

HW #35 – Solving Systems of Equations Graphically
MES21 | Fall 2016

Name: _____

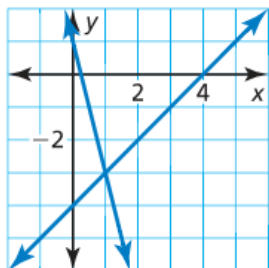
Period: ____ Row: ____ Date: _____

#1-2: Using the graph, solve the system of linear equations. Check your solution algebraically.

1)

$$x - y = 4$$

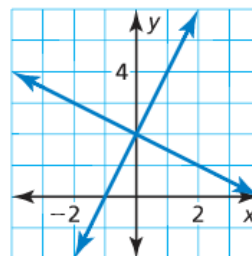
$$4x + y = 1$$



2)

$$2x - y = -2$$

$$2x + 4y = 8$$



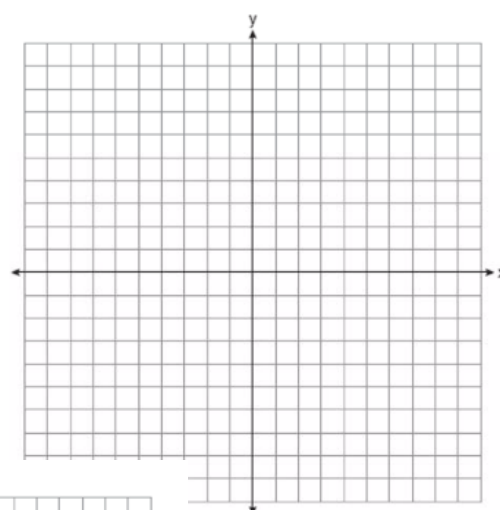
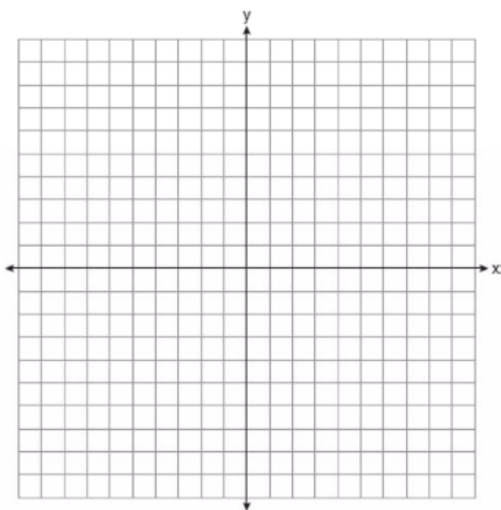
#3-4: Solve the system graphically.

$$y = -x + 4$$

3) $y = 2x - 8$

$$-3x - 4y = 12$$

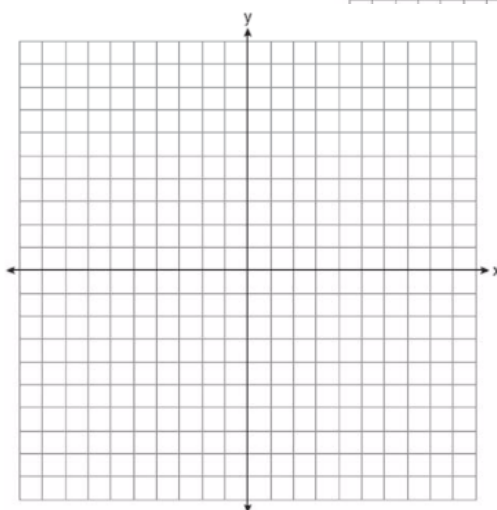
4) $y = \frac{1}{4}x + 1$



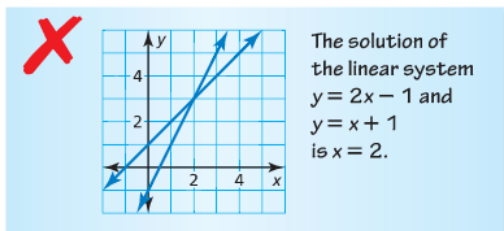
5) Solve the system graphically.

$$y = 3x + 1$$

$$2y = 6x + 2$$

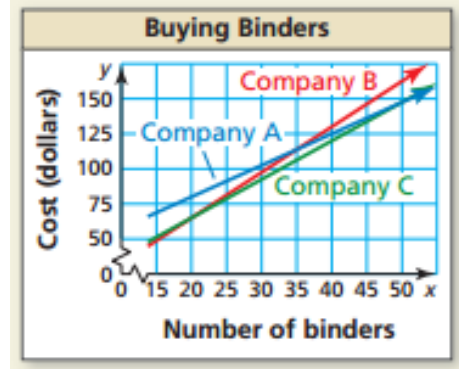


6) Describe **and** correct the error in the student work below.



7) A teacher is purchasing binders for students. The graph shows the total costs of ordering x binders from three different companies.

a) For what numbers of binders are the costs the same at two different companies? Explain.



b) How do your answers in part (a) relate to systems of linear equations?

8) Solve the inequality and graph the solution set on a number line.

$$2 - x > 11 - 7$$

Check-in:

HW #36 – Solving Systems of Equations – Substitution Method

MES21 | Fall 2016

Name: _____

Period: _____ Row: _____ Date: _____

#1-2: Solve the system of linear equations by substitution. Check your solution.

$$y = -2x - 9$$

$$y = 3x + 14$$

1) $6x - 5y = -19$

2) $y = -4x$

3) **Describe** and **correct** the error in solving for one of the variables in the linear system $4x + 2y = 6$ and $3x + y = 9$.

X

Step 1 $3x + y = 9$
 $y = 9 - 3x$

Step 2 $4x + 2(9 - 3x) = 6$
 $4x + 18 - 6x = 6$
 $-2x = -12$
 $x = 6$

Step 3 $3x + y = 9$
 $3x + 6 = 9$
 $3x = 3$
 $x = 1$

4) Your friend says that $(5,3)$ is a solution to the system of equations below. Is your friend correct? Justify your answer.

$$2x - y = 7$$

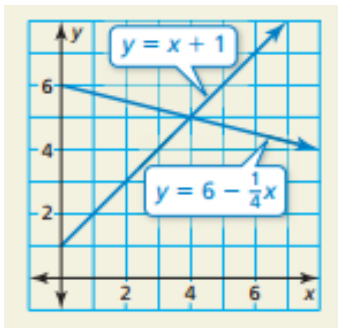
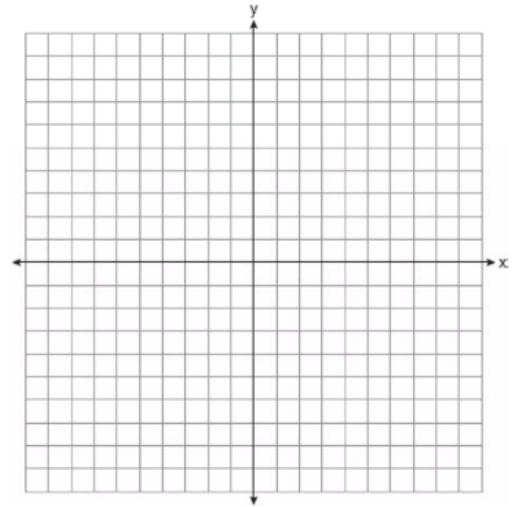
$$x + y = 2$$

5) A math test is worth 100 points and has 38 problems. Each problem is worth either 5 points or 2 points. How many problems of each point value are on the test? Show your work.

6) Solve the system of equations algebraically and graphically.

$$y = x + 3$$

$$3x + y = -1$$



7) The graphs of two linear equations are shown.

a) At what point do the lines appear to intersect?

b) Solve the system algebraically to confirm that your solution in part a) is correct.

8) The function $f(x) = \frac{1}{3}x + 4$ represents the distance, in feet, that a slug is from a garden x hours after it started crawling.

a) Interpret the slope in context.

b) What is the slug's distance from the garden after 9 hours?

Check-in:

**HW #37 – Solving Systems of
Equations – Elimination Method**
MES21 | Fall 2016

Name: _____

Period: ____ Row: ____ Date: _____

#1-4: Solve the system of linear equations by elimination.

$$\begin{aligned} 3x + 2y &= 4 \\ 1) \quad 3x - 2y &= -4 \end{aligned}$$

$$\begin{aligned} -10x + 3y &= 1 \\ 2) \quad -5x - 6y &= 23 \end{aligned}$$

$$\begin{aligned} 2x - y &= 1 \\ 3) \quad 6x - 3y &= 3 \end{aligned}$$

$$\begin{aligned} 4x - 3y &= 8 \\ 4) \quad 5x - 2y &= -11 \end{aligned}$$

5) Describe and correct the error in solving for one of the variables in the linear system $5x - 7y = 16$ and $x + 7y = 8$.

X

$$\begin{array}{r} 5x - 7y = 16 \\ x + 7y = 8 \\ \hline 4x = 24 \\ x = 6 \end{array}$$

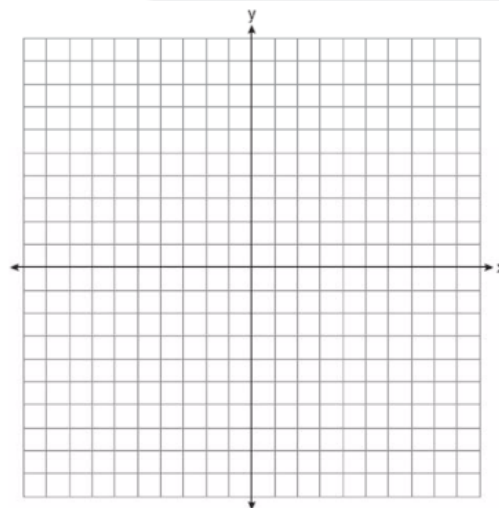
6) Describe and correct the error in solving for one of the variables in the linear system $4x + 3y = 8$ and $x - 2y = -13$.

X

$$\begin{array}{r} 4x + 3y = 8 \\ x - 2y = -13 \quad \text{Multiply by } -4 \rightarrow \\ \hline 4x + 3y = 8 \\ -4x + 8y = -52 \\ \hline 11y = -44 \\ y = -4 \end{array}$$

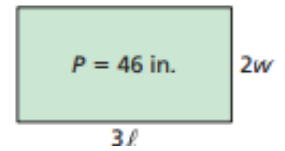
7) Solve the system of equations by elimination, substitution, and graphically.

$$\begin{aligned} 3x + 2y &= 4 \\ 2y &= 8 - 5x \end{aligned}$$



8) A rectangle has a perimeter of 18 inches. A new rectangle is formed by doubling the width w and tripling the length l , as shown. The new rectangle has a perimeter of 46 inches.

a) Write and solve a system of linear equations to find the length and the width of the original rectangle.



b) Find the length and the width of the new rectangle.

Check-in:

**HW #38 – Word Problems Involving
Systems of Equations (Day 1)**
MES21 | Fall 2016

Name: _____

Period: ____ Row: ____ Date: _____

1) Angelina spent \$16 for 12 pieces of candy to take to a meeting. Each piece of chocolate cost \$2 and each lollipop cost \$1. Write and solve a system of linear equations to determine how many chocolate bars she brought to the meeting and how many lollipops she brought to the meeting.

2) At a recent sale, Monica bought 4 t-shirts and 3 pairs of jeans for \$181. At the same sale, Phoebe bought 1 t-shirt and 2 pairs of jeans for \$94. All of the t-shirts were the same price and all of the pairs of jeans were the same price. Write and solve a system of linear equations to determine the price of each t-shirt and the price of each pair of jeans.

3) The library is having a book sale. Hardcover books sell for \$4 each and paperback books are \$2 each. If David spends \$26 for 8 books, how many hardcover books did he buy? Write and solve a system of linear equations to support your answer.

4) The *break-even* point is the point at which income equals expenses. Ridgemont High School is paying \$13,200 for the writing and research of their yearbook plus a printing fee of \$25 per book. If they sell the books for \$40 each, how many will they have to sell to break even? Show your work.

5) For what values of a can you solve the linear system $ax + 3y = 2$ and $4x + 5y = 6$ by elimination without multiplying first? Explain.

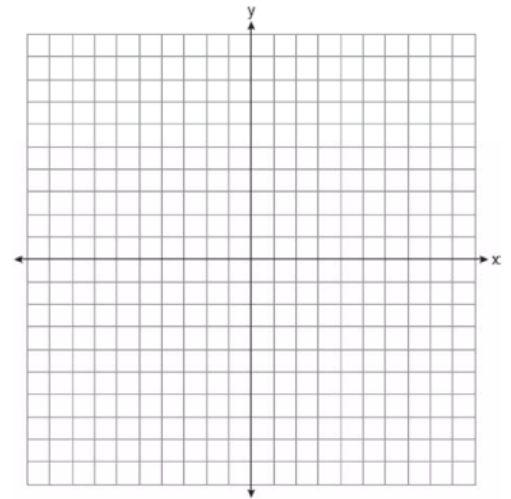
6) Write an explicit rule to find the n th term of the arithmetic sequence 14, 11, 8, 5,...

Then use your explicit rule to find a_{75} .

7) a) Graph the function $y = -2|x + 3| + 7$ on the set of axes.

b) Describe how this function has changed from the parent function $y = |x|$.

Check-in:



**HW #39 – Word Problems Involving
Systems of Equations (Day 2)**
MES21 | Fall 2016

Name: _____

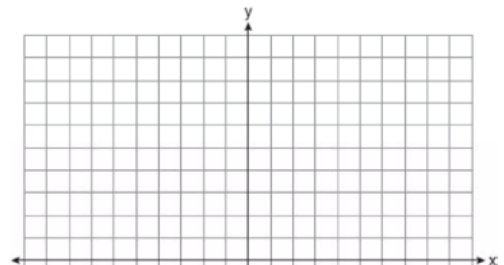
Period: ____ **Row:** ____ **Date:** _____

1) A drama club earns \$1040 from selling tickets. 64 adult tickets and 132 student tickets are sold. An adult ticket costs twice as much as a student ticket. Write and solve a system of linear equations to determine and state the price of each student ticket and each adult ticket.

2) There are a total of 64 students in the band and the yearbook club. The band has 10 more students than the yearbook club. Write and solve a system of linear equations to determine and state the number of students in the band and the number of students in the yearbook club.

3) Sarah has 600 quarters and dimes in her piggy bank which totals \$123.75. Write and solve a system of linear equations to determine and state the number of quarters she has.

4) Manuel has a total of 40 DVDs of movies and television shows. The number of movies is 4 less than 3 times the number of television shows. Write and solve a system of equations to find the number of movies he has on DVD and the number of television shows he has on DVD.



5) Graph the piecewise function.

$$y = \begin{cases} 1 & \text{if } x < -3 \\ x - 1 & \text{if } -3 \leq x \leq 3 \\ -2x + 4 & \text{if } x > 3 \end{cases}$$

6) Orbit Fitness Center charges an initiation fee of \$20 and \$2 per visit. Stellar Gym charges an initiation fee of \$25 and \$1 per visit.

a) For how many visits are the two fitness centers equal in their charges?

b) You plan on going to the gym 20 times this month. Which business would you join? Explain your reasoning.

7) Solve the system using the elimination method.

$$x + 2y = -4$$

$$-x + y = 1$$

Check-in:

HW #42 – Word Problems
Involving Systems of Inequalities
MES21 | Fall 2016

Name: _____

Period: ____ **Row:** ____ **Date:** _____

1) A toy store is selling large dolls and small dolls. Small dolls, x , sell for \$5 each and large dolls, y , sell for \$9 each. Its sales target for each day is to sell no less than 72 dolls and to make not less than \$888. Which system of inequalities represents this situation?

$$(1) \begin{cases} x + y \leq 72 \\ 5x + 9y \geq 888 \end{cases}$$

$$(2) \begin{cases} x + y \leq 72 \\ 5x + 9y \leq 888 \end{cases}$$

$$(3) \begin{cases} x + y \geq 72 \\ 5x + 9y \leq 888 \end{cases}$$

$$(4) \begin{cases} x + y \geq 72 \\ 5x + 9y \geq 888 \end{cases}$$

2) Your mom is using flour to make donuts and cookies. Each donut uses 12 g of flour and each cookie uses 15 g of flour. If your mom wants to make a total of more than 100 baked goods and she has 2500 g of flour in the kitchen, write a system of linear inequalities representing the number of donuts and cookies that your mom can make.

3) Your work truck can haul at most 1000 pounds. The inequality $10x + 50y \leq 1000$ represents the number x of bags of potting soil and the number y of bags of mulch your truck can haul.

a) How much does a bag of potting soil weigh? How much does a bag of mulch weigh?

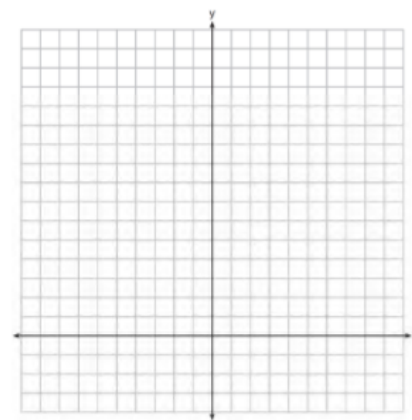
b) Can you haul 20 pounds of potting soil and 20 bags of mulch? Justify your answer.

4) Kyle works part time for a local contractor. He makes \$8 an hour if he works with the plumber and \$12 an hour if he works with the mason. Kyle cannot work more than 10 hours per week and he wants to earn at least \$100 per week.

a) Write a system of linear inequalities to model this situation.

b) State one ordered pair (hours worked with the plumber, hours worked with the mason) that will be a solution to the system you wrote in part a). Justify that your solution works.

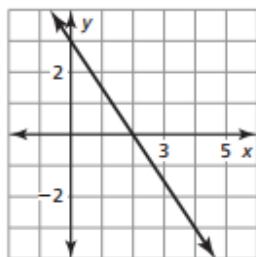
5) The sum of two numbers, x and y , is more than 8. When you double x and add y , the sum is less than 14. Graph the inequalities that represent this scenario on the set of axes provided.



Your friend says that $(6, 2)$ is a solution to this system. Determine if your friend is correct and explain your reasoning.

#6-7: Write an equation in slope-intercept form based on the information provided.

6) From the graph below.



7) Has a slope of $\frac{3}{4}$ and passes through $(-8, 4)$.

8) Josh and Mae work at a concession stand. They each earn \$8 per hour. Josh worked three hours more than Mae. If Josh and Mae earned a total of \$120 in hourly wages, how many hours did Josh work?

- (1) 6 hours (2) 9 hours (3) 12 hours (4) 15 hours

Check-in:

HW #40 – Graphing Linear Inequalities

MES21 | Fall 2016

Name: _____

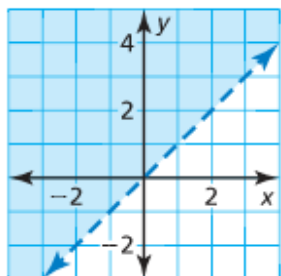
Period: ____ Row: ____ Date: _____

#1-2: Tell whether the ordered pair is a solution to the inequality.

1) $x + 3y \geq -2$; $(-9, 2)$

2) $-4x - 8y < 15$; $(-6, 3)$

3) Tell whether each ordered pair is a solution of the inequality whose graph is shown. Explain your reasoning.



a) $(0, -1)$

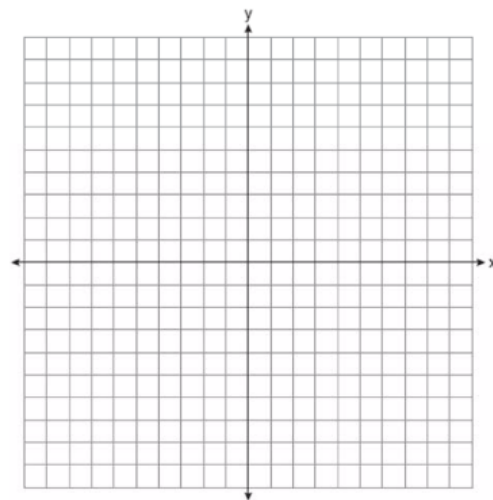
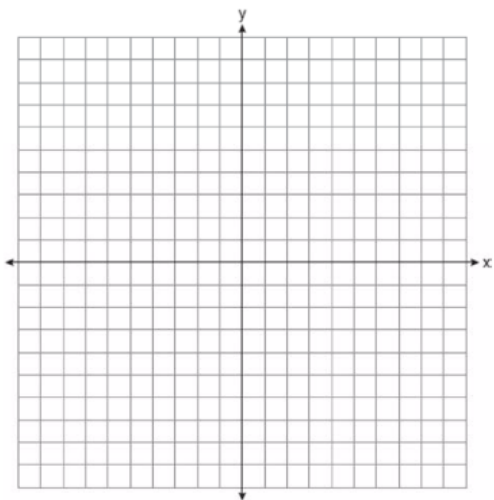
b) $(1, 4)$

c) $(3, 3)$

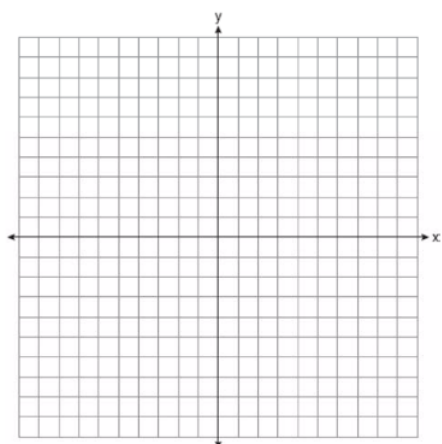
#4-7: Graph each inequality on the set of axes provided.

4) $y > -2x - 4$

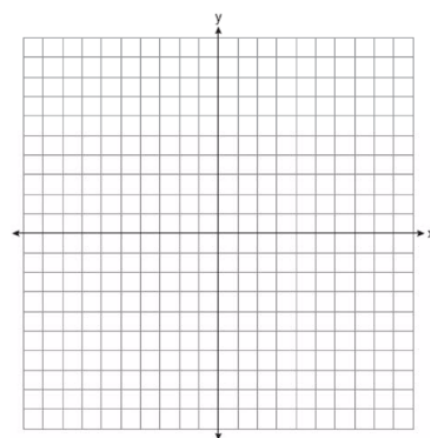
5) $3x - y \geq 5$



6) $x < 2$



7) $y \geq -3$

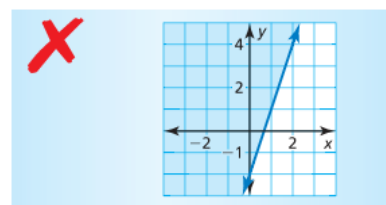
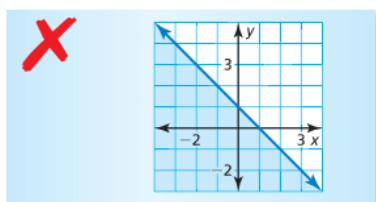


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#8-9: Describe and correct the error graphing each inequality.

8) $y < -x + 1$

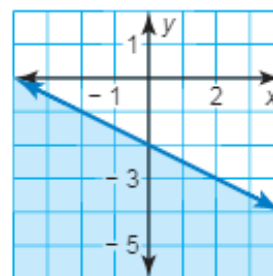
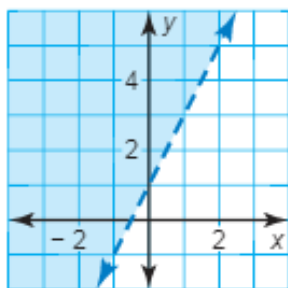
9) $y \leq 3x - 2$



#10-11: Write an inequality that represents the graph shown.

10)

11)



12) A jar of coins has six times as many quarters as dimes. If the total amount of money in the jar is \$28.80, write and solve a system of linear equations to determine and state the number of dimes and the number of quarters in the jar.

Check-in:

**HW #41 – Solving Systems of
Linear Inequalities Graphically**
MES21 | Fall 2016

Name: _____

Period: ____ Row: ____ Date: _____

#1-2: Tell whether the ordered pair is a solution of the system of linear inequalities.

(2, 0); $y > x - 5$

(1, 4); $y < 2x + 2$

1) $y \leq 2x + 1$

2) $y \geq -3x + 4$

#3-4: Use the graph below.

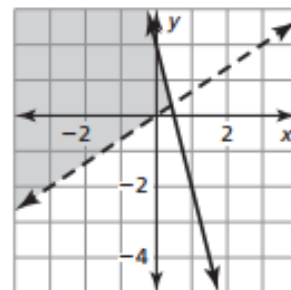
3) Tell whether the ordered pair is a solution of the system of linear inequalities.

a) (2, 1)

b) (-3, -2)

c) (0, 2)

d) (-1, -4)



4) Write the system of linear inequalities represented in the graph.

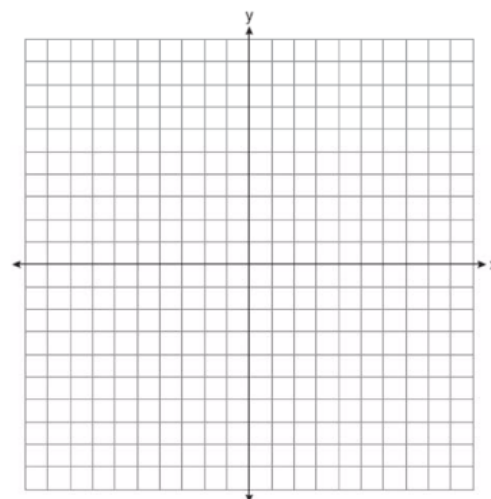
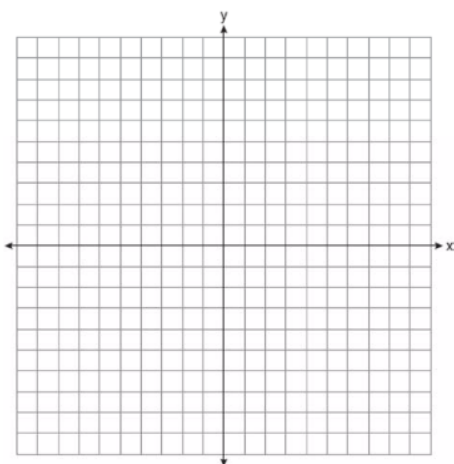
#5-8: Solve the system of inequalities graphically. Label the solution set “S” and state the coordinates of one point in the solution set.

$x + 2y \leq 8$

$y > x - 4$

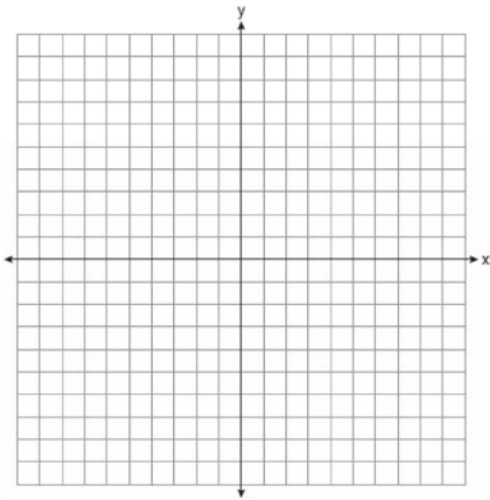
5) $y \leq x + 4$

6) $y + x \geq 2$



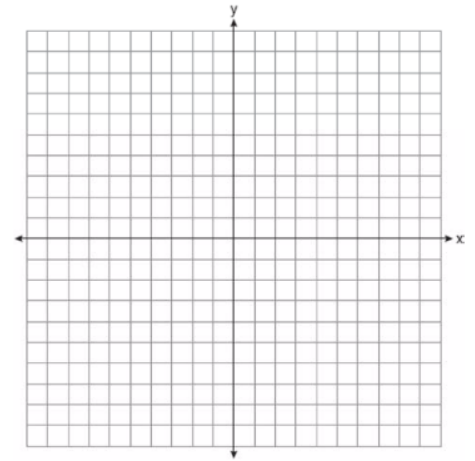
$$y > -3$$

$$7) \ x \leq 1$$



$$8) \ y \leq \frac{1}{3}x + 2$$

$$y > -\frac{1}{2}x + 5$$



9) Determine the slope and the y-intercept of $-3x + 5y = 10$.

10) Solve the system of linear equations using the **elimination** method.

$$x - y = 11$$

$$2x + y = 19$$

11) You need to hire a taxi. Taxi A charges \$9.25 plus \$1.50 per mile. Taxi B charges \$10.50 plus \$1.25 per mile. Algebraically find the number of miles for which the total costs are the same for each taxi company.

Check-in:

HW #42 – Word Problems **Involving Systems of Inequalities** MES21 | Fall 2016

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Period: ____ **Row:** ____ **Date:** _____

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- | | | | |
|------------------------|------------------------|------------------------|------------------------|
| $x + y \leq 72$ | $x + y \leq 72$ | $x + y \geq 72$ | $x + y \geq 72$ |
| (1) $5x + 9y \geq 888$ | (2) $5x + 9y \leq 888$ | (3) $5x + 9y \leq 888$ | (4) $5x + 9y \geq 888$ |

2) Your mom is using flour to make donuts and cookies. Each donut uses 12 g of flour and each cookie uses 15 g of flour. If your mom wants to make a total of more than 100 baked goods and she has 2500 g of flour in the kitchen, write a system of linear inequalities representing the number of donuts and cookies that your mom can make.

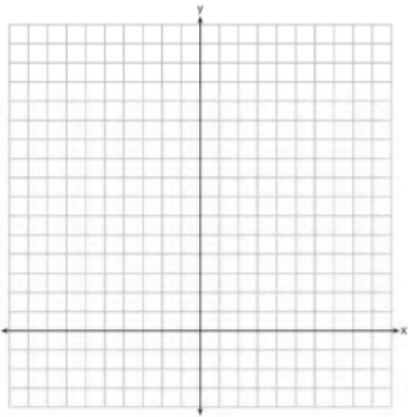
3) Your work truck can haul at most 1000 pounds. The inequality $10x + 50y \leq 1000$ represents the number x of bags of potting soil and the number y of bags of mulch your truck can haul.

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- b) Can you haul 20 pounds of potting soil and 20 bags of mulch? Justify your answer.
- 4) Kyle works part time for a local contractor. He makes \$8 an hour if he works with the plumber and \$12 an hour if he works with the mason. Kyle cannot work more than 10 hours per week and he wants to earn at least \$100 per week.
- a) Write a system of linear inequalities to model this situation.

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#6-7: Write an equation in slope-intercept form based on the information provided.

- 6) From the graph below.
- 7) Has a slope of $\frac{3}{4}$ and passes through $(-8, 4)$.



8) Josh and Mae work at a concession stand. They each earn \$8 per hour. Josh worked three hours more than Mae. If Josh and Mae earned a total of \$120 in hourly wages, how many hours did Josh work?

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Check-in: