

1. Convert 343 meters per second to miles per hour.

2. Elizabeth buys food for the Math Department. She buys some sub sandwiches and some desserts. If the subs are \$5.00 each and desserts are \$2.00 each, she uses  $5x + 2y \leq 75$  to figure out how many of each she can purchase.

a. Give the appropriate vocabulary word for each of the following:

75: \_\_\_\_\_

5x: \_\_\_\_\_

2: \_\_\_\_\_

y: \_\_\_\_\_

b. Explain what each part of the equation means IN CONTEXT of the situation.

2y: \_\_\_\_\_

x: \_\_\_\_\_

5: \_\_\_\_\_

75: \_\_\_\_\_

3. Solve the equation. **Use properties of equality to justify each step.**  $5(x + 9) = 9(x + 7) - 2$

4. Brad is a waiter, he gets paid \$5.75 per hour, and he gets tips. He works an 8 hour shift and took home \$83.50.

a. Write an equation for the situation: \_\_\_\_\_

b. How much did he make in tips?

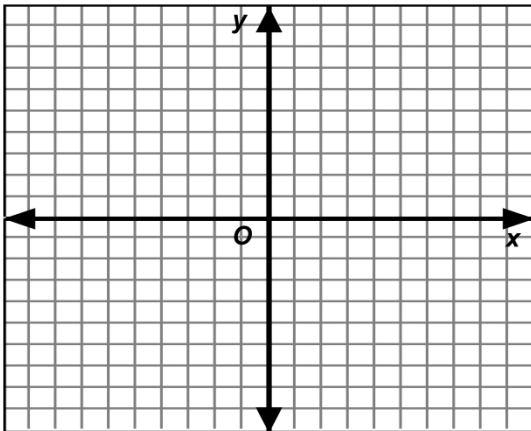
c. If he works a twelve hour shift how much would he make?

5. Solve the system of equations:  $-7x - 8y = 9$   
 $-4x + 9y = -22$

6. Solve the system of equations:  $x = 7y - 2$   
 $4x - 5y = 15$

7. Mike and Carlos are selling cookie dough for a school fundraiser. Customers can buy packages of chocolate chip cookie dough and packages of gingerbread cookie dough. Mike sold 8 packages of chocolate chip cookie dough and 12 packages of gingerbread cookie dough for a total of \$364. Carlos sold 1 package of chocolate chip cookie dough and 4 packages of gingerbread cookie dough for a total of \$93. Find the cost of one package of chocolate chip cookie dough and one package of gingerbread cookie dough.

8. Graph the system of linear inequalities and answer the questions that follow.  $4x - 3y \leq 9$   
 $x + 3y > 6$



- a. Is  $(2,4)$  a solution to the system? Why or why not?
- b. Is  $(-3,3)$  a solution to the system? Why or why not?

9. Write the equation of the line given  $m = -\frac{4}{3}$  and goes through  $(-6,2)$ .

10. Write the equation of the line given  $(8,4)$  and  $(12,3)$ .

11. You and your friend were at the coffee shop all weekend cramming for the math final. The coffee shop was running a deal. If you buy a mug, you can get a discount on your cups of coffee. You bought 6 coffees that weekend and spent \$15.49. Your friend had 11 coffees and spent \$21.74.

a. Write a system of equations to represent this situation.

b. How much was each cup of coffee?

c. How much was the mug?

d. Another friend stopped by to get some math help, and she had \$12. How many cups of coffee can she buy?

Simplify the expressions.

12.  $(-4x^3y)(5x^4y^6)$

13.  $(-3x^5y^3)^3$

14.  $\frac{-12x^9y^2}{15xy^7}$