

## Worksheet 2.1c - Still More Linear Equations in Two Variables

01) A trash company charges \$15 per month plus 10 cents for every pound of trash removed. Let  $F$  be the monthly charge and  $x$  be the pounds removed.

- Write the linear relationship between  $F$  and  $x$ .
- What is the fee for removing 1,500 lbs of trash ?
- The fee is \$45. How much trash was removed?

d) Complete the table for the following values of  $x$ :

$x$	1000	1200	1800	2000	2500	3000
$F$						

e) Graph the company's fee scheme below. Label the axes with the appropriate numbers.



2. Residents of Waterville who are connected to the public water supply are billed a fixed amount yearly plus a charge for each cubic foot of water used. A household using 1000 cubic feet was billed \$90, while a household using 1600 cubic feet was billed \$105. Let  $C$  be the yearly charge for water and  $w$  be the number of cubic feet of water used.

- What is the charge per cubic foot.
- Write an equation expressing the linear relationship between  $C$  and  $w$ .
- How much water did a household use if the bill was \$130?

3. **Depreciation:** Suppose you buy a new car. When the car is two years old the value is \$15,000. When the car is six years old it is worth \$13,000. Let  $V$  be the value of the car and  $t$  be the age of the car.

a) Write the linear relationship between  $V$  and  $t$ . (A good place to start is by plotting the data given above in the description.)

b) Complete the table for the following values:

$t$	0	1	2	3	5	
$V$						0

c) How much value does the car lose in one year? What part of the equation tells you this?

d) In what year will the car be worthless? (That is, when will  $V = 0$ ).

e) What do you think is a reasonable range of values for  $t$ ? Write an inequality showing this range.

f) Graph the car's value equation below. Label the axes with the appropriate numbers.

