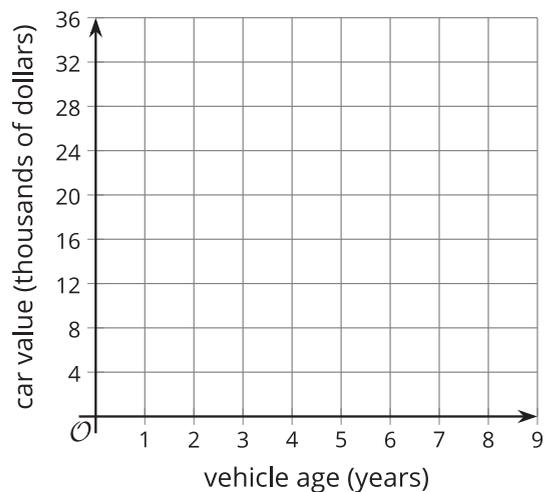


## Lesson 17 Practice Problems

1. a. The table shows the value of a car, in thousands of dollars, each year after it was purchased. Plot the data values, and find a line that fits the data.

age (years)	value (thousands of dollars)
0	30.0
1	22.5
2	19.0
3	16.0
4	13.5
5	11.4



- b. Write an equation for the linear function,  $C$ , that gives the value of the car, in thousands of dollars, when its age is  $t$  years.
- c. What does  $C(6)$  mean in this situation? What is the value of  $C(6)$ ?
- d. In this situation, what does the solution to the equation  $C(t) = 2$  tell us? Find that solution.
- e. Write an equation that would allow us to find the age of the car when we know  $C(t)$ .

f. Use your equation to estimate the vehicle age when the value of the car will be \$500.

2. The distance  $d$ , in kilometers, that a car travels at a speed of 80 km per hour, for  $t$  hours, is given by the equation  $d = 80t$ .

a. If the car has gone 120 kilometers, how long has it been traveling?

b. Rewrite the equation to represent time,  $t$ , as a function of distance,  $d$ .

3. Match each function to its inverse.

A.  $y = 2x - 3$

B.  $y = 3x$

C.  $y = 3x - 2$

D.  $y = x - 2$

E.  $y = x + 2$

F.  $y = \frac{x - 2}{3}$

1.  $x = \frac{y + 2}{3}$

2.  $x = \frac{y + 3}{2}$

3.  $x = 3y + 2$

4.  $x = y + 2$

5.  $x = \frac{y}{3}$

6.  $x = y - 2$

4. Functions  $h$  and  $j$  are inverses. When  $x$  is  $-10$ , the value of  $h(x)$  is  $7$ , or  $h(-10) = 7$ .

- a. What is the value of  $j(7)$ ?
- b. Determine if each point is on the graph of  $h$ , on the graph of  $j$ , or neither. Explain your reasoning.
  - i.  $(-10, 7)$
  - ii.  $(7, -10)$

5. Crickets make chirping sounds by rubbing their wings together. The number of chirps they make is closely related to the temperature of their environment. When the temperature is between  $55$  and  $100$  degrees Fahrenheit, we can tell the temperature by counting the number of chirps!



A formula that is commonly used to find the temperature in degrees Fahrenheit is:

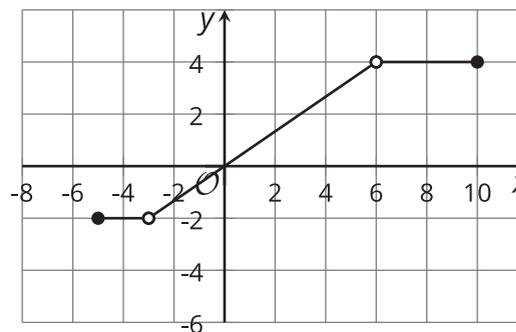
Count the number of chirps in 14 seconds, and then add 40 to get the temperature.

Let  $n$  be the number of chirps that crickets make in 14 seconds and  $F$  be the temperature in degrees Fahrenheit.

- a. What is the temperature when a cricket chirps 52 times in 14 seconds?
- b. Write an equation that defines  $F$  as a function of  $n$ .
- c. How many chirps would we expect to hear in 14 seconds when it is 60 degrees Fahrenheit?
- d. Write an equation that defines  $n$  as a function of  $F$ .

(From Unit 4, Lesson 16.)

6. Describe the domain and range of the function this graph represents.



(From Unit 4, Lesson 12.)

7. The parking rate  $R$  for a car in a garage is a function of  $t$ , the hours it is parked.



**STARTING NOVEMBER 1**  
**DAILY PARKING RATES**  
 COLLEGE & LAKEVIEW PARKING GARAGE

HOURS	RATE
0 - 2	FREE
2 - 2.5	\$2.00
2.5 - 3	\$3.00
3 - 3.5	\$4.00
3.5 - 4	\$5.00
4 - 5	\$6.00
5 - 6	\$7.00
6 - 7	\$8.00
> 7	\$8.00
LOST TICKET	\$8.00

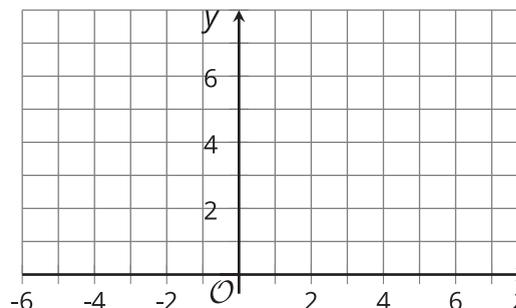
- a. Find  $R(1)$ .
- b. Find  $R(4.5)$ .
- c. Find  $R(8)$ .

(From Unit 4, Lesson 12.)

8. Here are rules that define function  $f$ .

$$f(x) = \begin{cases} 2, & -5 \leq x \leq 1 \\ x, & 1 < x < 5 \\ 7, & 5 \leq x \leq 7 \end{cases}$$

Draw the graph of  $f$ .



(From Unit 4, Lesson 12.)