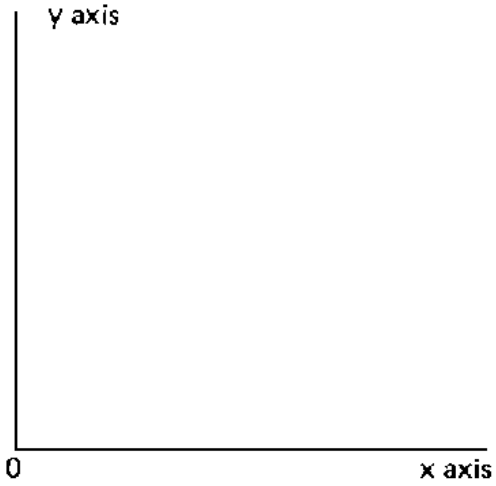
Name_____ Date _____

WLMS Linear Equations - Word Problems

In these problems we will focus on only real world a values so we will only use quadrant I.

1. The depreciated value y (in dollars) of a business car after x years is $y = -4200x + 21{,}000$.

a. Graph the equation. Only use the **x and y intercepts.**



b. Interpret the slope.

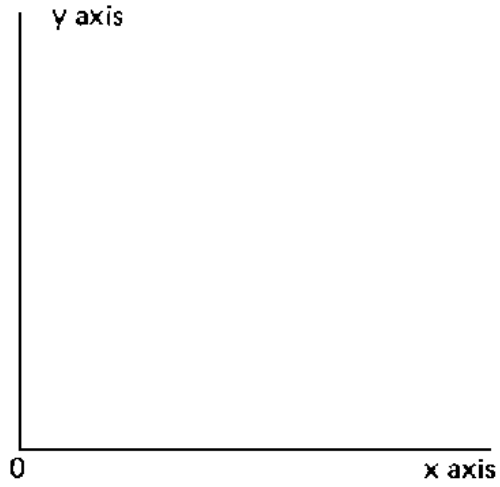
c. Interpret the y-intercept.

d. Interpret the x-intercept.

2. There is a $10 monthly membership fee to download music. There is a $0.50 fee for each song downloaded.

a. Write a linear equation that models the cost of downloading x songs per month.

b. Graph the equation. Just use the y-intercept and the slope.

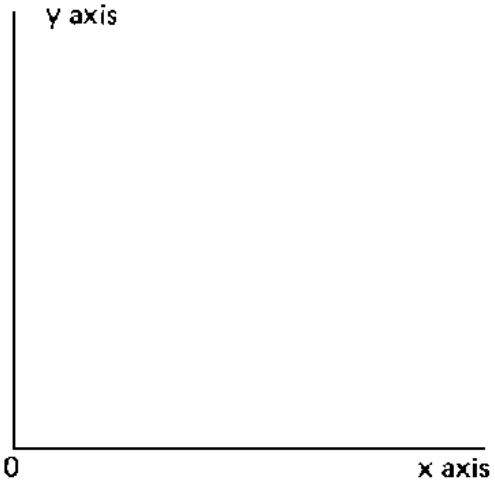


c. What is the cost of downloading 15 songs?

3. An entrepreneur is opening a business to market pies and pie fillings based on her family's recipes. The price of every item in the store is $6.

a. Write a linear equation that models the amount of revenue y (in dollars) taken in for selling x items.

b. Graph the equation. Just use the y-intercept and slope.



c. The monthly cost of rent and utilities for the store space is $1100. What is the minimum number of items that must be sold each month in order to make a profit?

d. Assuming 4 weeks in a month, what is the average number of items that need to be sold each week in order to turn a profit?

4. The total amount of fiber (in grams) in a package containing x apples and y oranges is given by the equation $5x + 10y = 110$.

a. Find and interpret the y-intercept.

b. Find and interpret the x-intercept.

c. How many grams of fiber does an orange contain?

d. How many grams of fiber does an apple contain?

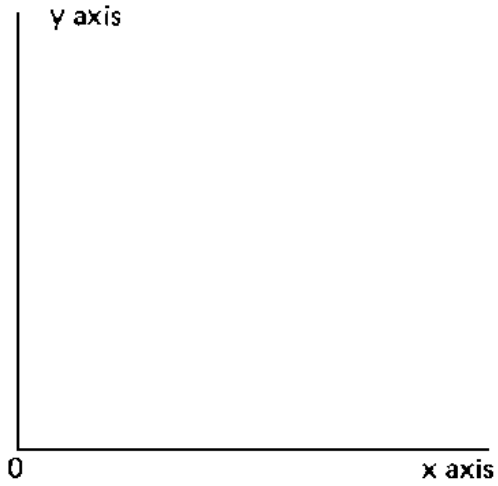
e. Is it possible for the package to contain 15 apples? Explain.

5. You have two jobs. You earn \$8 for each hour x that you work as a restaurant host and \$6 for each hour y that you work as a hair washer. Your earnings for the pay period are \$144.

a. Write an equation in standard form that models your earnings.

b. Find the x- and y-intercepts.

c. Graph the equation.



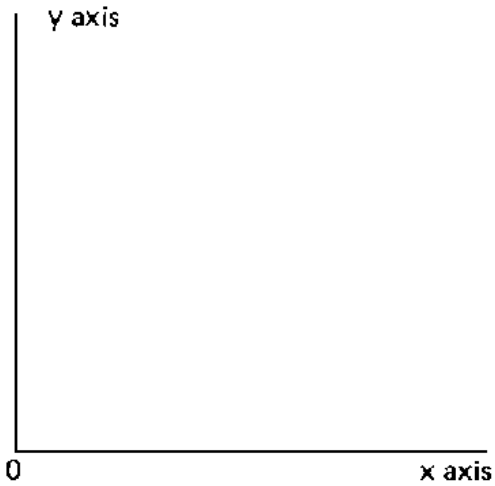
d. You worked 10 hours as a hair washer. How many hours did you work as a host?

6. Your family is on a ski vacation. Lift tickets for the family cost $80 per day. Snowboard rentals cost $40 per day. You purchase lift tickets for x days and snowboard rentals for y days and spend $480.

a. Write an equation in standard form that represents the situation.

b. Find the x- and y-intercepts.

c. Graph the equation.



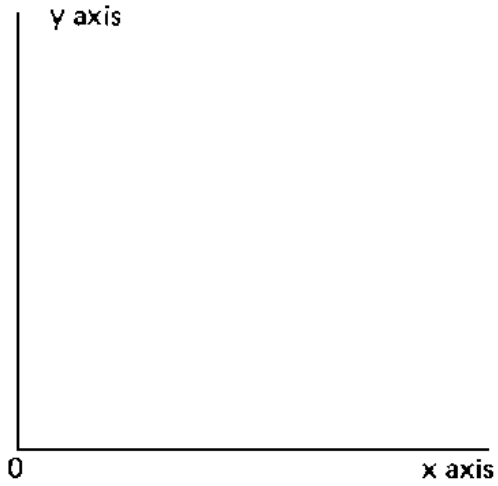
d. You rent snowboards for 2 days. How many days did you purchase lift tickets?

7. An electrician charges $80 plus $32 per hour.

a. Write an equation that represents the total fee y (in dollars) charged by the electrician for a job lasting x hours.

b. Find the x- and y-intercepts.

c. Graph the equation.



d. Is the value of the x-intercept applicable to the electrician? Explain.

9. After a laptop is purchased, its value decreases by $150 each year. After 2 years, the laptop is worth $600.

a. Write an equation that represents the value V (in dollars) of the laptop x years after it is purchased.

b. What was the original value of the laptop?

c. What is the value of the laptop 5 years after it is purchased?

10 . You are pulling a kite back to the ground at a rate of 2 feet per second. After 4 seconds, the kite is 16 feet above the ground.

a. Write an equation that represents the height y (in feet) above the ground after x seconds.

b. At what height was the kite when you started pulling it in?

c. When does the kite touch the ground?