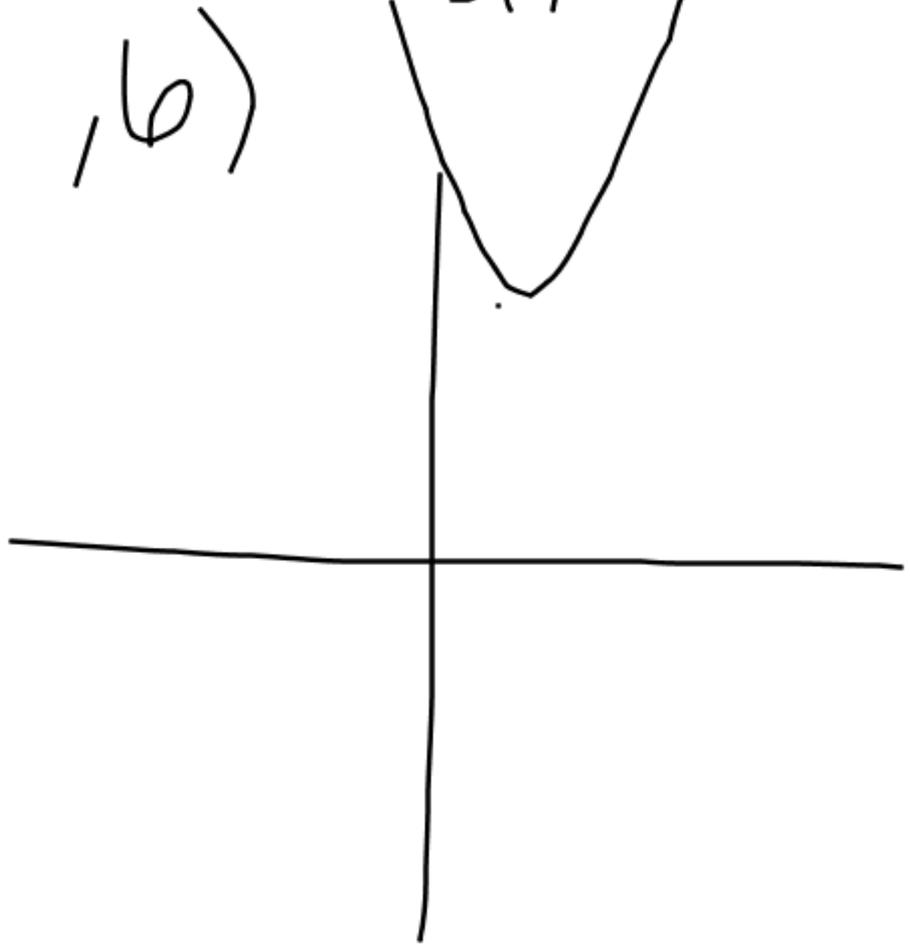
$\times 10$

$+ \ -4$

$1, 10$

$2, 5$

vertex $(2, 6)$



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

ax^2+bx+c

$y = -(x-4)(x-4)+1$

FOIL or use the shortcut

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

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

$y = -x^2+8x-15$

$x+15$

$+8$

1, 15

3, 5

$y = (-x+3)(-x+5)$

$-3 \quad -3$

$-x+3=0$

$-3 \quad -3$

$-1x=-3$

$-1 \quad -1$

$x=3$

$-5 \quad -5$

$-x+5=0$

$-5 \quad -5$

$-1x=-5$

$-1 \quad -1$

$x=5$

$SS = \{3,5\}$

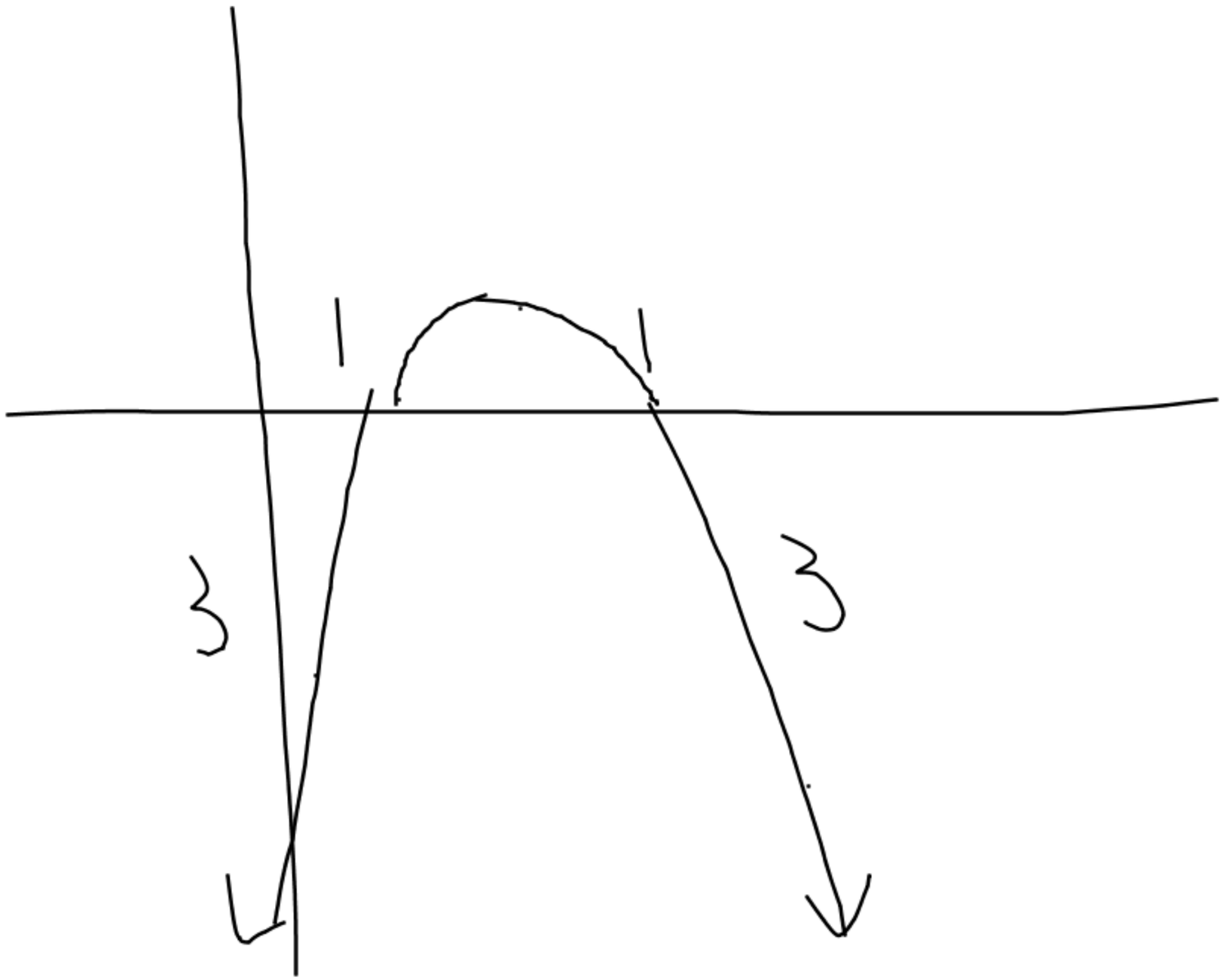
TODO

1) Convert to Standard Form
ax^2+bx+c

2) Graph using zeros (if applicable) and/or the vertex and the step pattern

3) Be ready to present and explain your steps

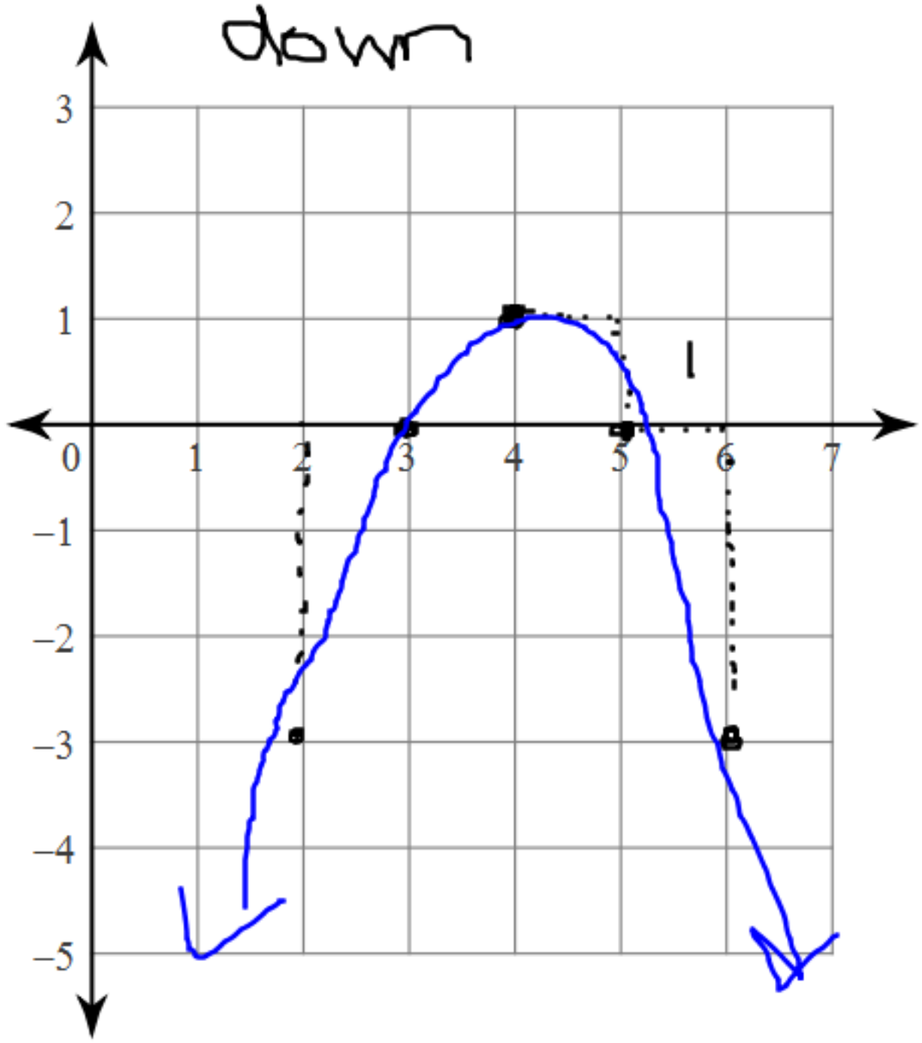
$SS = \{3, 5\}$ vertex $= (4, 1)$



Sketch the graph of each function. CHANGE TO STANDARD FORM.

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

down



Vertex = (4, 1)

SS = {3, 5}