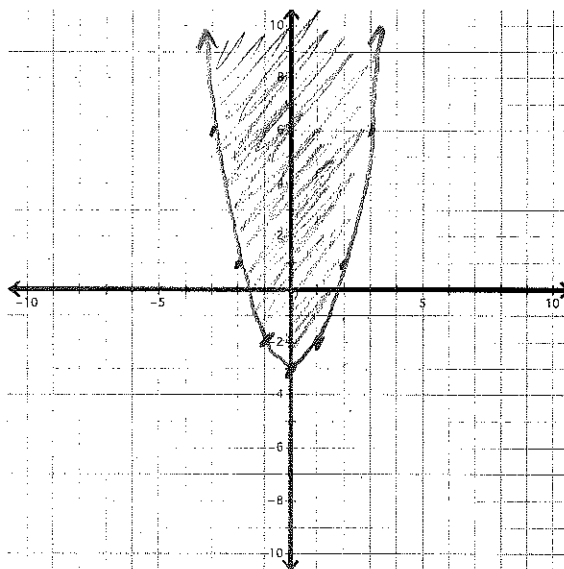


Pre-Calculus CP 1 – Section 7.5 Notes
 Graphing all types of Systems of Inequalities

Name: KEY

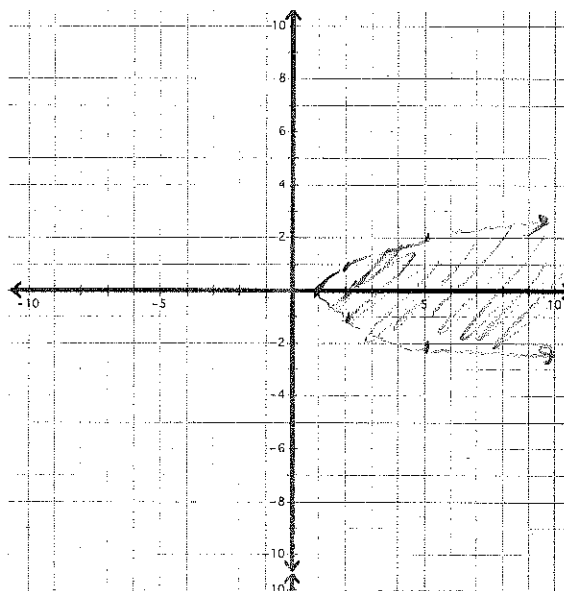
Ex 1: Sketch the graph of $y \geq x^2 - 3$
 You should know this one and be able to graph it using transformations!

base function $y = x^2$
 shift down 3
 $0 \geq 0 - 3 \Rightarrow 0 \geq -3 \checkmark$



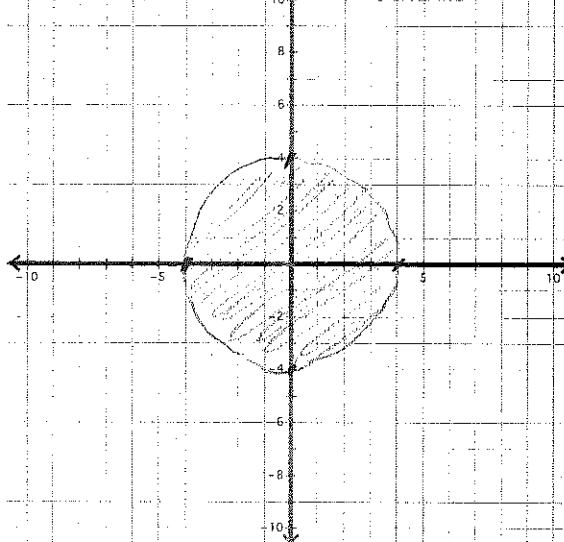
Ex. 2: Sketch the graph of $x < y^2 + 1$
 This is NOT a function – try graphing by plotting some points

$y^2 > x - 1$
 $y > \pm \sqrt{x - 1}$
 $0 > \sqrt{-1}$ X not!



Ex. 3: Sketch the graph of $x^2 + y^2 \leq 16$
 You should recognize this graph from earlier in the year....

$0 + 0 \leq 16 \checkmark$



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Now let's try doing MORE than one at once!

Ex. 4: Sketch the graph of the system- be sure to shade your final answer (feasible region) darker than the rest!

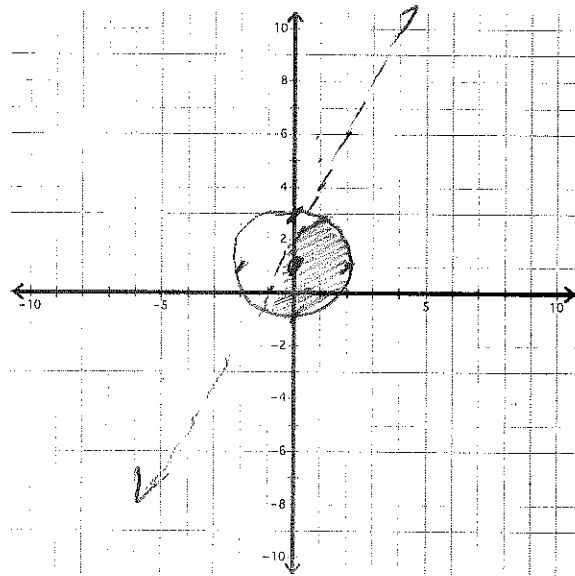
$$x^2 + (y-1)^2 \leq 4$$

$$2x - y > -2$$

$$y < 2x + 2$$

$$0 + 1 \leq 4 \checkmark$$

$$0 - 0 > -2 \checkmark$$



Ex. 5: Sketch the graph of the system- be sure to shade your final answer (feasible region) darker than the rest!

$$x^2 > y - 3$$

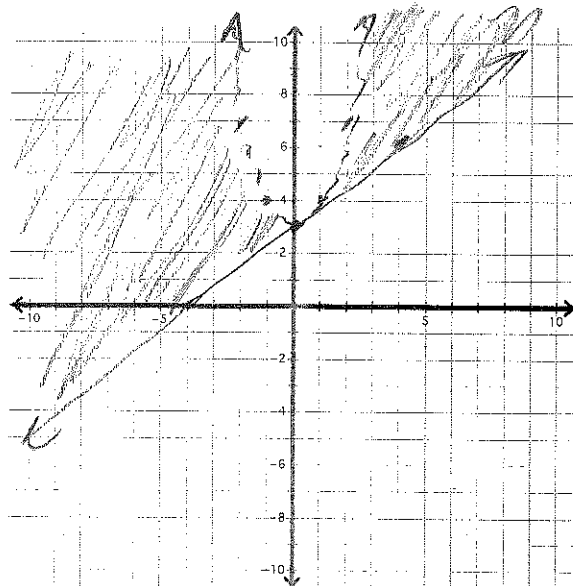
$$3x - 4y \leq -12$$

$$y > \frac{3}{4}x + 3$$

$$y < x^2 + 3$$

$$0 > 3 \text{ x No!}$$

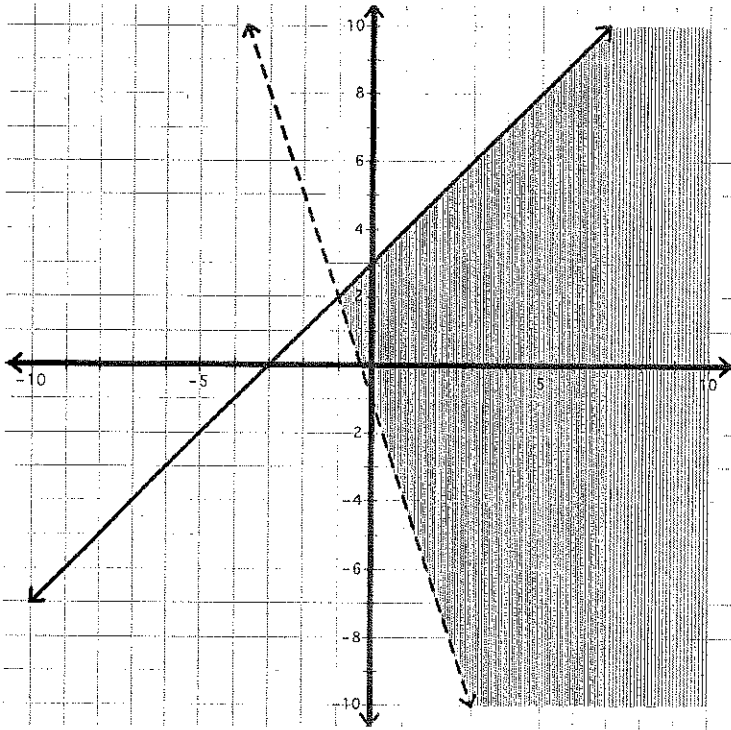
$$0 < 3 \checkmark$$



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Let's try going the other way- WRITE the system of equations based on the graph below:

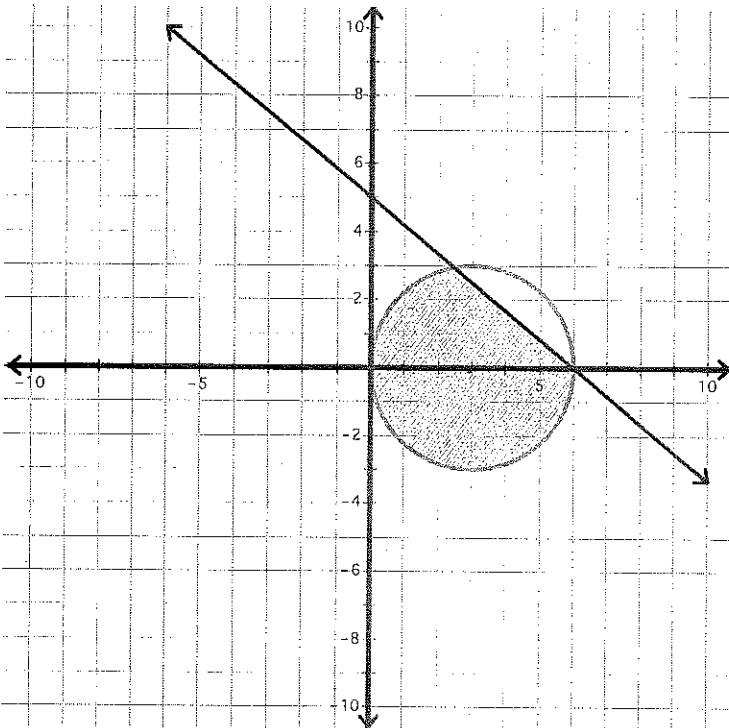
Ex. 6:



$$y \leq x + 3$$

$$y > -3x - 1$$

Ex. 7:



$$(x-3)^2 + y^2 \leq 9$$

$$y \leq -\frac{5}{6}x + 5$$

Pre-Calculus CP 1 – Section 7.5 Notes

Graphing all types of Systems of Inequalities

For the following, use the set of vertices given to graph the feasible region and derive a set of inequalities that would give you that region:

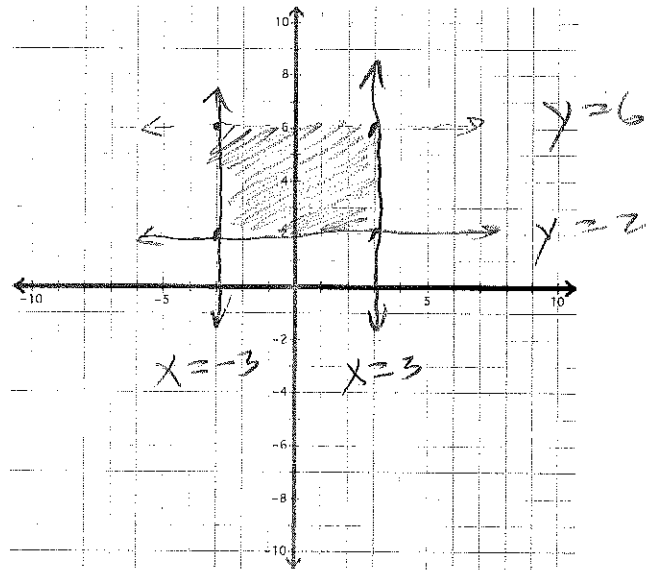
Ex. 8: A rectangle with vertices $(-3,2)$, $(-3,6)$, $(3,6)$, $(3,2)$

$$x \geq -3$$

$$x \leq 3$$

$$y \geq 2$$

$$y \leq 6$$

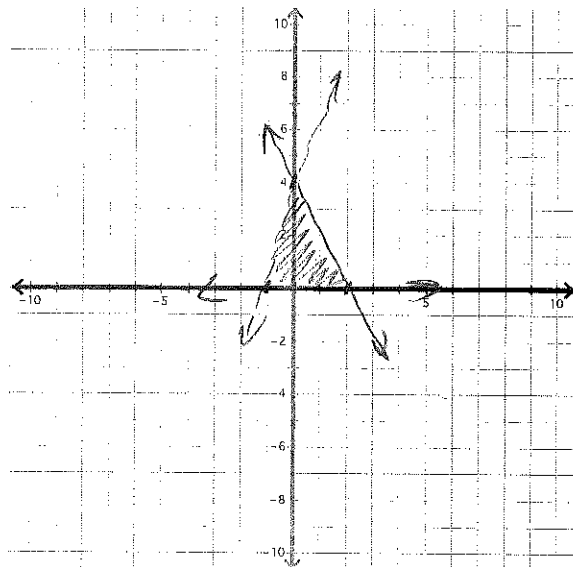


Ex. 9: A triangle with vertices $(-1,0)$, $(2,0)$, $(0,4)$

$$y \geq 0$$

$$y \leq 4x + 4$$

$$y \leq -2x + 4$$



Homework: p. 548 #2, 11, 43, 46, 57, 58, 59, 62, 63, 72