Unit 5, Lesson 10

Interpreting Inputs and Outputs

Let's look at inputs and outputs of a function.

10.1 A Function Riddle

The table shows inputs and outputs for a function. What function could it be?

input	output
1	3
2	3
3	5
4	4
5	4
10	3
11	6

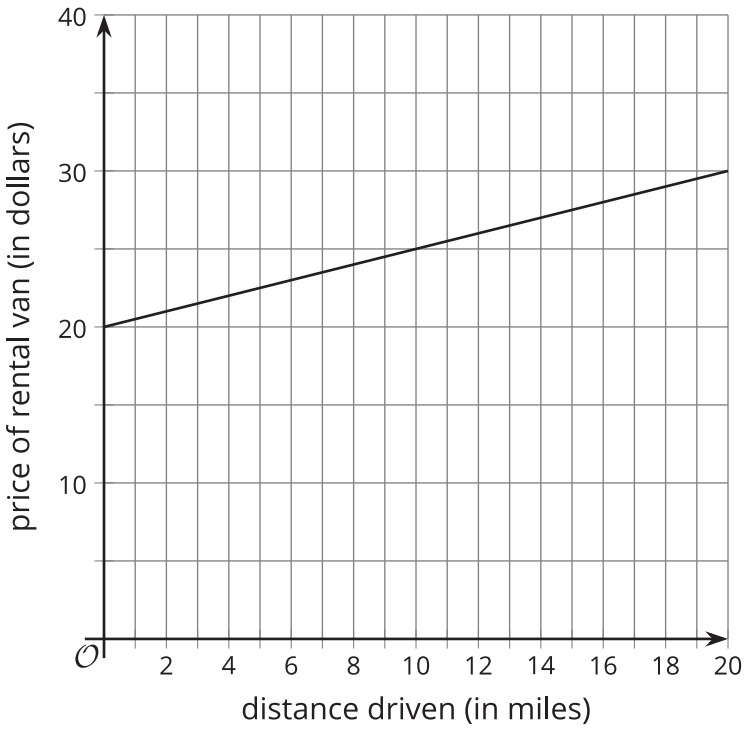
10.2 What's the Input?

1. For each pair of variables, which one makes the most sense as the input? When possible, include a reasonable unit.

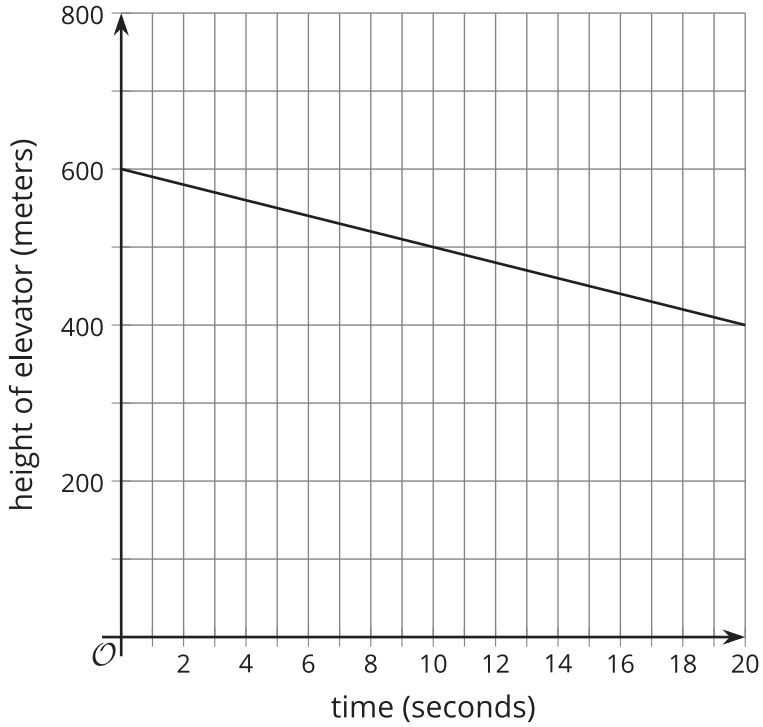
   a. the number of popcorn kernels left unpopped as a function of time cooked

   b. the cost of crab legs as a function of the weight of the crab legs

   c.



d.



e. $f(t) = 5t + 8$, where t represents the time that a bike is rented, in hours, and $f(t)$ gives the cost of renting the bike.

f. $g(n) = 7n + 4$, where n represents the number of pencils in a box and $g(n)$ represents the weight of the box of pencils in grams.

2. Write an equation or draw the graph of a function relating the 2 variables.

   a. Input: side length of a square, output: perimeter of the square

b. Input: time spent walking (minutes), output: distance walked (meters)

c. Input: time spent working out (minutes), output: heart rate (beats per minute)

10.3 Matching Possible Inputs

Take turns with your partner to match a function from Column A with its possible inputs from Column B. Be prepared to explain your reasoning for whether or not you include each input.

- For each function, explain to your partner whether or not each input is possible to use in the function.
- For each input, listen carefully to their explanation. If you disagree, discuss your thinking and work to reach an agreement.

Column A

1. $f(\text{person}) = \text{the person's birthday}$
2. $g(x) = 2x + 1$
3. $h(\text{item}) = \text{the number of chromosomes in the item}$
4. $P(\text{equilateral triangle side length}) = 3 \cdot (\text{side length})$
5. $C(\text{number of students}) = 9.99(\text{number of students}) + 15$

Column B

- Martha Washington (the first First Lady of the United States)
- an apple
- 6
- 9.2
- 0
- -1

For each function, write 2 additional inputs that make sense to use with these models. Write 1 additional input that does not make sense to use with these models. Be prepared to share your reasoning.