#1 Algebra II Classwork Quadratic Inequalities

Name vertex form 1/ /15

1A. $y \geq (x+1)^2 - 4$

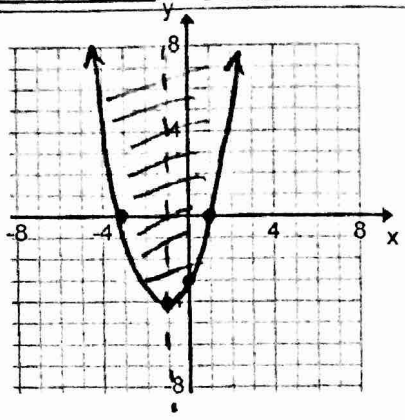
Vertex: (-1,-4)

Axis/symm: x=-1

y-intercept: y=-3

roots: -3, 1

zeros



standard

2A. $y > -2x^2 - 12x - 10$

Vertex: (-3,8)

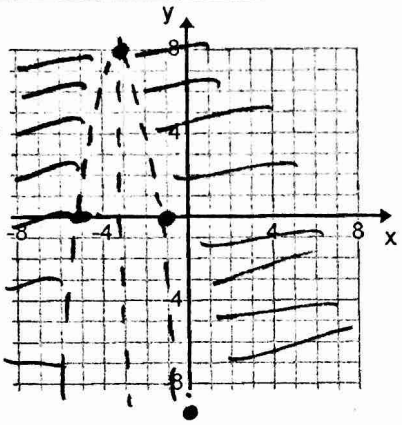
Axis/symm: x=-3

y-intercept: -10

roots: -1, -5

$\frac{12}{2(-2)}$ $\frac{12}{-4} = -3$

$-2(-3) - 12(-3) - 10 = 8$

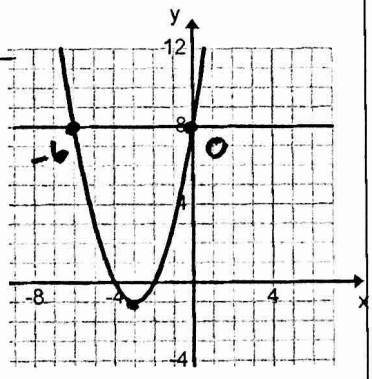


3A. Vertex: -3, -1

Axis of symm: x=-3

y-intercept: 8

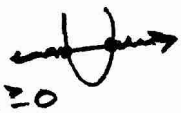
roots: -4, -2



A) $f(x) \leq 8$

Solution: $-6 \leq x \leq 0$

B) $f(x) \geq 8$



Solution: $x \leq -6$ or $x \geq 0$

B

#1 Algebra II Classwork Quadratic Inequalities

Name 1/ /15

B. $y > -(x-3)^2 + 4$

Vertex: (3,4)

Axis of symm: x=3

y-intercept: -5

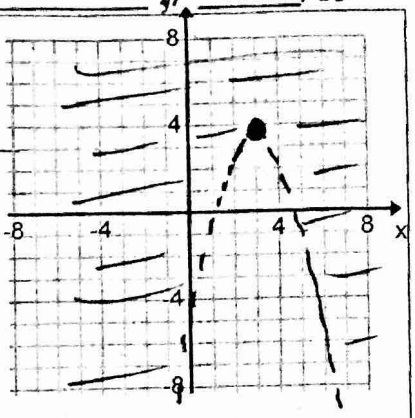
roots: 5, 1

$0 > -(0-3)^2 + 4$

$-(9) + 4$

$-9+4 = -5$

$0 > -5$



2B. $y \geq x^2 - 2x - 3$

Vertex: (1,-4)

Axis/symm: x=1

y-intercept: -3

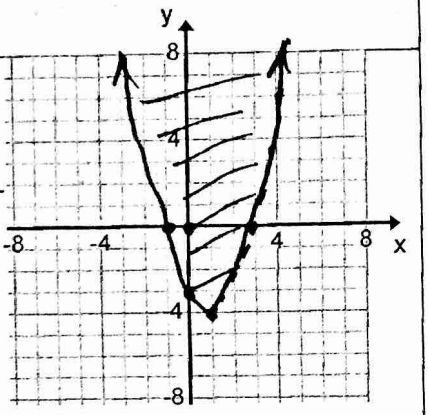
roots: -1, 3

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

$(1)^2 - 2(1) - 3$ ✓

$1 - 2 - 3$

-4



$0 \geq (0)^2 - 2(0) - 3$

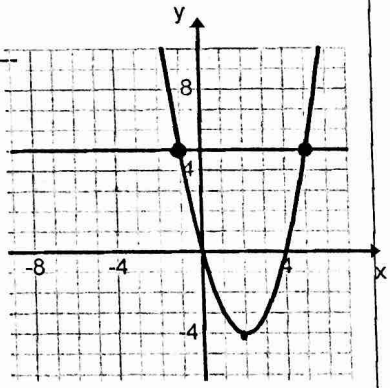
$0 \geq -3$

3B. Vertex: (2,-4)

Axis of symm: x=2

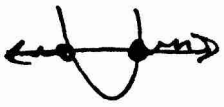
y-intercept: 0

roots: 0, 4



A) $f(x) \geq 5$

Solution: $x \leq -1$ or $x \geq 5$



B) $f(x) \leq 5$

Solution: $-1 \leq x \leq 5$

4B. Vertex: $-3, 1$

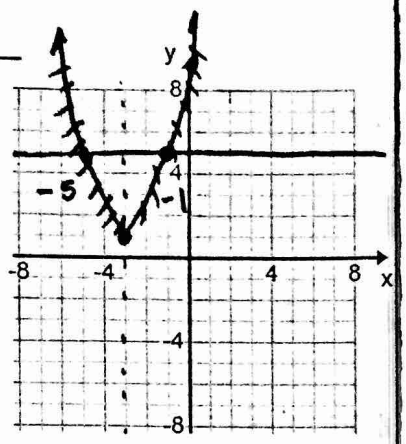
Axis of symm: $x = -3$

y-intercept: 10

roots: none

$y_1 =$ $x^2+6x+10$

$y_2 =$ 5



A) $x^2+6x+10<5$

Solution: $-5<x<-1$

$\frac{-6}{2(1)} = \frac{-6}{2} = -3 \rightarrow (-3)^2+6(-3)+10$

$9-18+10=1$

B) $x^2+6x+10>5$

Solution: $x<-5$ or $x>-1$

4A. Vertex: $(-2, -2)$

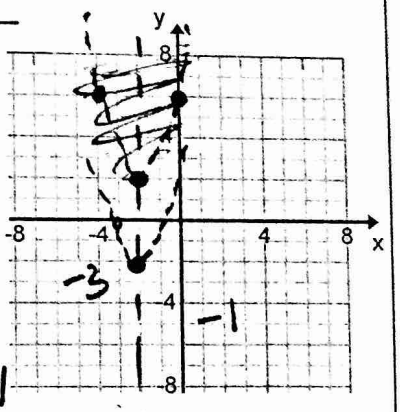
Axis of symm: $x = -2$

y-intercept: 0

roots: (0 or -4)

$y_1 =$ $2x^2+8x$

$y_2 =$ -6



A) $2x^2+8x>-6$

Solution: $x<-3$ or $x>-1$

$2x^2+8x+6=0$

$\frac{-8}{2(2)} = \frac{-8}{4} = -2$

$2(-2)^2+8(-2)+6$

$8-16$

$-8+6=-2$

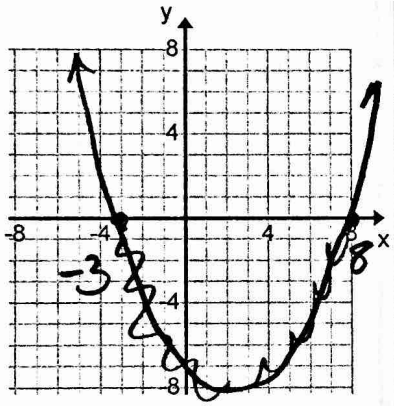
B) $2x^2+8x<-6$

Solution: $-3<x<-1$

5B.

A) $x^2-5x-24\leq 0$

Solution: $-3\leq x\leq 8$



5A.

A) $x^2+7x+6<6$

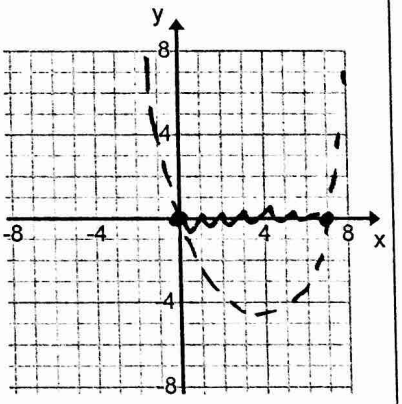
$-6\ \ -6$

Solution: $0<x<7$

$x^2+7x<0$

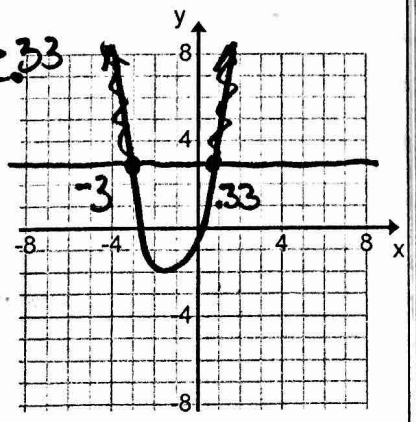
$x(x+7)<0$

$x=0 \quad x=-7$



6B. A) $3x^2+8x\geq 3$

Solution: $x\leq -3$ or $x\geq .33$



6A. A) $x^2-14\geq 4$

$-4\ \ -4$

Solution: $x\leq -4.25$ or $x\geq 4.25$

$x^2-18\geq 0$