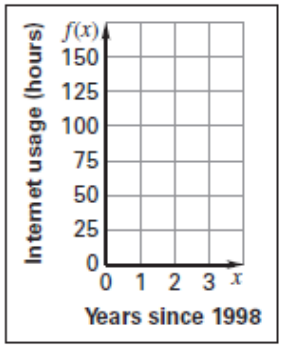
4.7
FUNCTION NOTATION WORD PROBLEMS

1.

Internet Usage The number of hours people in the United States spent using the Internet each year from 1998 to 2001 can be modeled by the function $f(x) = 26.4x + 54.4$ where x is the number of years since 1998.



a. Graph the function and identify its domain and range.

b. Find the number of hours that people spent on the Internet in 2000. *Explain* how you found your answer.

c. When did people spend about 120 hours per year on the Internet? *Explain* how you found your answer.

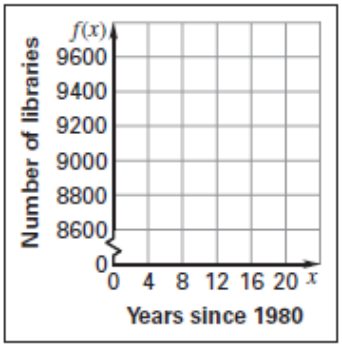
2.

Public Libraries The number of libraries in the United States from 1980 to 2000 can be modeled by the function $f(x) = 38.9x + 8685.8$ where x is the number of years since 1980.

a. Graph the function and identify its domain and range.

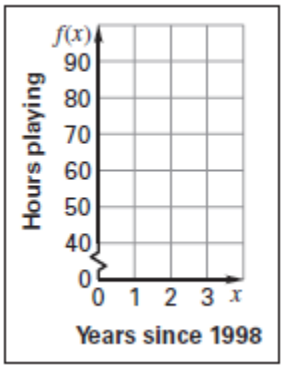
b. Find the number of libraries in the United States in 1996. *Explain* how you found your answer.

c. When were there 9000 libraries in the United States? *Explain* how you found your answer.



3.

Video Games The number of hours people in the United States spent playing video games each year from 1998 to 2001 can be modeled by the function $f(x) = 11.9x + 46.4$ where x is the number of years since 1998.



a. Graph the function and identify its domain and range.

b. Find the value of $f(x)$ when $x = 2$. *Explain* what the solution means in this situation.

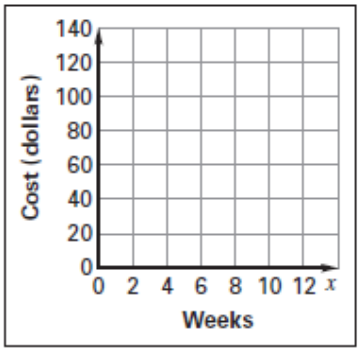
c. Find the value of x so that $f(x) = 60$. *Explain* what the solution means in this situation.

4.

Pool Membership A pool membership during the summer costs \$7 per week. The total cost of a membership is given by $f(x) = 7x$. The pool also rents out lockers for \$2 per week. The total cost of a membership and a rental is given by $g(x) = 9x$.

a. Graph both functions. How is the graph of f related to the graph of g?

b. What is the difference between a 12-week membership if you get a locker and if you don't? *Explain* how you got your answer.



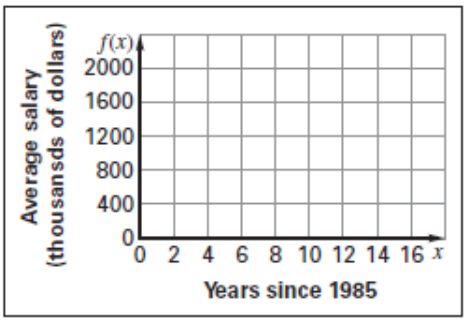
5.

Baseball Salaries The average salary (in thousands of dollars) of a major league baseball player from 1985 to 2001 can be modeled by the function $f(x) = 106x + 185$ where x is the number of years since 1985.

a. Graph the function and identify its domain and range.

b. Find the value of $f(x)$ when $x = 5$. *Explain* what the solution means in this situation.

c. Find the value of x so that $f(x) = 1000$. *Explain* what the solution means in this situation.



6.

Cable Television The average monthly cost (in dollars) of cable television from 1995 to 2001 can be modeled by the function $f(x) = 1.56x + 21.5$ where x is the number of years since 1995.

a. Graph the function and identify its domain and range.

b. Find the value of x so that $f(x) = 28$. *Explain* what the solution means in this situation.