# Warm Up.

$$y = \overset{2}{2}x^2 \overset{-4}{+4}x \overset{+6}{+6}$$

$$(\overset{-1}{x}, \overset{4}{y})$$

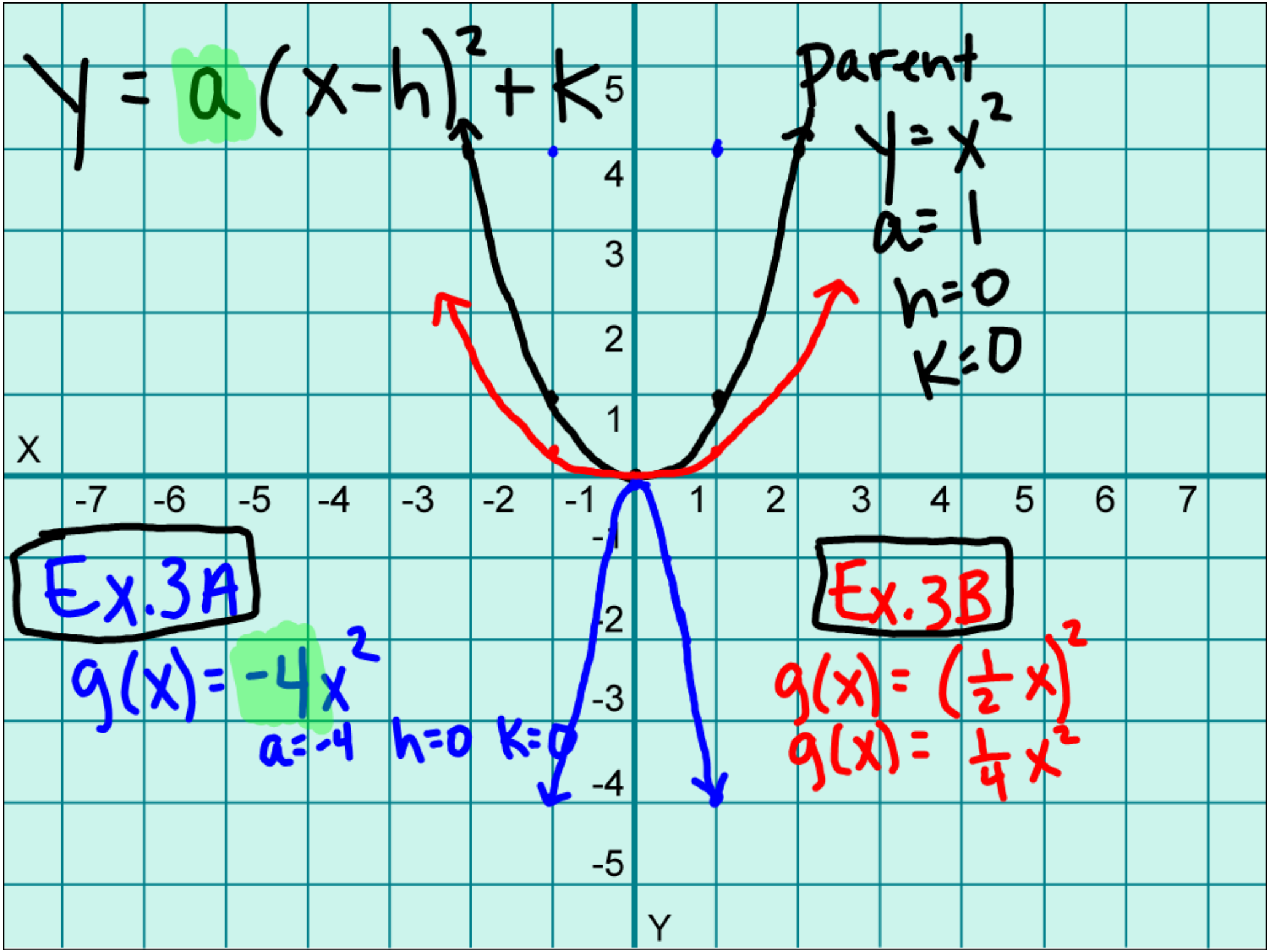
$(-1, 4)$ vertex

$$x = \frac{-b}{2a} = \frac{-4}{2(2)} = -1$$

# 5.1 cont... Ex. 3 & 4

CA # 10.0

$y = a(x-h)^2 + k$




Parent

$y = x^2$

$a = 1$

$h = 0$

$k = 0$

Ex.3A

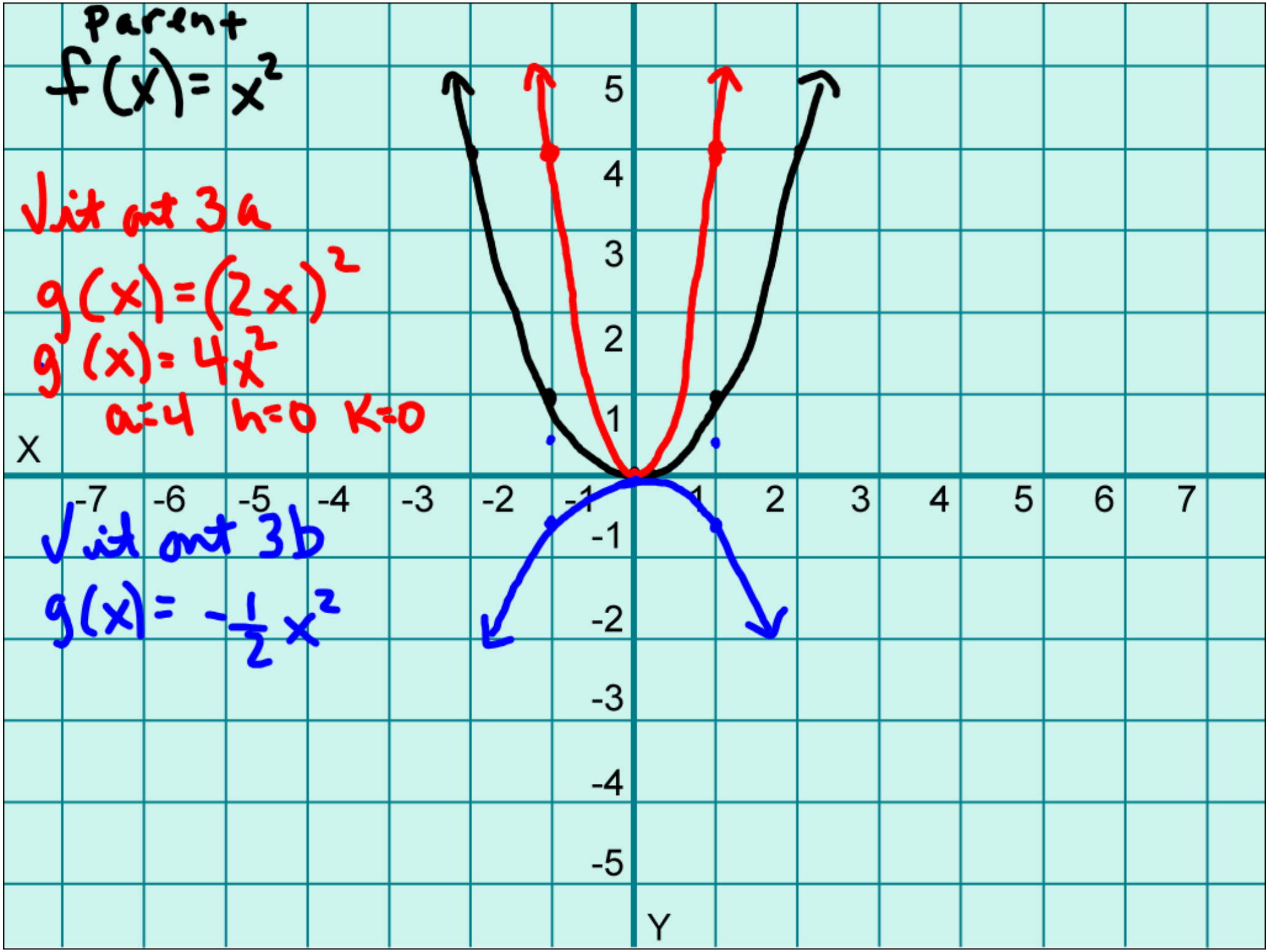
$g(x) = -4x^2$

$a = -4$ $h = 0$ $k = 0$

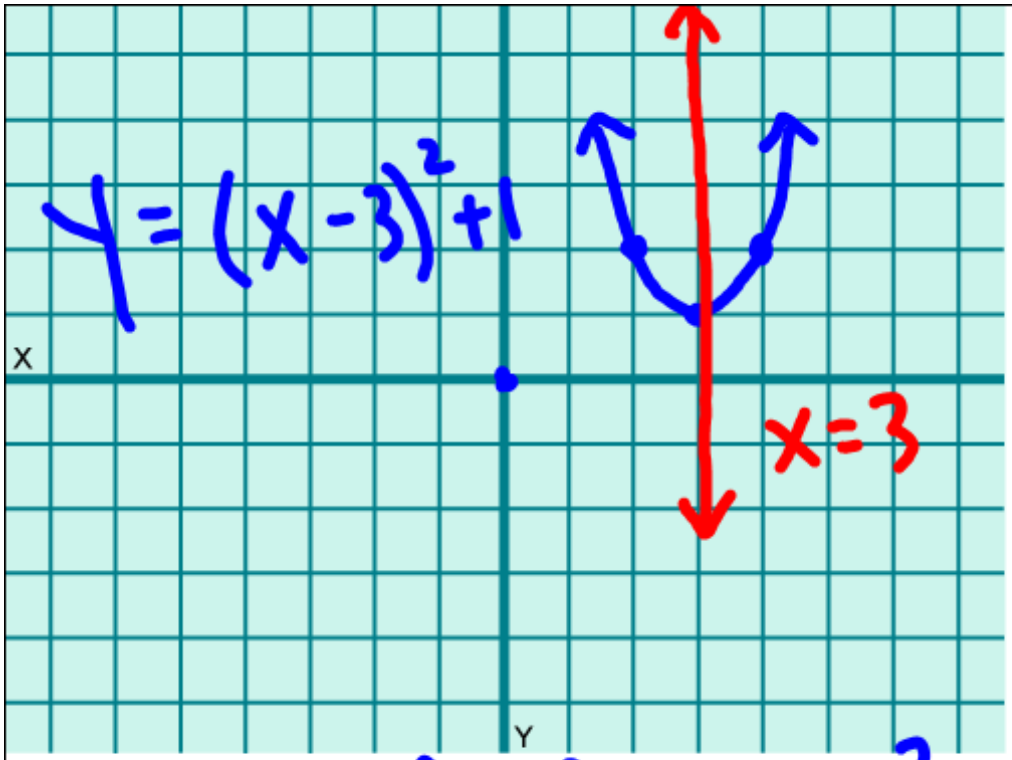
Ex.3B

$g(x) = \left(\frac{1}{2}x\right)^2$

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

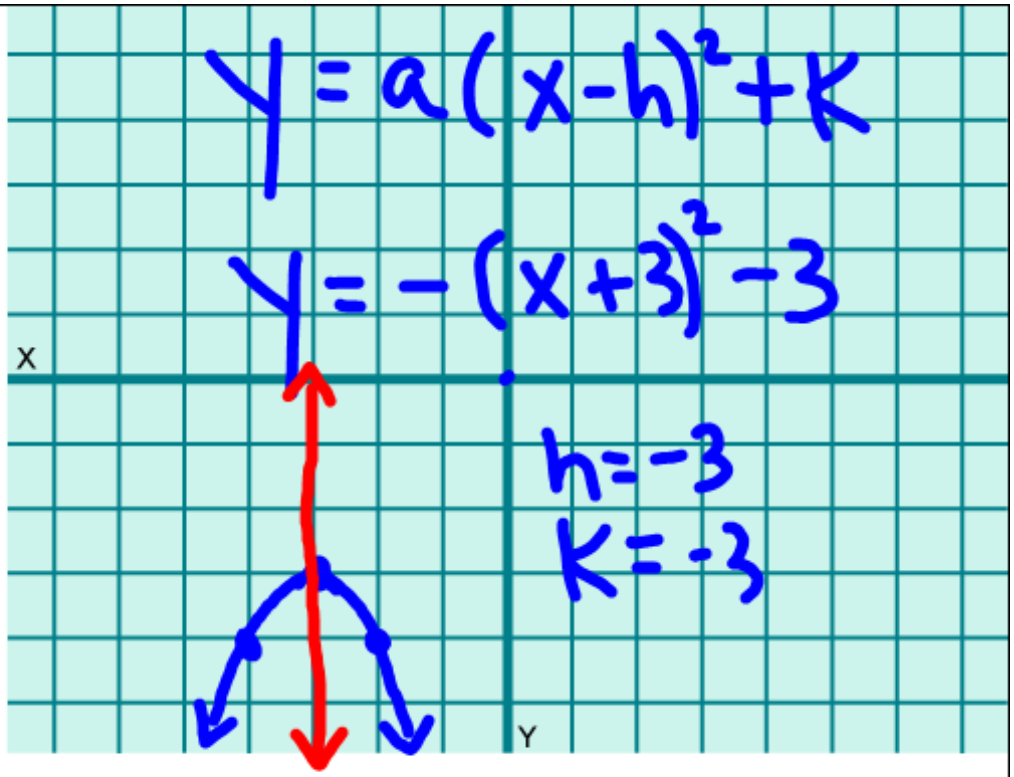

Parent
f(x) = x²
√ it out 3a
g(x) = (2x)²
g(x) = 4x²
a=4 h=0 k=0
√ it out 3b
g(x) = -½x²
X
Y
-7 -6 -5 -4 -3 -2 -1 1 2 3 4 5 6 7
5 4 3 2 1 -1 -2 -3 -4 -5

$y = (x-3)^2 + 1$



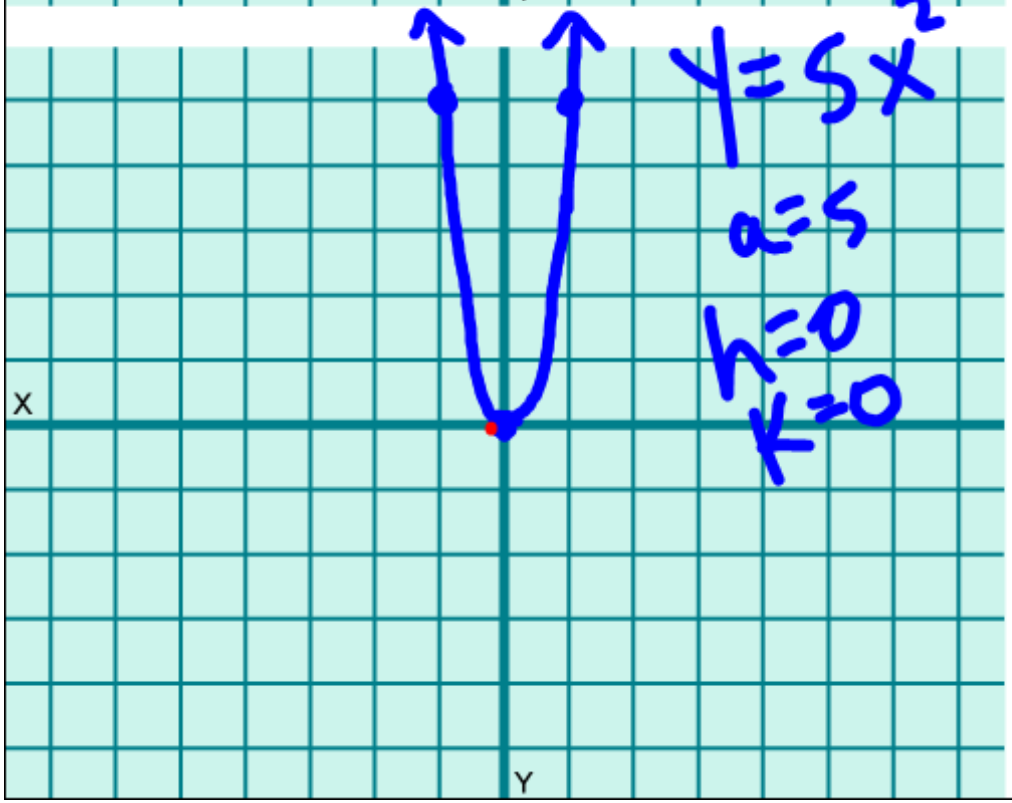

$y = a(x-h)^2 + k$

$y = -(x+3)^2 - 3$




$h = -3$

$k = -3$



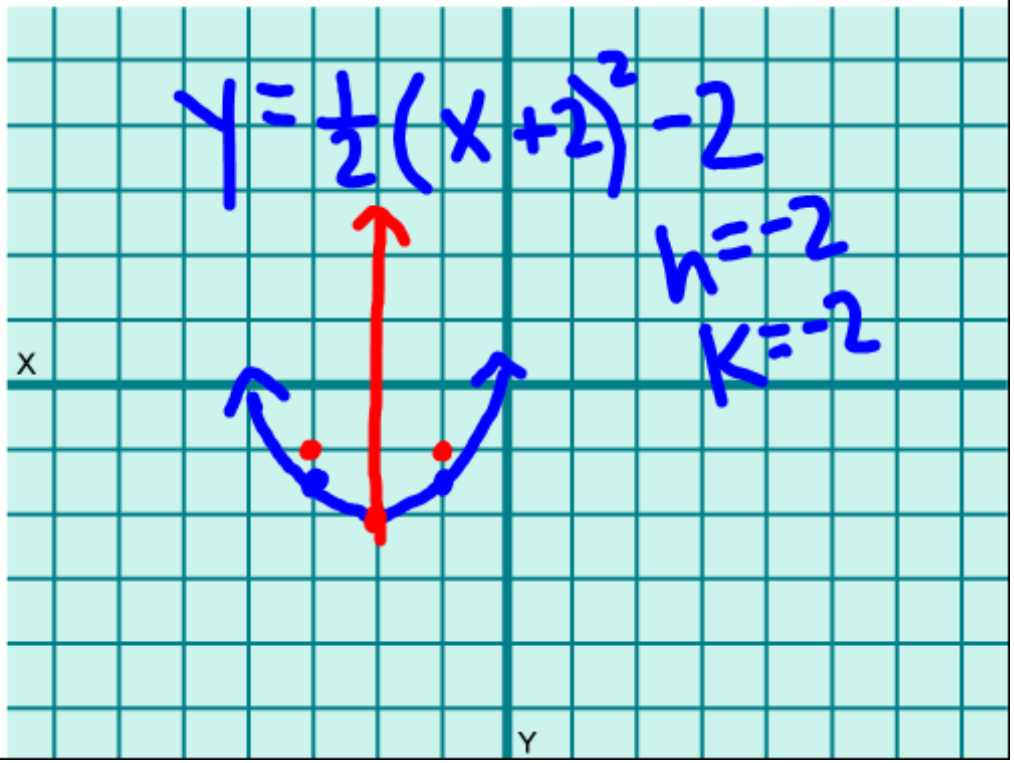

$y = 5x^2$

$a = 5$

$h = 0$

$k = 0$

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




$h = -2$

$k = -2$

√ it out 4A & 4B

4A $g(x) = \frac{1}{3}(x-2)^2 - 4$

4B $g(x) = -(x+5)^2 + 1$

# 5.2 Properties of Quadratic Functions in Standard Form

CA #10. 10/13/09

Ex.1 $f(x) = 2(x+2)^2 - 3$

Vertex $(\underline{-2}, -3)$

axis of symm.

$x = -2$

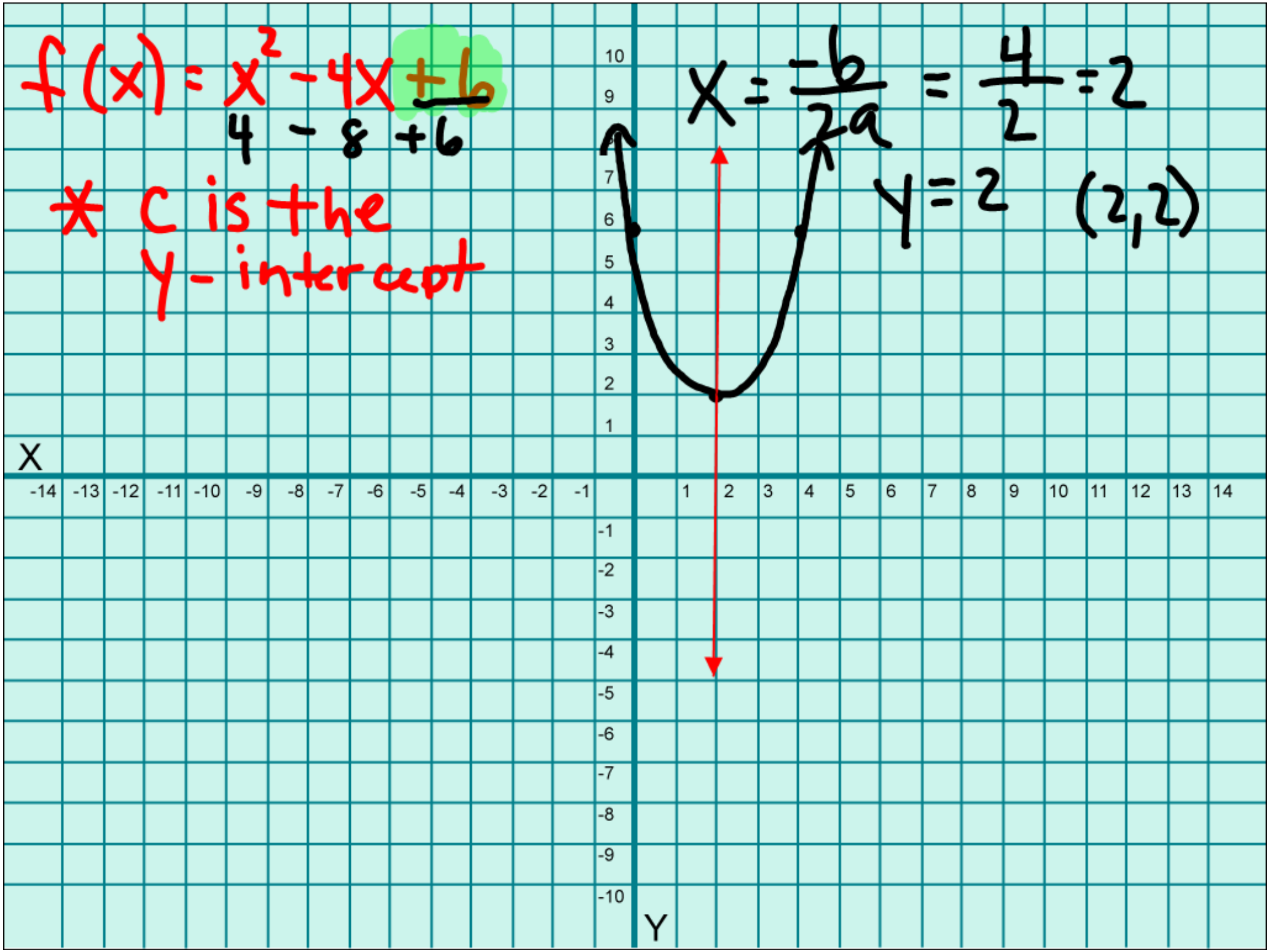
$f(x) = x^2 - 4x + 6$

$4 - 8 + 6$

* c is the y-intercept

$x = \frac{-b}{2a} = \frac{4}{2} = 2$

$y = 2$ $(2,2)$



Vit out 2a

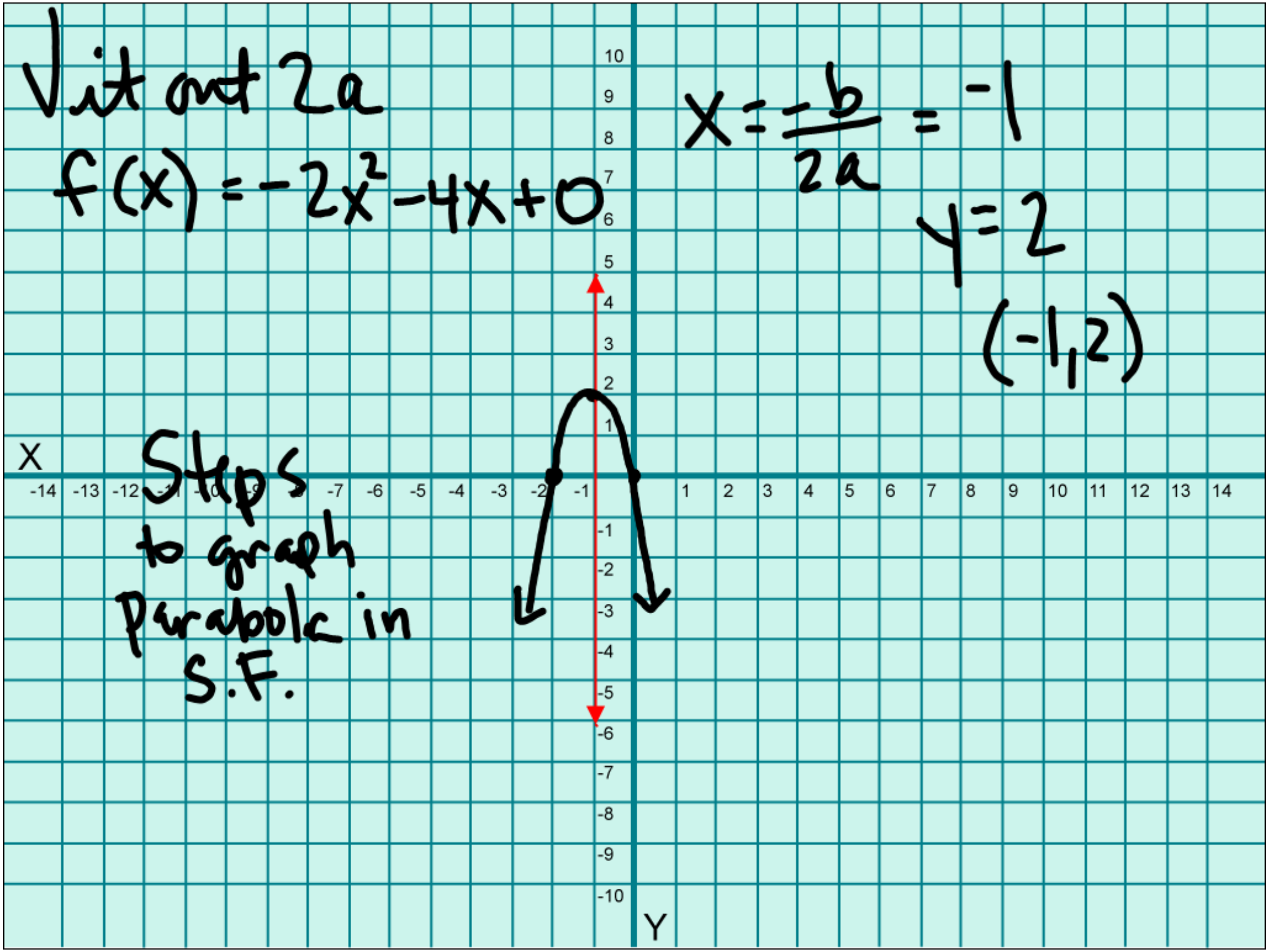
$f(x) = -2x^2 - 4x + 0$

$x = \frac{-b}{2a} = -1$

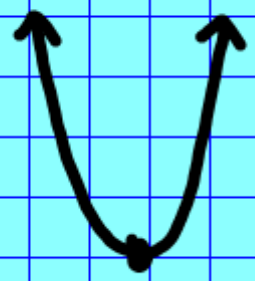
$y = 2$

$(-1, 2)$

Steps to graph Parabola in S.F.



$$f(x) = 2x^2 - 2x + 5$$



$$x = \frac{-b}{2a} = \frac{2}{4} = \frac{1}{2}$$

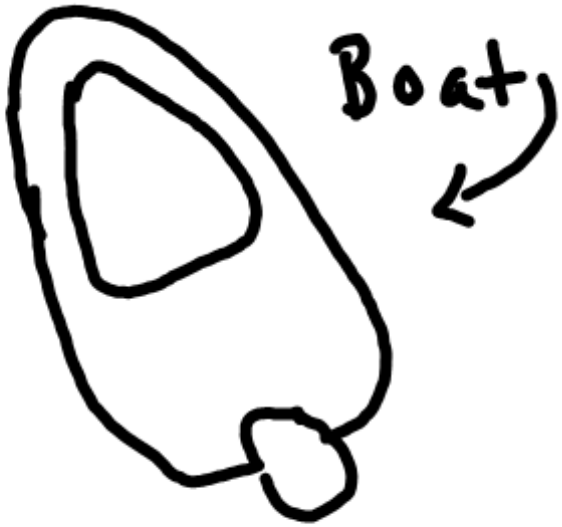
minimum

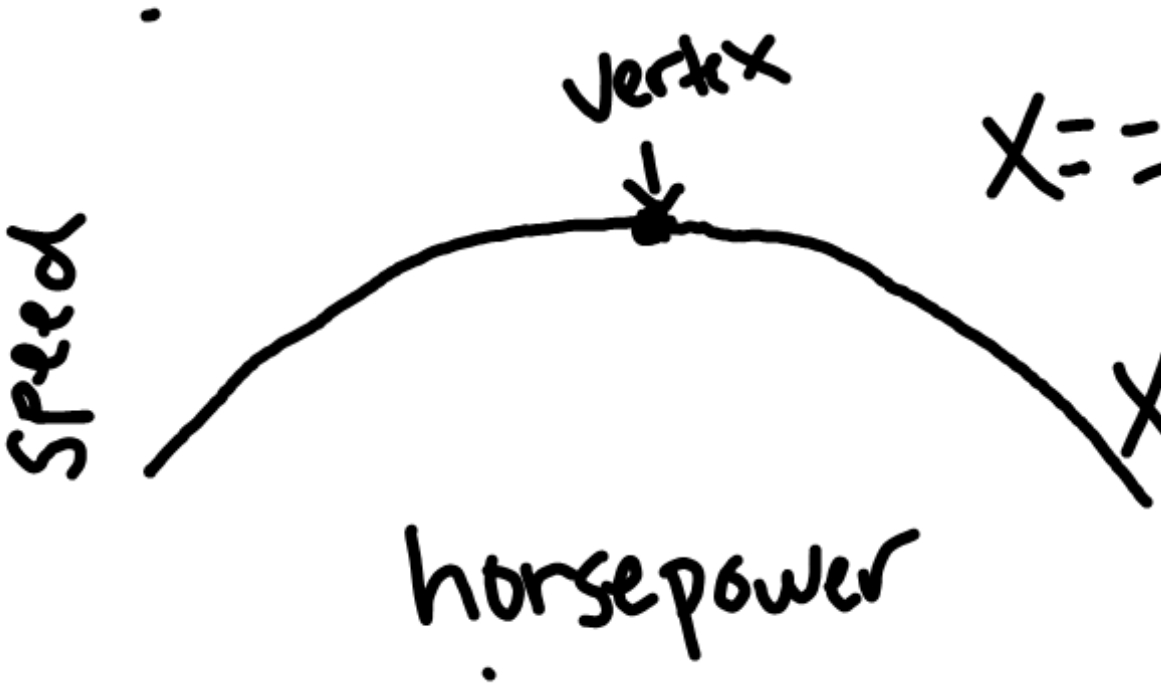
$$2\left(\frac{1}{2}\right)^2 - 2\left(\frac{1}{2}\right) + 5$$

$$\frac{2}{1} \cdot \frac{1}{4} - \frac{2}{1} \cdot \frac{1}{2} + \frac{5}{1}$$

$$\frac{1}{2} - 1 + 5 = 4\frac{1}{2}$$

# Ex.4




$$x = \frac{-b}{2a}$$

$$y = 300$$

$$x = \frac{-.18}{2(-.0000147)}$$

$$x \approx 6127$$