

Lesson 16 Practice Problems

1. Tickets to a family concert cost \$10 for adults and \$3 for children. The concert organizers collected a total of \$900 from ticket sales.
 - a. In this situation, what is the meaning of each variable in the equation $10A + 3C = 900$?
 - b. If 42 adults were at the concert, how many children attended?
 - c. If 140 children were at the concert, how many adults attended?
 - d. Write an equation to represent C as a function of A . Explain what this function tells us about the situation.
 - e. Write an equation to represent A as a function of C . Explain what this function tells us about the situation.

2. A school group has \$600 to spend on T-shirts. The group is buying from a store that gives them a \$5 discount off the regular price per shirt.

$n = \frac{600}{p - 5}$ gives the number of shirts, n , that can be purchased at a regular price, p .

$p = \frac{600}{n} + 5$ gives the regular price, p , of a shirt when n shirts are bought.

 - a. What is n when p is 20?
 - b. What is p when n is 40?

c. Is one function an inverse of the other? Explain how you know.

3. Functions f and g are inverses, and $f(-2) = 3$. Is the point $(3, -2)$ on the graph of f , on the graph of g , or neither?

4. Here are two equations that relate two quantities, p and Q :

$$Q = 7p + 1,999$$

$$p = \frac{Q - 1,999}{7}$$

Select **all** statements that are true about p and Q .

A. $Q = 7p + 1,999$ could represent a function, but $p = \frac{Q - 1,999}{7}$ could not.

B. Each equation could represent a function.

C. $p = \frac{Q - 1,999}{7}$ could represent a function, but $Q = 7p + 1,999$ could not.

D. The two equations represent two functions that are inverses of one another.

E. If $Q = 7p + 1,999$ represents a function, then the inverse function can be defined by $p = 7Q - 1,999$.

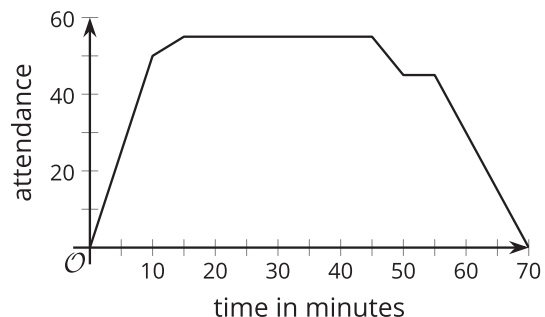
5. Elena plays the piano for 30 minutes each practice day. The total number of minutes p that Elena practiced last week is a function of n , the number of practice days.

Find the domain and range for this function.

(From Unit 4, Lesson 10.)

6. The graph shows the attendance at a sports game as a function of time in minutes.

a. Describe how attendance changed over time.



b. Describe the domain.

c. Describe the range.

(From Unit 4, Lesson 11.)

7. Two children set up a lemonade stand in their front yard. They charge \$1 for every cup. They sell a total of 15 cups of lemonade. The amount of money the children earned, R dollars, is a function of the number of cups of lemonade they sold, n .

a. Is 20 part of the domain of this function? Explain your reasoning.

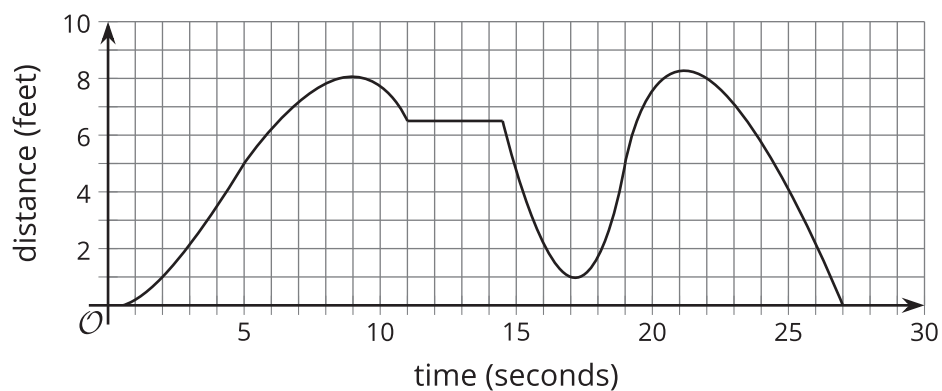
b. What does the range of this function represent?

c. Describe the set of values in the range of R .

d. Is the graph of this function discrete or continuous? Explain your reasoning.

(From Unit 4, Lesson 11.)

8. Here is the graph of function f , which represents Andre's distance from his bicycle as he walked in a park.



- Estimate $f(5)$.
- Estimate $f(17)$.
- For what values of t does $f(t) = 8$?
- For what values of t does $f(t) = 6.5$?
- For what values of t does $f(t) = 10$?

(From Unit 4, Lesson 6.)