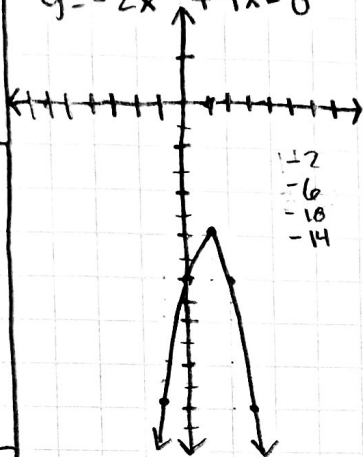


# 3.3 STANDARD FORM

Standard Form:  
 $y = a^2 + bx + c$

ex:  
 $y = -2x^2 + 4x - 8$



Axis of Symmetry:  $x = -\frac{b}{2a}$

Vertex:  $(-\frac{b}{2a}, \text{plug it in})$

\*Axis of symmetry,

Rate of change:  $a \cdot \text{odd \#s}$

-fx:  $\begin{matrix} 1(-2) = -2 \\ 3(-2) = -6 \\ 5(-2) = -10 \\ 7(-2) = -14 \end{matrix}$

Which feature is easiest to pick out from standard form?  
**Y INTERCEPT!**  
 $C = y$  intercept

ex: List all key features:

vertex:  $(-1.5, -11.25)$   $y = x^2 + 3x - 9$

AoS:  $x = -1.5$ , plug it in  $-\frac{b}{2a}$

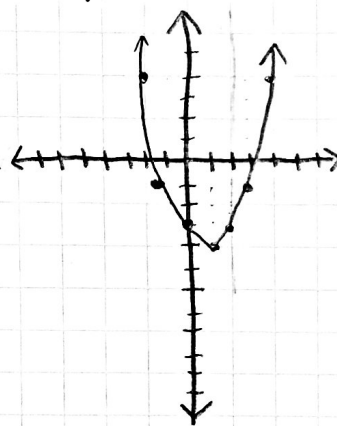
Do 0:  $\uparrow$  if  $a$  is positive  $\rightarrow$  To find x

Min/Max: Min =  $-11.25$  int, plug in

y int:  $-9 - c$  0 for y?

x int:  $x = \frac{-3 \pm \sqrt{3^2 - 4(1)(-9)}}{2(1)}$  do the quadratic formula.

ex:  $y = 1x^2 - 2x - 3$



Axis of Symmetry:

$\frac{2}{2(1)} = 1$

vertex:  $(1, -4)$

ROC:  $a = 1$

1  
3  
5  
7  
9