Algebra 1 CC

Name: _____

Linear Functions Notes

Date: _____ Pd: _____

Linear Function:

f(x)=mx+b

m: slope

b: y-intercept

1. Sudzo Wash and Wax charges customers $0.75 per minute to wash a car. Write an equation that relates the total charge *c* to the amount of time *t* in minutes.

2. Pat's Power Wash charges $2.00 per car to cover the cost of cleaning supplies, plus $0.49 per minute for the use of water sprayers and vacuums. Write an equation for the total charge *c* for any car-wash time *t*.

3. A television production company charges a basic fee of $4000 and then $2000 per hour when filming a commercial.

   a. Write an equation in slope-intercept form relating the basic fee and per-hour charge.

   b. Use your equation to find the production costs if 4 hours of filming were needed.

4. Write a function that represents Jamie's weekly earnings if he earns a weekly salary of $350 plus a commission of $50 per vacuum sold. Let x represent the number of vacuums sold.

   a. If Jamie sells 6 vacuum cleans in one week, how much money will he earn?

   b. Is this a linear function? Why?

_____

5. The Squeaky Clean Car Wash charges by the minute. This table shows the charges for several different times.

Squeaky Clean Car Wash Charges

Time (min)	5	10	15	20	25
Charge	$8	$13	$18	$23	$28

a. Explain how you know the relationship is linear.

_____

_____

b. What are the slope and *y*-intercept of the line that represents the data?

c. Write an equation relating charge *c* to time *t* in minutes.

6. Use the function in the table at the right.

a. Identify the dependent and independent variables.

b. Write a rule to describe the function.

Water Used for Laundry

1 load	34 gallons
2 loads	68 gallons
3 loads	102 gallons
4 loads	136 gallons

c. How many gallons of water would you use for 7 loads of laundry?

d. In one month, you used 442 gallons of water for laundry. How many loads did you wash?