Name:_____ Date:_____

Study Guide for Semester 1 Final

Please show your work. Solutions will be posted on the website: imaurer.weebly.com

Order of Operations:

1. 5 + (7 - 3) - 2 • 4 =

2. 3 - 3 • 4 + 5 • (7 -3) =

3. 10 - 3 • 2 + 4 •3 =

Use parentheses to make the expression equal 3 different whole numbers

4. 12 - 4 • 3 + 8/2 =

5. 12 - 4 • 3 + 8/2 =

6. 12 - 4 • 3 + 8/2 =

Solving 2-step Linear Equations

1.

a. 6x + 3 = 21

b. 7(x - 1) = 35

c. $\frac{(x-3)}{5} = -3$

d. $\frac{x}{3} - 5 = 3$

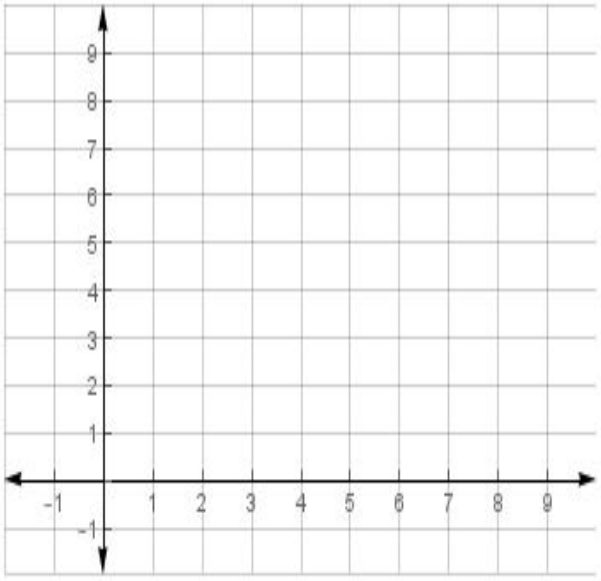
2. I bought 12 boxes of voodoo donuts for my class (because I'm just that nice). I also bought a coffee for $2.50. I spent $74.50 in total. How much does a box of donuts cost?

3. I worked for a restaurant for 20 hours last week. At the end of the week, I was handed $55 in cash for tips. Altogether, I earned $285. How much do I earn each hour?

Multiple Representations of Linear Equations

1) a) You own a bike shop with only bicycles and tricycles, and there are 18 total wheels in your showroom. Write a linear equation to model this situation.

b) Graph your equation.

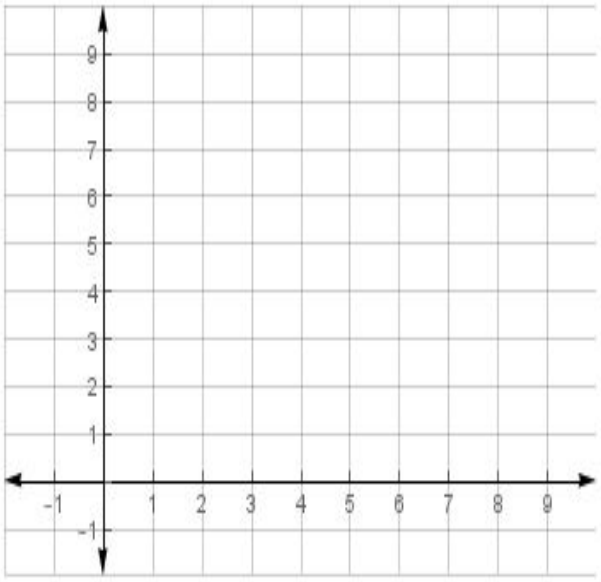


c) Create a table to model the situation.

d) If there are 6 bicycles, how many tricycles are there?

2) a) You start with 10 cupcakes and give 2 cupcakes to each of your friends. Write a linear equation to model this situation.

b) Graph your equation.



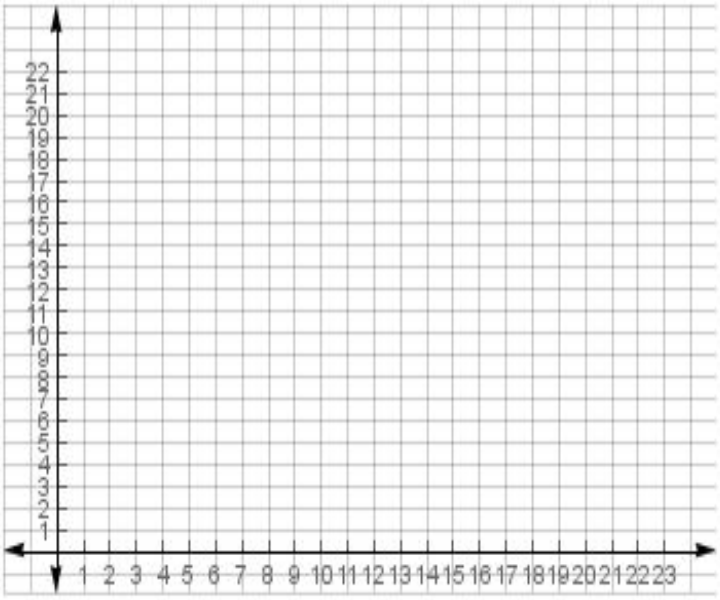
c) Create a table to model the situation.

d) If you end with 4 cupcakes, how many friends do you have?

3) You sell hats for 4 dollars and shirts for 10 dollars. You sell a total of $80 of swag. Write a linear equation to model this situation.

b) Graph your equation.

c) Create a table to model the situation.

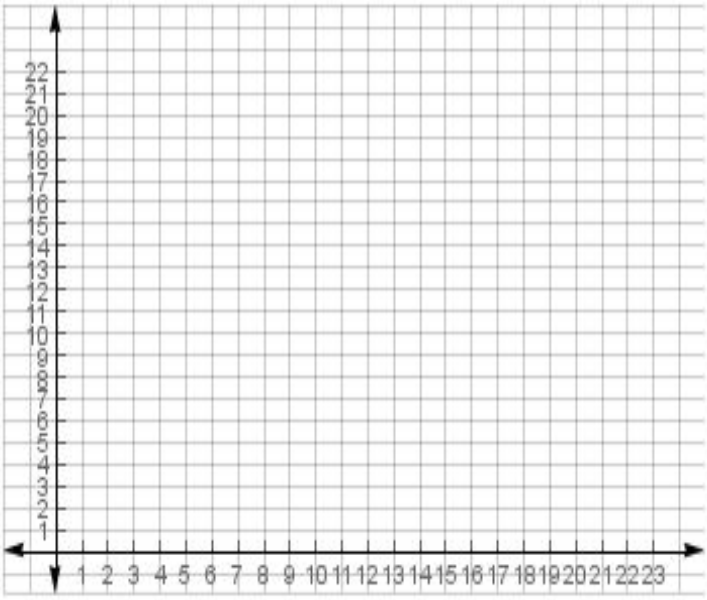


d) If you sell 5 hats, how many shirts did you sell?

4) You buy 12 large pizzas and 6 small pizzas. The total cost is $120. Write a linear equation to model this situation.

b) Graph your equation.

c) Create a table to model the situation.

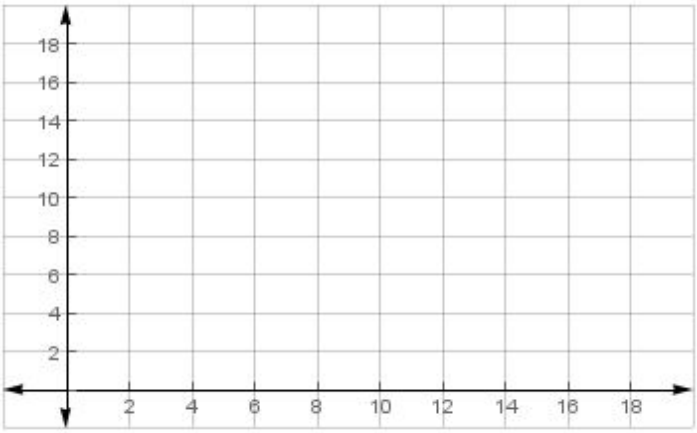


d) If a large pizza costs 10 bucks, how much does a small pizza cost? Does this answer make sense?

Graphing Systems of Linear Equations

1. a. You buy 10 hot dogs and 2 hamburgers for $40. Your friend buys 2 hot dogs and 2 hamburgers for $16. Write a system of equations to represent this situation. Define your variables.

b. Graph both equations on the graph below.

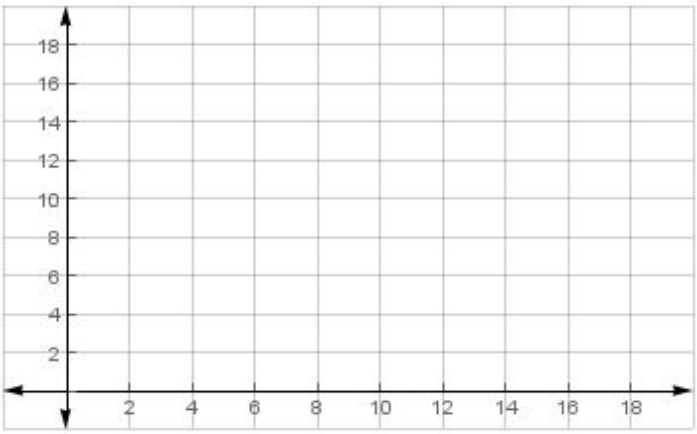


c. Where do the two lines intersect?

d. What would be the cost of 3 hot dogs and 5 hamburgers?

2a. I start with 20 pieces of swag and lose 3 pieces every day. My brother starts with 0 pieces and gains 2 every day. Write a system of equations to represent this situation. Define your variables.

b. Graph both equations on the graph below.



c. Where do the two lines intersect?

d. When will my brother have *twice* as much swag as me?

Solving Systems of Linear Equations

Solve each system of equations for X AND Y. Use any method.

1. $y = 6x - 13$
   $y = -12x + 23$

2. $y = 17 - 3x$
   $y = -2x + 11$

3. $4x + 3y = 3$
   $5y - 4x = 37$

4. $3x + 5y = 1$
   $4x + 7y = 0$

Systems of Equations Word Problems

1. You and your 5 best friends go to the movies at Lloyd center. For some reason, the prices are not given for red Icee drinks and large Milk Duds. The cashier tells you that 5 red Icees and 4 large Milk Duds will cost $35.50. He also says that 7 red Icees and 3 large Milk Duds will cost $41.25. You volunteer to figure out the prices because you want to show off your math skillz.

- What is the price of one red Icee?
- What is the price of one Milk Dud?
- If you and your friends each buy 1 red Icee and 2 Milk Duds, how much will your group pay in total?

2. You've got a summer job working at the fair selling balloons and stuffed animals. You don't think the manager has set the prices in the best way. You do a little research and find out two things.

At the current prices, you will sell 12 balloons and 8 stuffed animals for $60. If you reduce the price of a balloon by $1 and double the price of the stuffed animal, the 12 balloons and 8 stuffed animals will sell for $72.

- What is the original price of a balloon?
- What is the original price of a stuffed animal?
- If you sell 5 balloons and 9 stuffed animals at the NEW price, how much do you make?

5. You're going to a basketball game with a student discount. If 6 students and 4 adults go, it will cost $216. If 5 students and 8 adults go, it will cost $306.

- Find the cost of a student ticket.
- Find the cost of an adult ticket.
- If 8 students and 3 adults go, how much will it cost?

Remember to define your variables and to verify your solution.

Factoring and Multiplying Quadratics

For each problem, write the answer AND draw a sketch of the tiles

1. Use algebra tiles to multiply $(x + 3)(x + 5)$

2. Use algebra tiles to multiply $(x - 2)(x + 4)$

3. Use algebra tiles to multiply $(x - 3)(x - 3)$

For each problem, write the answer AND draw a sketch of the tiles

1. Use algebra tiles to factor $x^2 + 4x + 3$

2. Use algebra tiles to factor $x^2 + 7x + 12$

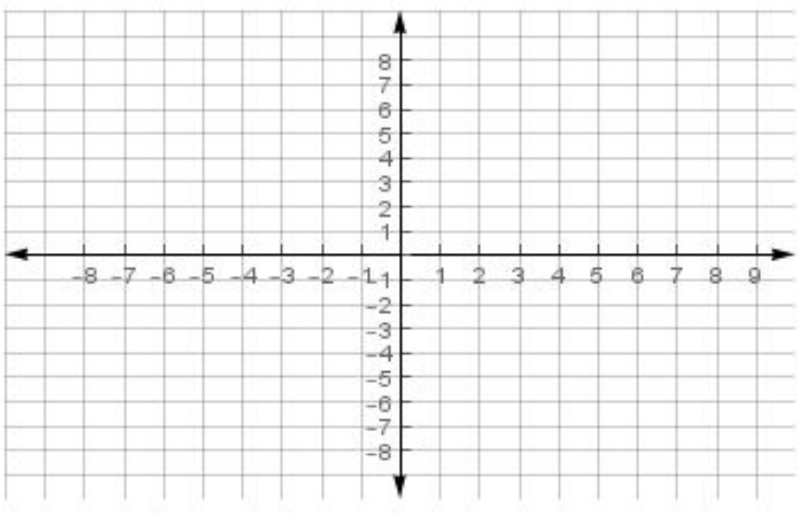
3. Use algebra tiles to factor $2x^2 + 7x + 3$

Graphing Quadratics

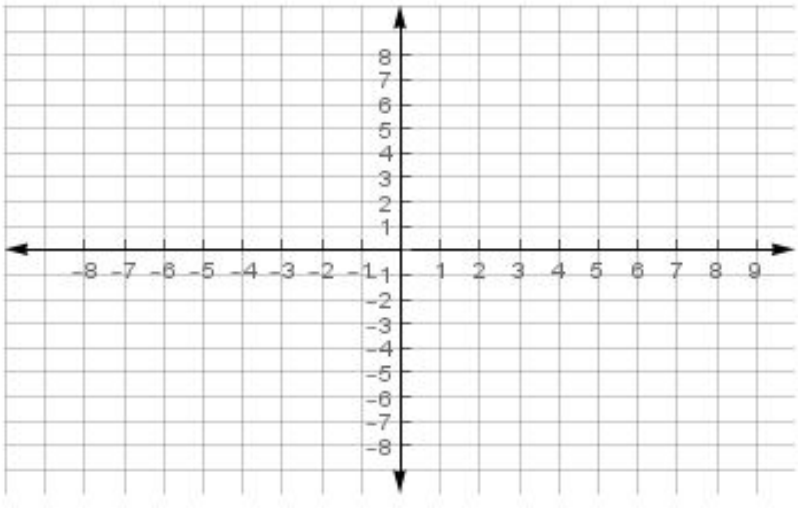
Graphing Quadratics Quiz

Name:_____

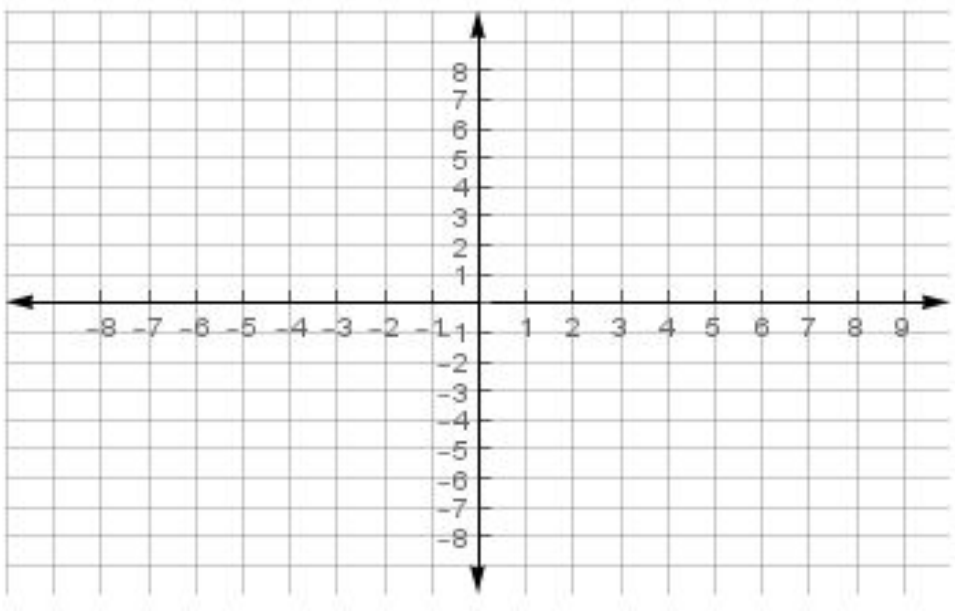
1. Draw a graph of $y = x^2 + 6x + 8$. Label the zeros, y-intercept, and vertex.



2. Draw a graph of $y = x^2 - 2x - 8$. Label the zeros, y-intercept, and vertex.



3. Draw a graph of y = (x - 3)(x +2). Label the zeros, y-intercept, and vertex.



4. Draw a graph of y = (2x - 4)(x + 2). Label the zeros, y-intercept, and vertex.