Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_

Unit 8 - AMDM Day 01 - Linear Equations Word Problems Homework

1. Lin is tracking the progress of her plant’s growth. Today the plant is 5 cm high. The plant grows 1.5 cm per day.
2. Write a linear model that represents the height of the plant after *d* days.
3. What will the height of the plant be after 20 days?

**2.** Mr. Thompson is on a diet. He currently weighs 260 pounds. He loses 4 pounds per month.

1. Write a linear model that represents Mr. Thompson’s weight after *m* months.
2. After how many months will Mr. Thompson reach his goal weight of 220 pounds?

**3.** Paul opens a savings account with $350. He saves $150 per month. Assume that he does not withdraw money or make any additional deposits.

a. Write a linear model that represents the total amount of money Paul deposits into his account after *m* months.

b. After how many months will Paul have more than $2,000?

**4.** The population of Bay Village is 35,000 today. Every year the population of Bay Village increases by 750 people.

a. Write a linear model that represents the population of Bay Village *x* years from today.

b. In approximately many years will the population of Bay Village exceed 50,000 people?

**5.** Conner has $25,000 in his bank account. Every month he spends $1,500. He does not add money to the account.

a. Write a linear model that shows how much money will be in the account after *x* months.

b. How much money will Conner have in his account after 8 months?

**6.** A cell phone plan costs $30 per month for unlimited calling plus $0.15 per text message.

a. Write a linear model that represents the monthly cost of this cell phone plan if the user sends *t* text messages.

b. If you send 200 text messages, how much would you pay according to this cell phone plan?

**7.** Amery has *x* books that weigh 2 pounds each and *y* books that weigh 3 books each. The total weight of his books is 60 pounds.

a. Write a linear model that relates the number of 2 pound books to the number of 3 pound books Amery has.

1. If Amery has 10 3-pound books, how many 2-pound books does he have?

**8.** Kara used the linear model *y* = 20,000 + 0.3*x* to predict her total salary from achieving total sales of *x*.

1. What is her base salary?
2. What percent commission does she earn?

**9.** The model 2*x* + 5*y* = 85 can be used to model how much money Tim spent on *x* sodas and *y* sandwiches. If he bought 15 sodas, how many sandwiches did he purchase?

Solution:

2x + 5(15) = 85

2x + 75 = 85

2x = 10 or x = 2

Tim bought 2 sandwiches.

What is the error? Explain how to solve the problem.

**10.** A bacteria population doubles every minute. Explain why this population growth cannot be modeled using a linear equation.