***AAT (IC/HW)-Day 1**

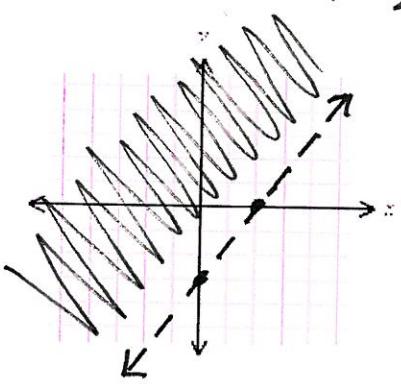
Chapter 9: 9-3 Systems of Inequalities

Name Key

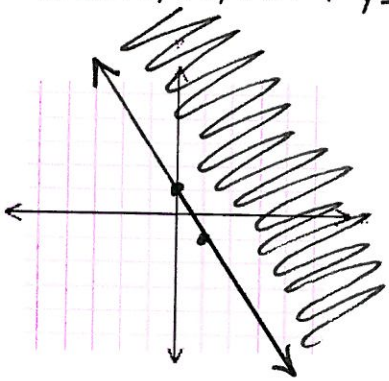
Date: _____ Period: _____

Sketch the graph of the inequality.

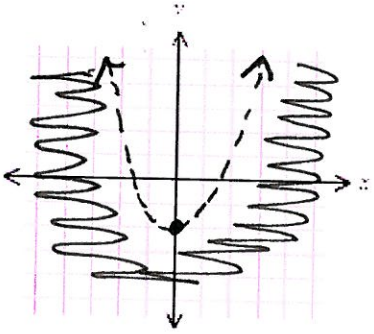
1. $3x - 2y < 6$ → $y > \frac{3}{2}x - 3$



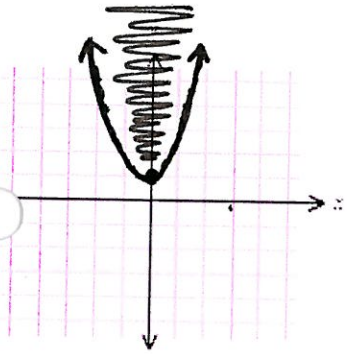
2. $2x + 3y \geq 2y + 1$ → $y \geq -2x + 1$



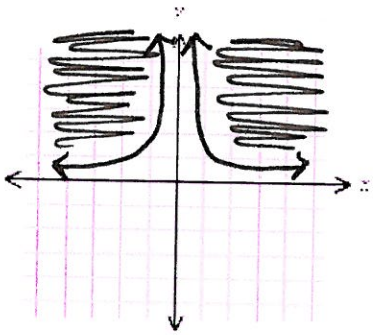
3. $y + 2 < x^2$ → $y < x^2 - 2$



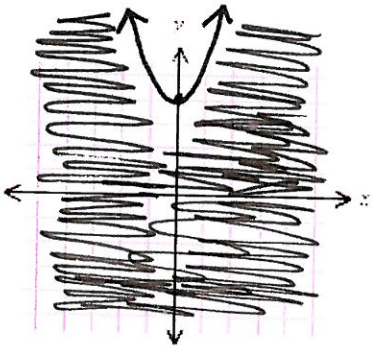
4. $x^2 + 1 \leq y$



5. $yx^2 \geq 1$ → $y \geq \frac{1}{x^2}$

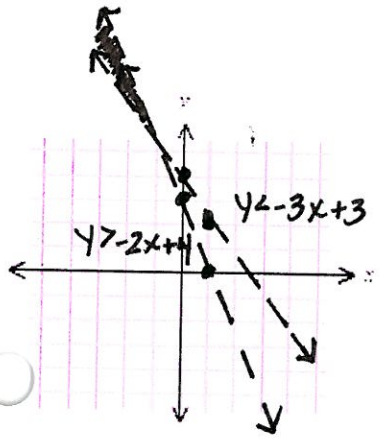


6. $x^2 + 4 \geq y$

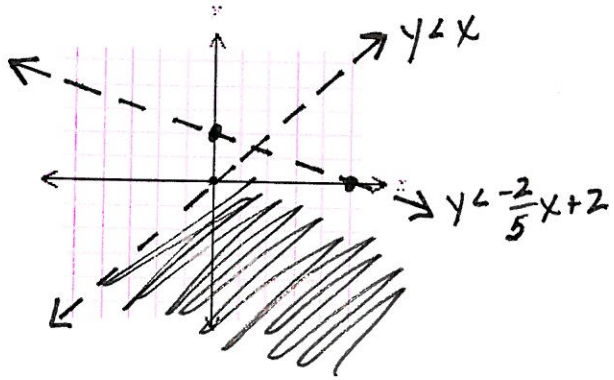


Sketch the graph of the systems of inequalities.

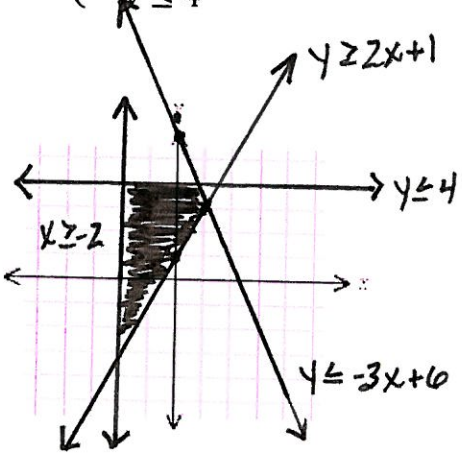
7. $\begin{cases} 3x + y < 3 \\ 4 - y < 2x \end{cases}$ → $\begin{cases} y < -3x + 3 \\ y > -2x + 4 \end{cases}$



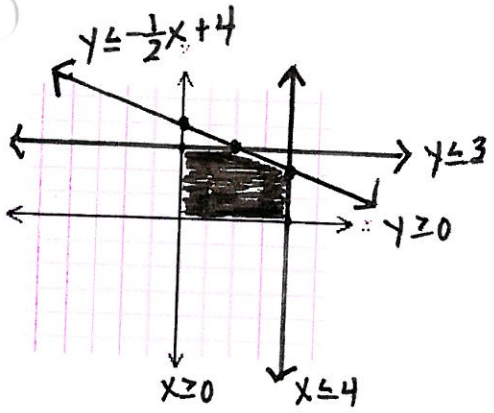
8. $\begin{cases} y - x < 0 \\ 2x + 5y < 10 \end{cases}$ → $\begin{cases} y < x \\ y < -\frac{2}{5}x + 2 \end{cases}$



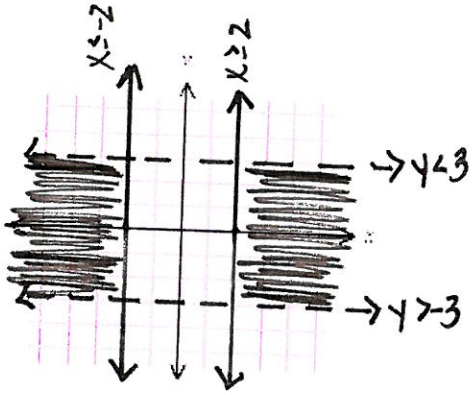
9. $\begin{cases} 3x + y \leq 6 \\ y - 2x \geq 1 \\ x \geq -2 \\ y \leq 4 \end{cases}$ → $\begin{cases} y \leq -3x + 6 \\ y \geq 2x + 1 \\ x \geq -2 \\ y \leq 4 \end{cases}$



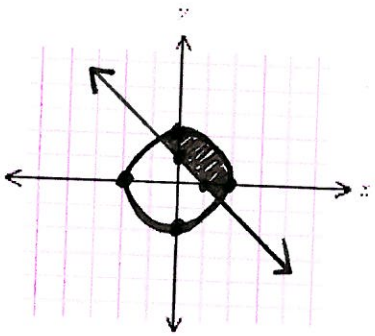
10. $\begin{cases} x + 2y \le 8 \\ 0 \le x \le 4 \\ 0 \le y \le 3 \end{cases}$ ⇝ $y \le -\frac{1}{2}x + 4$



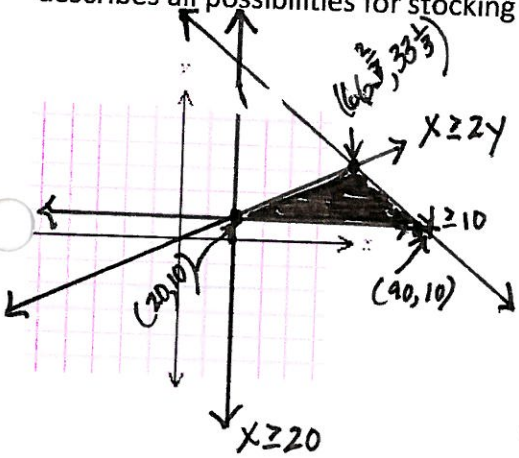
11. $\begin{cases} |x| \ge 2 \\ |y| < 3 \end{cases}$ ⇝ $x \ge 2$ or $x \le -2$ ⇝ $-3 < y < 3$



12. $\begin{cases} x^2 + y^2 \le 4 \\ x + y \ge 1 \end{cases}$ ⇝ $y \ge -x + 1$



13. A store sells two brands of television sets. Customer demand indicates that it is necessary to stock at least twice as many sets of brand A as of brand B. It is also necessary to have on hand at least 10 sets of brand B. There is room for not more than 100 sets in the store. Find and graph a system of inequalities that describes all possibilities for stocking two brands.



x = # of sets Brand A

y = # of sets Brand B

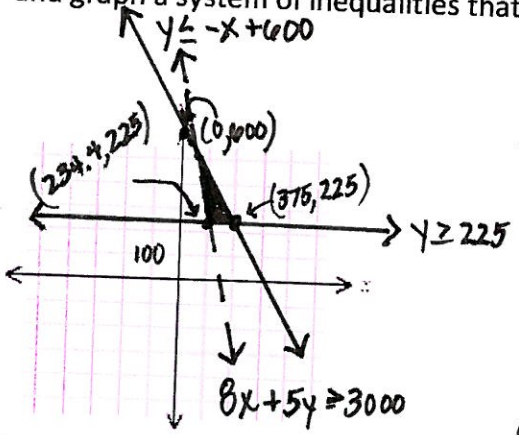
$x \ge 20$

$y \ge 10$

$x \ge 2y \rightsquigarrow \frac{x}{2} \ge y$

$x + y \le 100 \rightsquigarrow y \le -x + 100$

14. An auditorium contains 600 seats. For an upcoming event, tickets will be priced at \$8 for some seats and \$5 for others. At least 225 tickets are to be priced at \$5, and total sales of at least \$3000 are desired. Find and graph a system of inequalities that describes all possibilities for pricing the two types of tickets.



x = # 8 seats

y = # 5 seats

$x + y \le 600 \rightsquigarrow y \le -x + 600$

$y \ge 225$

$8x + 5y \ge 3000 \rightsquigarrow y \ge \frac{(3000 - 8x)}{5}$