

Lesson 10: Interpreting Inputs and Outputs

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

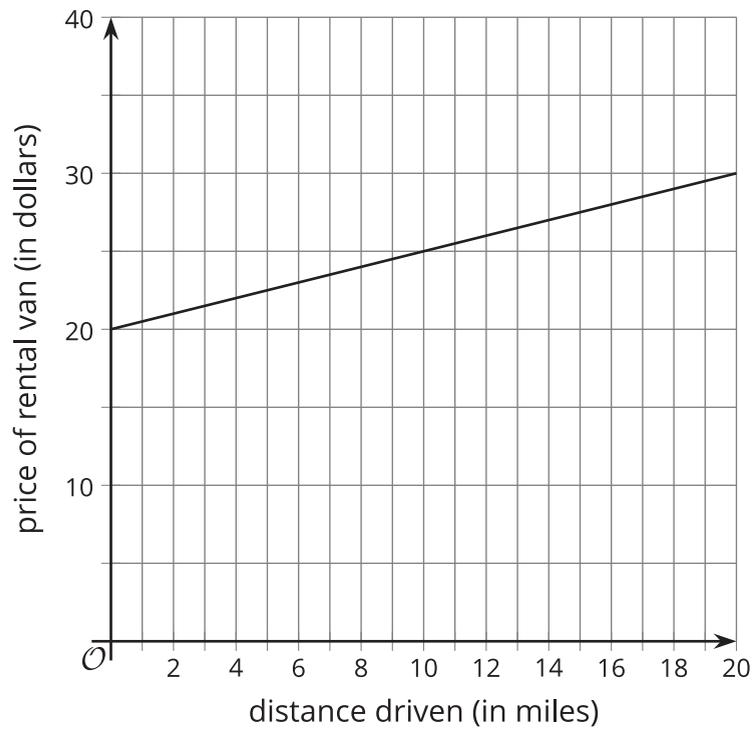
10.1: A Function Riddle

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

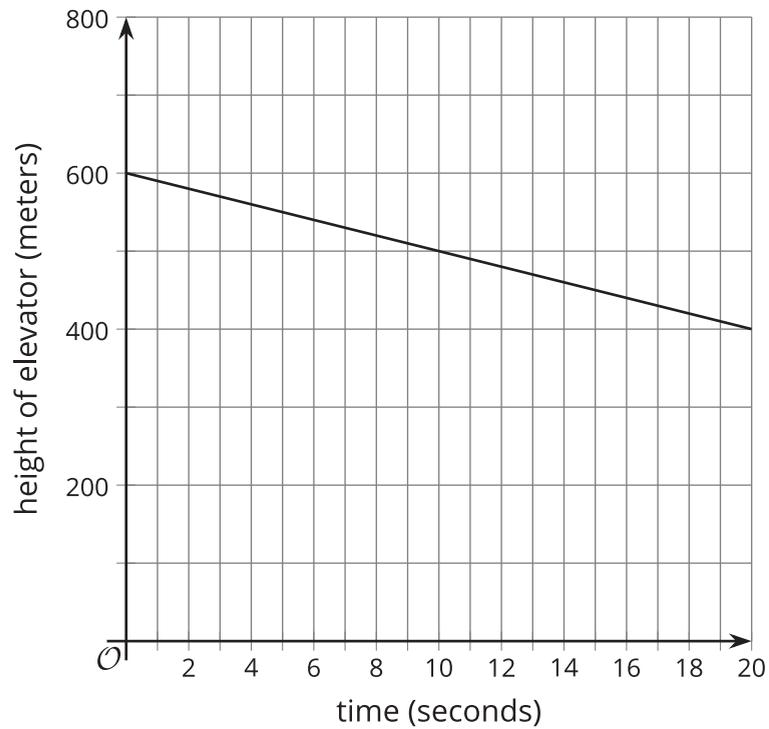
input	output
1	3
2	3
3	5
4	4
5	4
10	3
11	6

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 the 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

For each function in column A, find which inputs in column B could be used in the function. Be prepared to explain your reasoning for whether you include each input or not.

1. Take turns with your partner to match a function with its possible inputs.

a. For each function, explain to your partner whether each input is possible to use in the function or not.

b. For each input, listen carefully to their explanation. If you disagree, discuss your thinking and work to reach an agreement.

1. $f(\text{person}) = \text{the person's birthday}$

- Martha Washington (the first First Lady of the United States)

2. $g(x) = 2x + 1$

- an apple

3. $h(\text{item}) = \text{the number of chromosomes in the item}$

- 6
- 9.2

4. $P(\text{equilateral triangle side length}) = 3 \cdot (\text{side length})$

- 0
- -1

5. $C(\text{number of students}) = 9.99(\text{number of students}) + 15$

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