

**Algebra 1 CC**  
**Assignment #37**  
**Modeling with Linear Functions**

1. Water is building up in a bathtub. After 2 minutes there are 12 gallons of water and after 4 minutes, there are 20 gallons of water. What is the average rate at which water is entering the bathtub from  $t = 2$  to  $t = 4$  minutes? Show how you calculated the rate.

- (1) 8 gallons per minute      (2) 6 gallons per minute      (3) 10 gallons per minute      (4) 4 gallons per minute

2. Francisco is saving money in an account. At the beginning of the year, he has \$56 in savings and puts in another \$4 per week. Which of the following equations models the amount of savings,  $s$ , as a function of the number of weeks,  $w$ , Francisco has been saving?

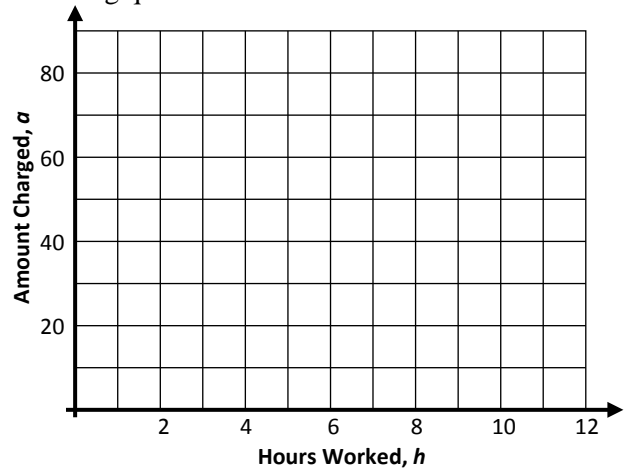
- (1)  $s = 4w + 56$       (2)  $s = \frac{w}{4} + 56$       (3)  $s = 56w + 4$       (4)  $s = \frac{w}{56} + 4$

3. Maria charges \$15 for every 2 hours that she babysits. Answer the following questions based on this information.

(a) How much would Maria charge for working for 5 hours?

(b) Fill out the table below for the amount that Maria makes as she babysits and graph the relationship on the grid provided.

Hours Worked, $h$	2	4	6	8	10	12
Amount, $a$ , in \$	15					



(c) Write an equation for the amount,  $a$ , that Maria makes as a function of the number of hours,  $h$ , that she babysits. Keep in mind that Maria will make \$0 for babysitting for 0 hours.

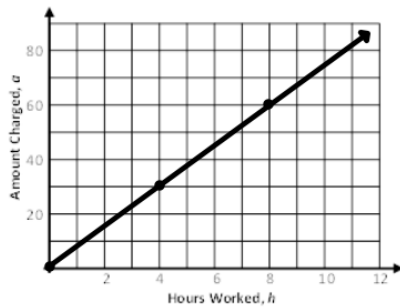
R1. A cafeteria is trying to scale a small pancake recipe up in order to feed a group of tourists. The recipe feeds 6 people and the cafeteria is trying to feed 75. The recipe calls for 4 cups of flour and  $1\frac{1}{2}$  cups of milk and  $\frac{1}{2}$  cup of sugar (as well as some other minor ingredients such as baking powder).

- (a) One 10 pound bag of flour contains 38 cups of flour. Will it be enough for this recipe? Justify.
- (b) If one 10 pound bag of flour contains 38 cups of flour, how many pounds of flour will be needed for this recipe? Round to the nearest tenth of a pound.
- (c) If there are 4 cups in a quart and 4 quarts in a gallon, will we need more or less than a gallon of milk for this recipe?
- (d) The cafeteria has a 1.5 kilogram bag of sugar. If a cup of sugar weighs 0.5 pounds and there are 2.2 pounds per kilogram, does the cafeteria have enough sugar to make this recipe?
- (e) If the original recipe made 14 pancakes and the cafeteria plans to charge \$.50 per pancake, how much money will they make if they sell all of the pancakes made for the 75 people?

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1. (4)
  2. (1)
  3. (a) \$37.50

(b)

Hours Worked, $h$	2	4	6	8	10	12
Amount, $a$ , in \$	15	<b>30</b>	<b>45</b>	<b>60</b>	<b>75</b>	<b>90</b>



(c)  $a = 7.5h$

- R1. (a) No. You will need 50 cups of flour.  
(b) 13.2 pounds  
(c) More than one gallon will be needed. There are 16 cups in a gallon and you will need 18.75 cups.  
(d) Yes. You will need 3.125 pounds and you have 3.3 pounds.  
(e) \$87.50