Name: _____ Date: _____ **Unit 4 Class Work**

Systems of Inequalities Class Work

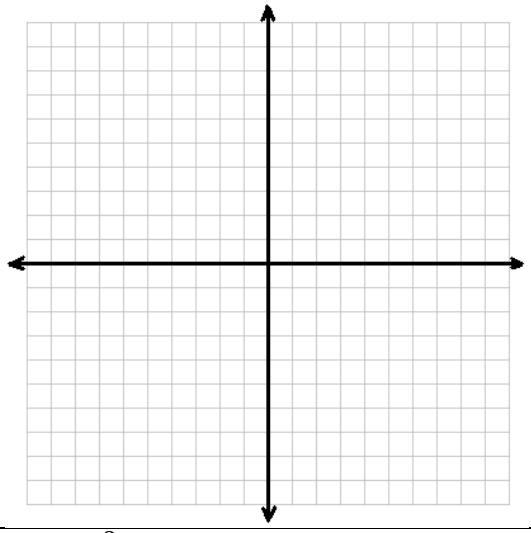
Objective: *You will be able to solve systems of inequalities graphically, and interpret the solutions in terms of the context.*

✶ Graphing Systems of Inequalities

Solve each system of inequalities.

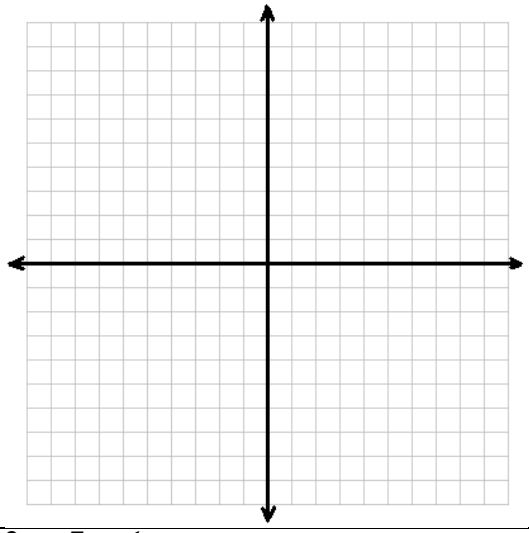
$y \le 2x + 3$

$y > 4$



$13y + 4x \le 52$

$-2y - 8 > -12x$



$x + y > 9$

$x > -2$

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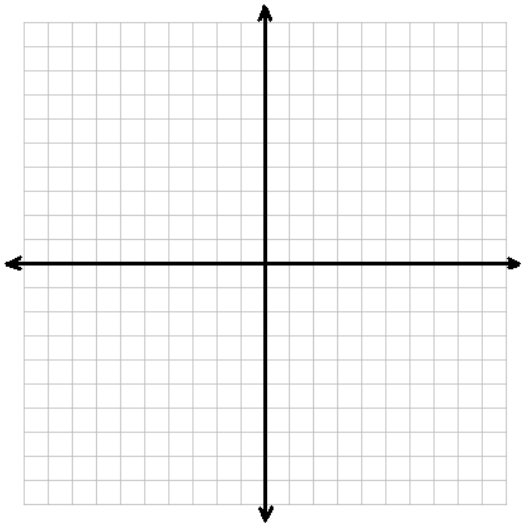
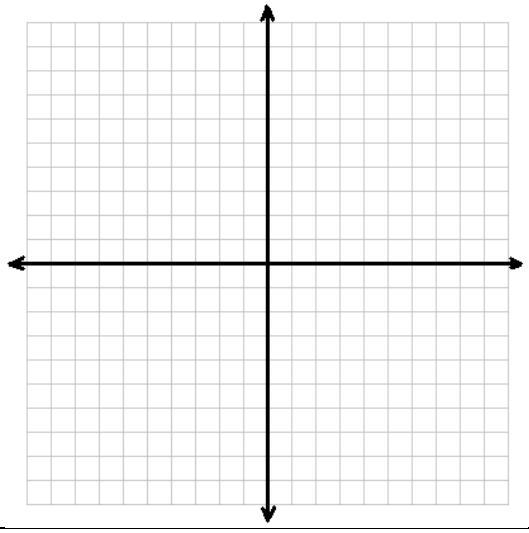


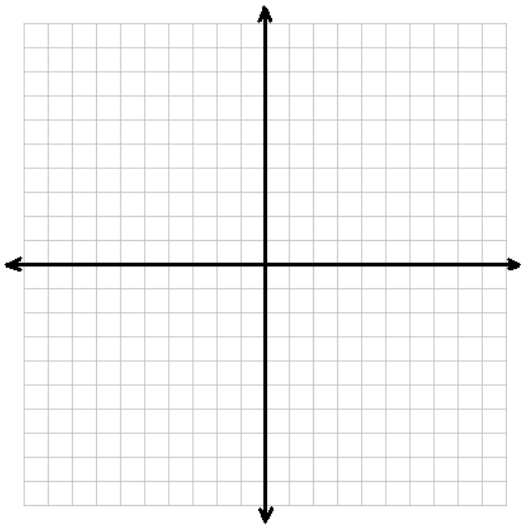
$2y \ge 7x + 1$

$4x - 1 < -2y$



$8y > 2x + 24$

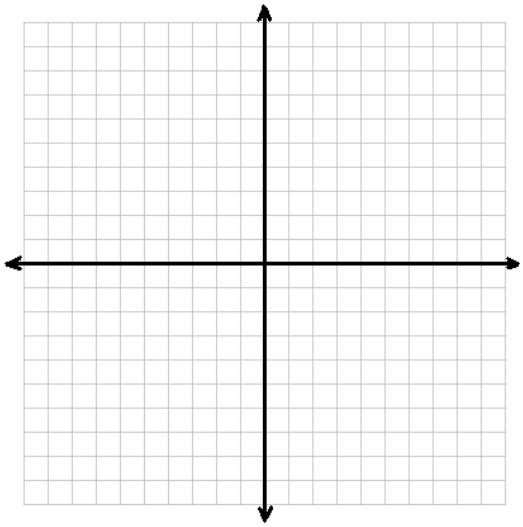
$3y - 9x > 72$



$3x + 18 < 12y - 6$

$x \geq -9$

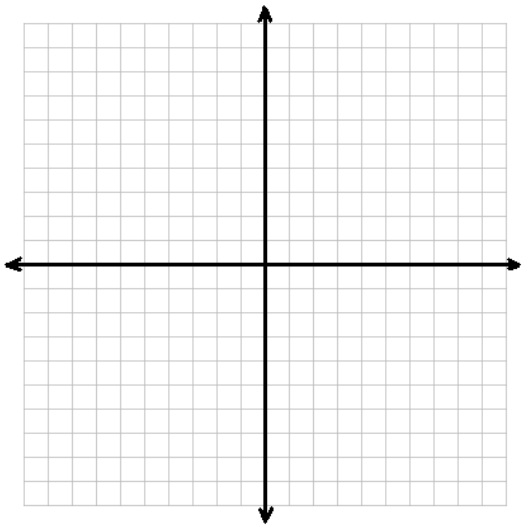
$y > -3$



$5x - 7y + 35 \leq 0$

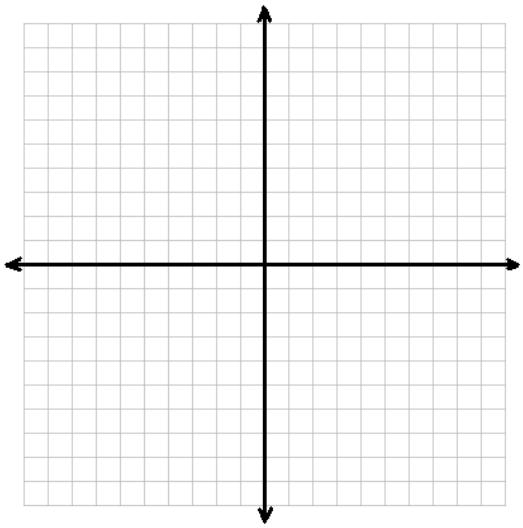
$-2x - 4y > 4$

$x < 3$



$y \leq -|x - 3| + 4$

$2x - 2y < 14$



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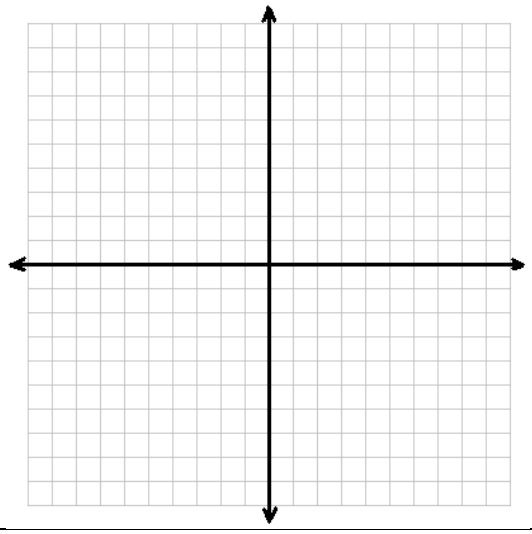
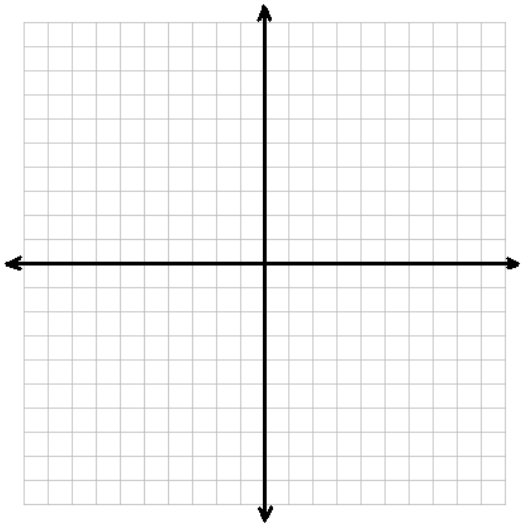
$\frac{1}{2}|x-4| < y$

$y \geq x$



$y \geq -|2x+3|-1$

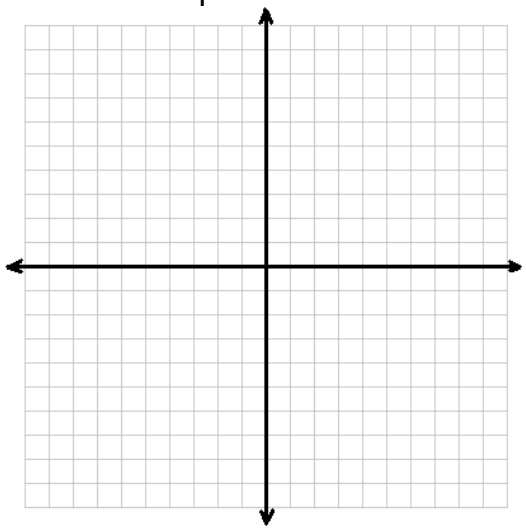
$y < |x| + 1$



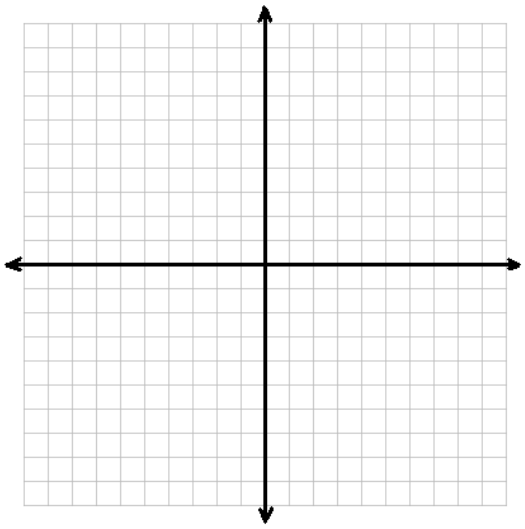
✶ Application Problems

Design a model of linear inequalities that could be used to solve each problem. Then answer each question. For some problems, you may use a graphing calculator.

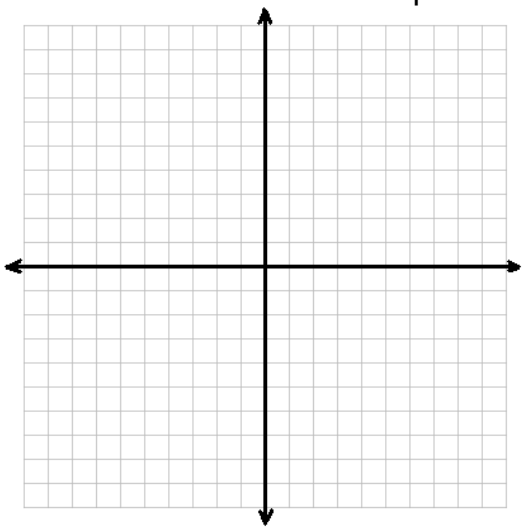
1. Joseph earns 40 cents for every online survey he completes that is under ten minutes long and 70 cents for every survey that he completes that is more than 10 minutes long. Joseph is going to complete no more than 13 surveys, and he needs to earn $6.50 more in order to obtain a gift card. Determine the possible combinations of surveys Joseph can complete.



2. Blueberries cost $2 per bag and raspberries cost $3 per bag. You have $18 to spend on fruit to be used for a fruit salad, and you do not want to purchase more than nine bags in total. Determine the possible combinations of fruit bags you can buy.



3. Karen works two jobs. She earns $9 per hour walking dogs and $12 per hour helping take care of horses at a barn. Karen would like to earn at least $216 this week, but does not want to work more than 36 hours. Determine two possibilities of the hours Karen can spend working each job.



4. An animal rescue shelter needs $1000 per month to care for a horse and $280 per month to care for a rescued dog. The animal shelter can spend no more than $7,000 this month, according to the donations they received. The shelter also only has room for 12 more animals in total. Determine the possible amount of dogs and horses the shelter can rescue this month.