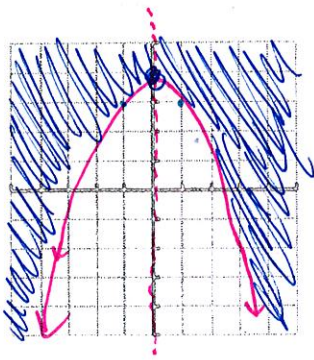


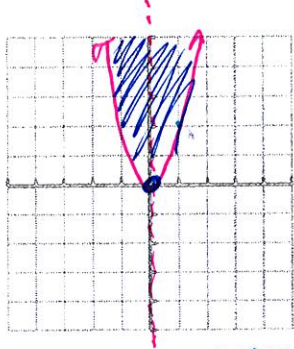
Graph each quadratic inequality.

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

$x = -\frac{b}{2a}$
 $x = \frac{-0}{2 \cdot -1} = 0$
 vertex
 $(0, 4)$
 y-int
 $(0, 4)$

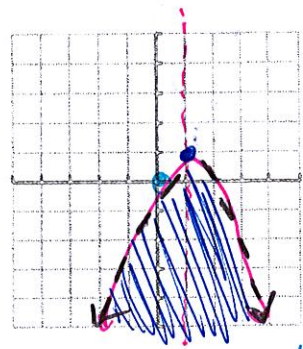


2. $y \geq 2x^2$



$x = -\frac{b}{2a} = \frac{0}{2 \cdot 2} = 0$
 vertex $(0, 0)$
 y-int $(0, 0)$

3. $y < -x^2 + 2x$



$x = \frac{-2}{2 \cdot -1} = 1$
 vertex $(1, 1)$
 y-int $(0, 0)$

Graph each quadratic inequality algebraically (using a number line). State the solution set in interval notation.

4. $3x^2 + 2x - 1 \geq 0$

$(3x-1)(x+1) = 0$

5. $0 \geq 2x^2 + x - 3$

$(2x+3)(x-1) = 0$

6. $0 \leq -x^2 + 2x + 8$

$0 \geq x^2$

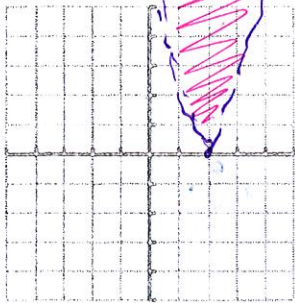
7. $x^2 < 3x + 10$

8. $2x^2 + 5x \leq 12$

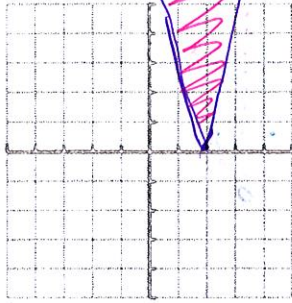
9. $x^2 + 3x > 18$

Graph each quadratic inequality.

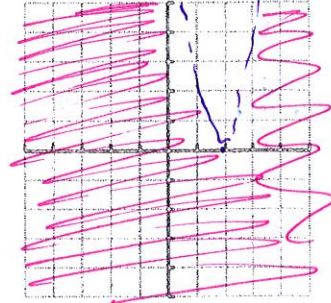
1. $y > 2(x-2)^2$



2. $y \geq 2(x-2)(x-2)$



3. $y < 2x^2 - 8x + 8$



4. What do graphs #1-3 have in common? all the same except for inequality sign
- one quadratic written in the 3 different forms
 Solve each quadratic inequality algebraically (using a number line). State the solution set in interval notation.

5. $x^2 + 2x - 3 \geq 0$

6. $9x^2 - 2 \leq -3x$

7. $2x^2 - 8x > -6$

8. $\frac{1}{2}x^2 + 3x \leq -6$

9. $-2x^2 - 50 \geq -20x$

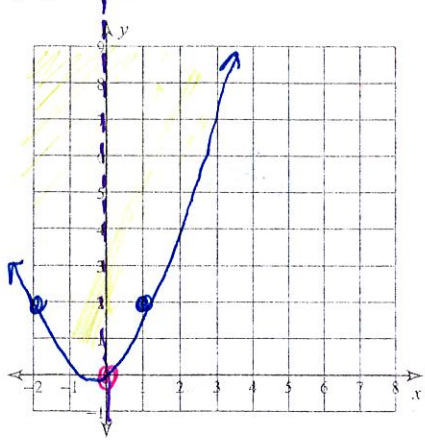
10. $7x^2 - 8x > 0$

Quadratic Inequalities

Sketch the graph of each function.

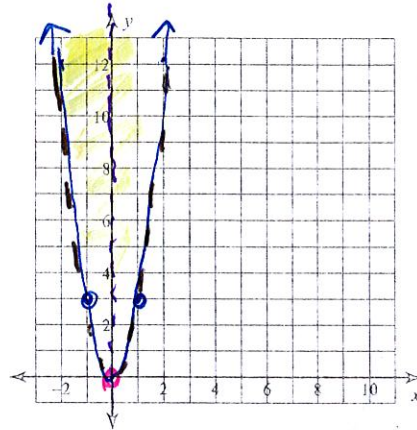
1) $y \geq 2x^2$

axis:
 $x=0$
vertex
 $(0,0)$
 $(1,2)$



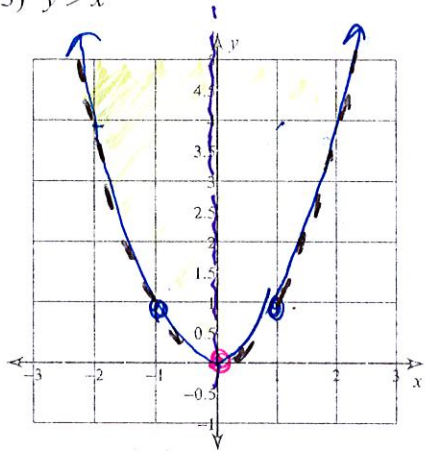
2) $y > 3x^2$

axis:
 $x=0$
vertex
 $(0,0)$
 $(1,3)$



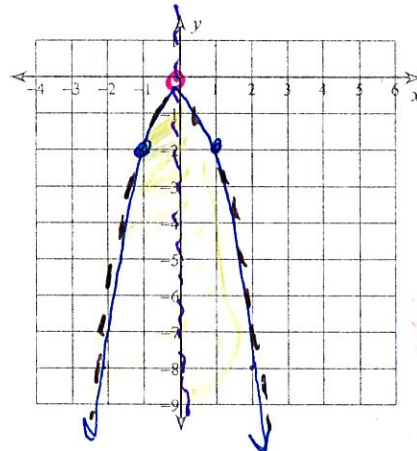
3) $y > x^2$

axis:
 $y=0$
vertex
 $(0,0)$
 $(1,1)$



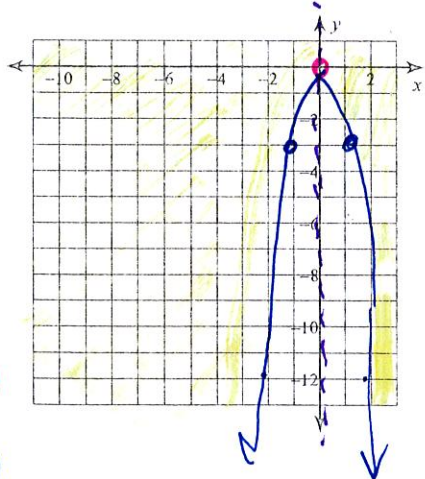
4) $y < -2x^2$

axis:
 $x=0$
vertex
 $(0,0)$
 $(1,-2)$



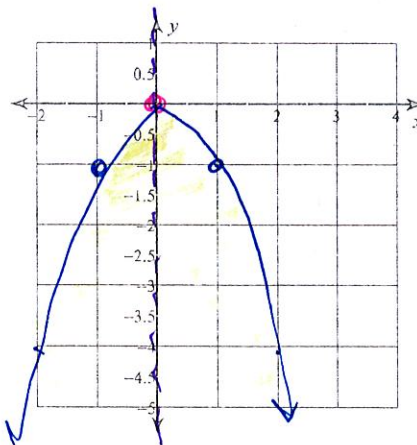
5) $y \geq -3x^2$

axis:
 $x=0$
vertex
 $(0,0)$
 $(1,-3)$

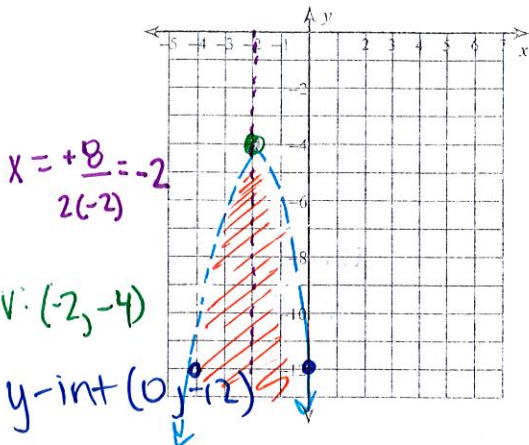


6) $y \leq -x^2$

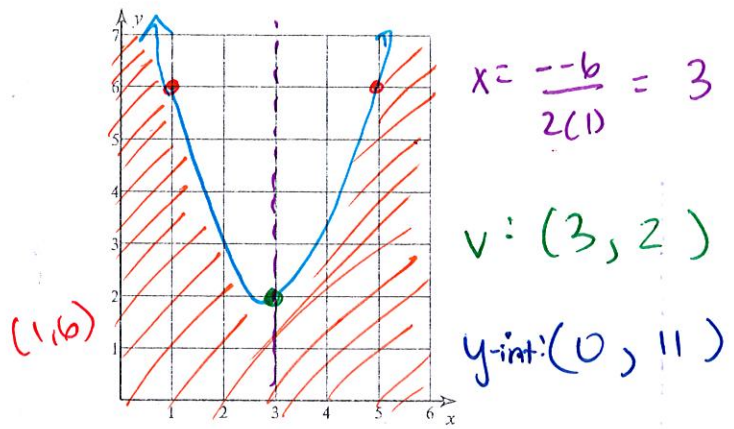
axis:
 $x=0$
vertex
 $(0,0)$
 $(1,-1)$



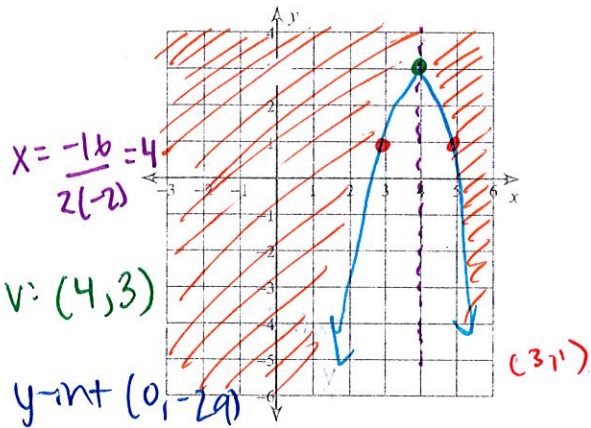
7) $y < -2x^2 - 8x - 12$



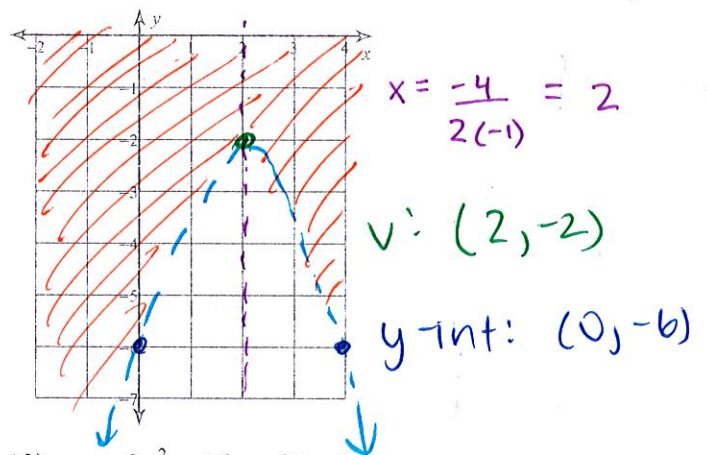
8) $y \leq x^2 - 6x + 11$



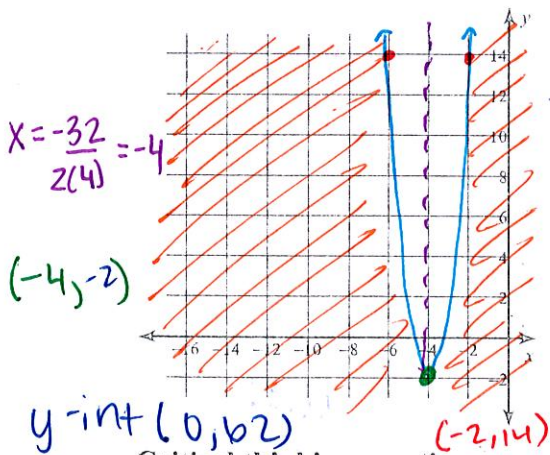
9) $y \geq -2x^2 + 16x - 29$



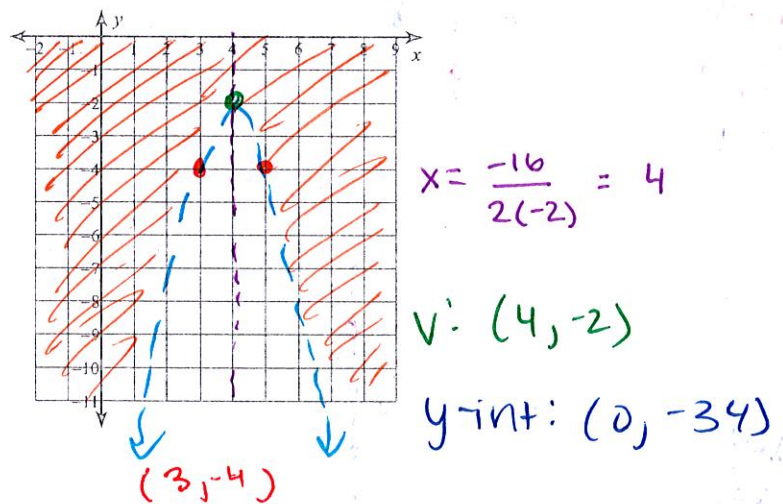
10) $y > -x^2 + 4x - 6$



11) $y \leq 4x^2 + 32x + 62$



12) $y > -2x^2 + 16x - 34$



Critical thinking questions:

13) Name one solution to:

$y > x^2 + 6x + 5$

many answers

14) Name one solution to the system:

$y \geq x^2 - 2x + 2$

$y = x + 1$

many answers