Algebra 1 MONDAY 5-6-13 CLASS NOTES

QUADRATIC FUNCTION

$f(x) = \boxed{ax^2 + bx + c = y}$ $y = f(x)$

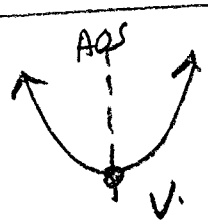

"smiley" parabola $a \Rightarrow$ positive


"frowny" parabola $a \Rightarrow$ negative

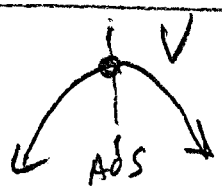
(EX) $y = 2x^2 + 3x - 5$ smiley

$y = -x^2 + 3x + 6$ frowny

VERTEX



MINIMUM



MAXIMUM

LINES $\Rightarrow$ horizontal $y =$ CONSTANT

$\Rightarrow$ VERTICAL $x =$ CONSTANT

$\Rightarrow$ Axis of Symmetry (AOS) $x = \frac{-b}{2a}$

QF $y = ax^2 + bx + c$ parabola

↓

QE $0 = ax^2 + bx + c$

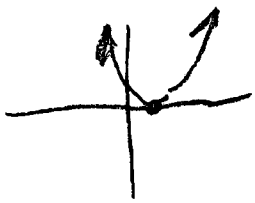
- solve by factoring, if factorable
- solve any by QUAD FORMULA $\Rightarrow x = \frac{-b \pm \sqrt{d}}{2a}$
- these "x" are the x intercepts of the parabola $(x_1, 0), (x_2, 0)$ ($y=0$ for both)

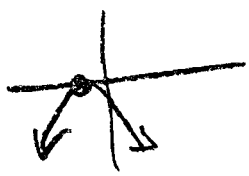
⇒ NO SOLUTION

if there is *NO SOLUTION, that means the parabola does not cross the x axis.

* d is negative (discriminant)

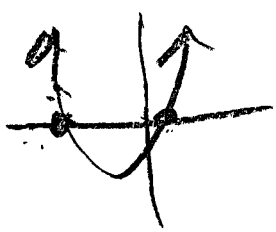
ONE SOLUTION





$d = 0$

"NORMAL" parabola (2 x intercepts)



$d =$ positive

(63) $y = 2x^2 - 8x + 5$

$x = \frac{-b}{2a} = \frac{8}{4} = 2$ AOS $\Rightarrow$ $x = 2$

	X	Y
V	2	−3
	0	5
	1	−1