

MATH 122 WORKSHEET 1

Show all work for full credit.

1. A doctor owns a set of medical books that are worth \$2200 when they are one year old and are worth \$950 when they are five years old.

a. Write the value of the books, V (in dollars), as a linear function of the age of the books, a (in years).

b. What is the slope of your line? What are the units of the slope? Interpret the slope in terms of the value of the books.

c. What is the horizontal intercept of your line? Interpret it in terms of the value of the books. Give units.

2. Complete the table of values for the *linear* function

| | | | | | |
|--------|----|------|----|----|----|
| x | 5 | 8 | 11 | 14 | 17 |
| $f(x)$ | 10 | 13.6 | | | |

Write the equation of this linear function.

3. A real estate office discovers a linear relationship between the number of apartments it can rent and the rent it charges per apartment. In particular, when the rent is \$450 per month, 50 units are occupied, but when the rent is \$575 per month, only 45 of the units are occupied. Write the number of apartments occupied, A , as a function of the monthly rent, r . Determine the number of apartments that will be occupied at \$625 per month.

4. Since the beginning of the year, the price of unleaded gasoline has been increasing at a constant rate of 3 cents per gallon per month. By August first, the price had reached \$2.85 per gallon.

a. Express the price of unleaded gasoline as a function of time, t , in months since January first.

b. Find the vertical intercept of your function in (a) and interpret it in relation to the problem.

5. Calculate the average rate of change of $f(x) = 4x^2 - x + 7$ between $x = -2$ and $x = 4$.