Pre-AP Algebra II
3.2 Notes – Graphing Quadratic Inequalities

Name _____
Date _____ Period _____

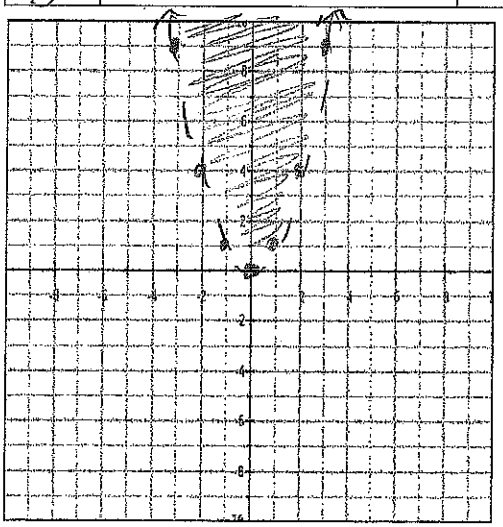
1. $y > x^2$

$a = 1$
$b = 0$
$c = 0$

$\frac{-0}{2(1)}$

$\frac{0}{2} = 0$

x		y
-3		9
-2		4
-1		1
0	0^2	0
1	1^2	1
2	2^2	4
3	3^2	9



a. y-intercept (0,0)

b. x-intercept(s) (0,0)

c. vertex (0,0)

e. Choose a point that **is** a solution to the inequality and prove algebraically that it is. (0, 6) (x, y)

$6 > (0)^2$

$6 > 0$ ✓

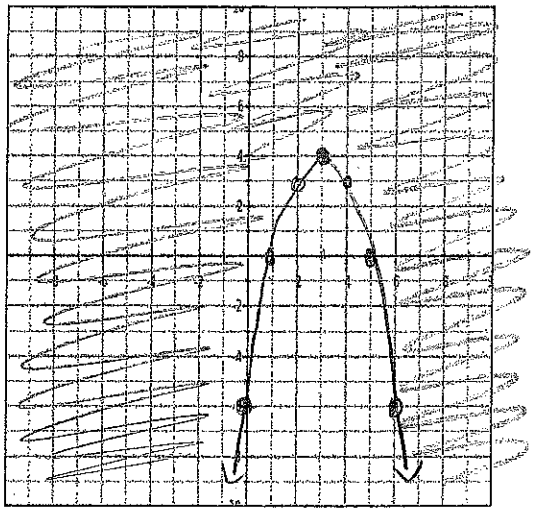
f. Choose a point that **is not** a solution to the inequality and prove algebraically that it is not. (4, 0) (x, y)

$0 > (4)^2$

$0 > 16$ NO

2. $y \geq -x^2 + 6x - 5$

x		y
0		-5
1		0
2		3
3	$-9 + 18 - 5$	4
4	$-16 + 24 - 5$	3
5	$-25 + 30 - 5$	0
6	$-36 + 36 - 5$	-5



$a = -1$
$b = 6$
$c = -5$

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

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

$x = 3$

a. y-intercept (0, -5)

b. x-intercept(s) (1, 0) (5, 0)

c. vertex (3, 4)

e. Choose a point that **is** a solution to the inequality and prove algebraically that it is. (0, 0) (x, y)

$0 \geq -(0)^2 + 6(0) - 5$

$0 \geq -5$ ✓

f. Choose a point that **is not** a solution to the inequality and prove algebraically that it is not. (3, 0)

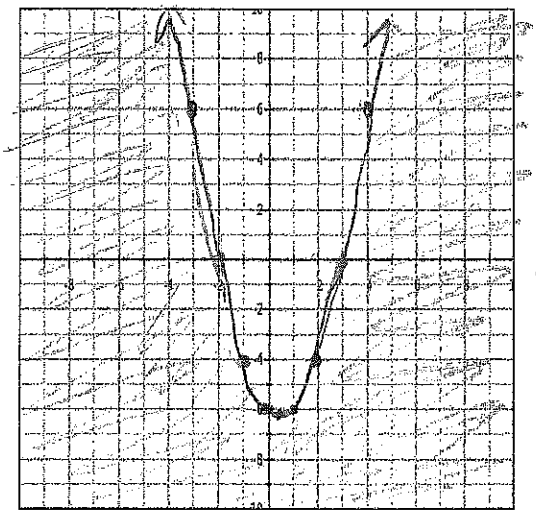
$0 \geq -(3)^2 + 6(3) - 5$

$0 \geq -9 + 18 - 5$

$0 \geq 4$ NO

3. $y \leq x^2 - x - 6$

x		y
-2		0
-1		-4
0		-6
.5	$(\frac{1}{2})^2 - \frac{1}{2} - 6$	-6.25
1	$1^2 - 1 - 6$	-6
2	$4 - 2 - 6$	-4
3	$9 - 3 - 6$	0



$a = 1$
$b = -1$
$c = -6$
$x = \frac{1}{2(1)}$
$x = \frac{1}{2}$

a. y-intercept $(0, -6)$

b. x-intercept(s) $(-2, 0)$ $(3, 0)$

c. vertex $(.5, -6.25)$

e. Choose a point that **is** a solution to the inequality and prove algebraically that it is. $(7, 0)$ (x, y)

$0 \leq 49 - 7 - 6$

$0 \leq 36$ ✓

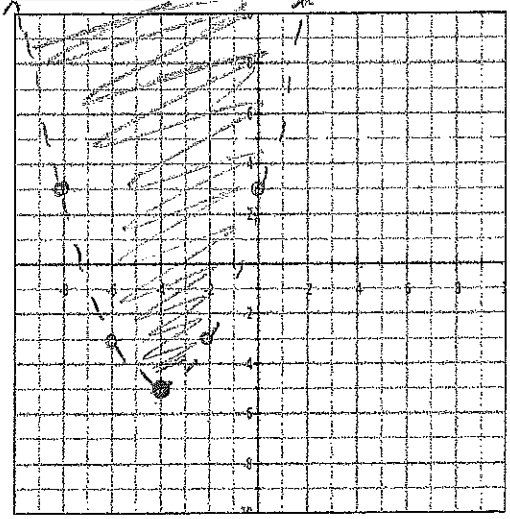
f. Choose a point that **is not** a solution to the inequality and prove algebraically that it is not. $(0, 0)$

$0 \leq 0 - 0 - 6$

$0 \leq -6$ NO

4. $y \geq \frac{1}{2}x^2 + 4x + 3$

x		y
-10		13
-8		3
-6		3
-4	$8 + -16 + 3$	-5
-2	$2 - 8 + 3$	-3
0	$0 + 0 + 3$	3
2	$2 + 8 + 3$	13



$a = \frac{1}{2}$
$b = 4$
$c = 3$
$x = \frac{-4}{2(\frac{1}{2})}$
$x = \frac{-4}{1}$

a. y-intercept $(0, 3)$

b. x-intercept(s) between -8 & -7 and -1 & 0

c. vertex $(-4, -5)$

e. Choose a point that **is** a solution to the inequality and prove algebraically that it is. $(-4, 0)$ (x, y)

$0 > \frac{1}{2}(16) + 16 + 3$

$0 > -5$ ✓

f. Choose a point that **is not** a solution to the inequality and prove algebraically that it is not. $(4, 0)$

$0 \geq \frac{1}{2}(16) + 16 + 3$

$0 > 27$ NO