Linear Equation Word Problems

y = mx+b

1. You are visiting Baltimore, MD and a taxi company charges a flat fee of $3.00 for using the taxi and $0.75 per mile.

A. Write an equation that you could use to find the cost of the taxi ride in Baltimore, MD. Let x represent the number of miles and y represent the total cost.

B. How much would a taxi ride for 8 miles cost?

C. If a taxi ride cost $15, how many miles did the taxi travel?

2. A plumber charges $50 to make a house call. He also charges $25.00 per hour for labor.

A. Write an equation that you could use to the amount a plumber charges for a house call based on the number of hours of labor.

B. How much would it cost for a house call that requires 2.5 hours of labor?

C. If the bill from the plumber is $162.50, how many hours did the plumber work at your house?

3. An airplane 30,000 feet above the ground begins descending at the rate of 2000 feet per minute. Assume the plane continues at the same rate of descent. The plane’s height and minutes above the ground are related to each other.

A. Write an equation to model the situation.

B. Find the altitude of the plane after 5 minutes.

4. While on vacation in Washington DC, the cab ride for the Dulles airport to the hotel is 15 miles. The total cost of the cab ride was $25.50. The cabbie charges $1.50 per mile for the entire trip.

A. Write an equation to that can be used to determine how much a cab ride would cost anywhere in Washington DC.

B. What is the flat rate of the cab ride?

C. How much does it cost to travel 7 miles in a cab?

5. Marty is spending money at the average rate of $3 per day. After 14 days he has $68 left. The amount left depends on the number of days that have passed.

A. Write an equation for the situation.

B. Find the amount of money he began with.

C. How much money does Marty have after 9 days?

6. The math department sponsors a Math Family Fun Night each year. In the first year, there were 35 participants. In the third year, there were 57 participants.

A. Write an equation to predict how many participants at any given year.

B. How many participants are predicted for the 5th year?

7. Suppose a 5-minute overseas call costs $5.91 and a 10-minute call costs $10.86. The cost of the call and the length of the call are related. The cost of each minute is constant.

A. What is the cost, *c,* of a call of *m* minutes duration?

B. How long can you talk on the phone if you have $12 to spend?

8. Biologists have found that the number of chirps some crickets make per minute is related to temperature. The relationship is very close to being linear. When crickets chirp 124 times a minute, it is about 68°F. When they chirp 172 times a minute, it is about 80°F.

A. Find an equation for the line that models this situation.

B. How warm is it when the crickets are chirping 150 times a minute?