

8.2 Notes - Vertex $\frac{1}{2}$ A.O.S.
 (x, y) $x = ?$ \updownarrow

Axis (Line) of Symmetry

① Find a, b, c

② $x = \frac{-b}{2a}$

ex) $x^2 + 6x - 2$

$a=1$ $b=6$ $c=-2$

$x = \frac{-6}{2(1)} = \frac{-6}{2} = -3$ $x = -3$

ex) $3x^2 - 4x + 5$

$a=3$ $b=-4$ $c=5$

$x = \frac{-(-4)}{2(3)} = \frac{4}{6} = \frac{2}{3}$ $x = \frac{2}{3}$

Vertex - highest or lowest point on a parabola



③ use "x" from line of symmetry and substitute to find "y"

ex 1) $y = x^2 + 6x - 2$

A.O.S. $x = -3$

Vertex: $(-3)^2 + 6(-3) - 2 = -11$


$(-3, -11)$

⊙ ex $y = 2x^2 + 8x - 7$

$a=2$ $b=8$ $c=-7$

L.o.s. $x = \frac{-8}{2(2)} = \frac{-8}{4} = -2$ $x = -2$

Vertex: $y = 2(-2)^2 + 8(-2) - 7$
 $y = -15$ $(-2, -15)$

★ If "a" is +, parabola "opens up"
vertex is a minimum (low point) 

If "a" is -, parabola "opens down"
vertex is a maximum (high point) 