## Lesson 9: Interpreting Functions

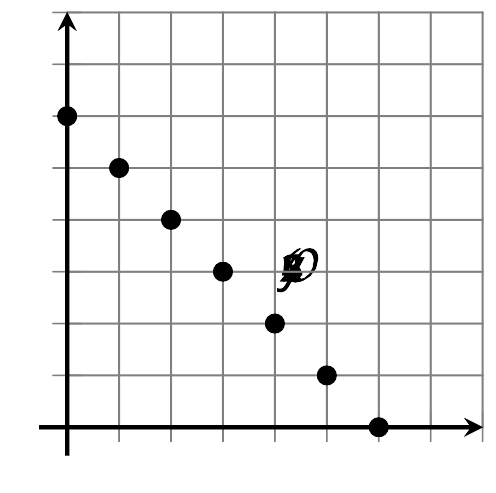
* Let’s describe the domain of a function based on the context it models.

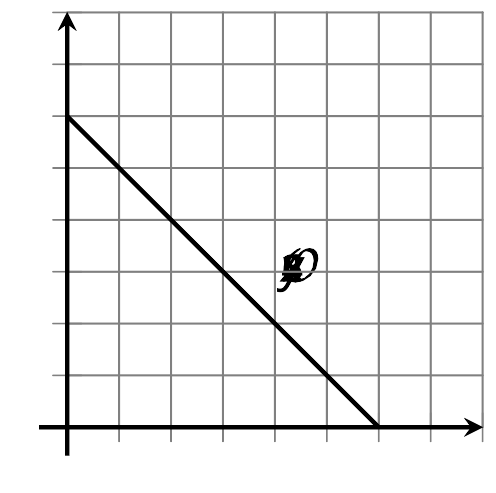
### 9.1: Notice and Wonder: What Do You See?

Here is a table of values of data that was collected.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
|  | 6 | 5 | 4 | 3 | 2 | 1 | 0 |

Here are two graphs of the data. What do you notice? What do you wonder?



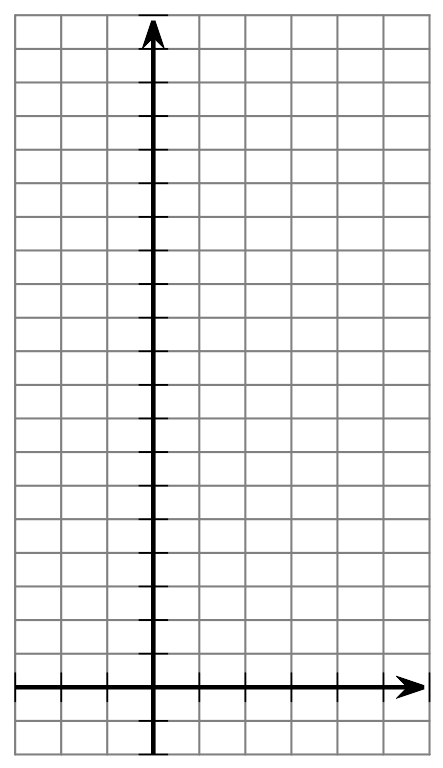


### 9.2: Connect . . . or Not

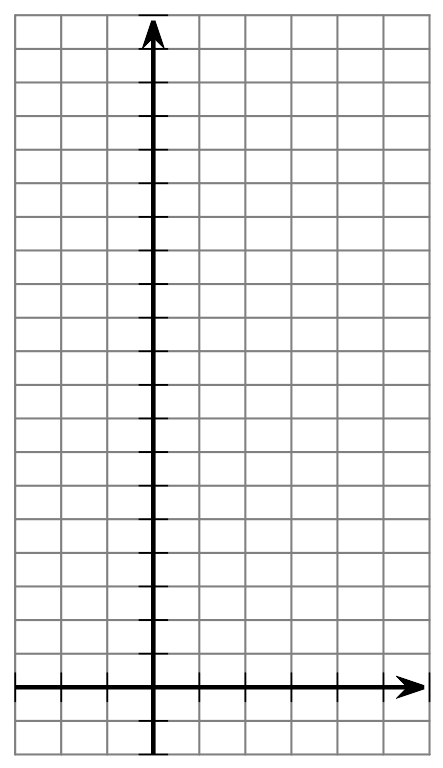
Here are descriptions of relationships between quantities.

* Make a table of at least 5 pairs of values that represent the relationship.
* Plot the points. Label the axes of the graph.
* Should the points be connected? Are there any input or output values that don’t make sense? Explain.

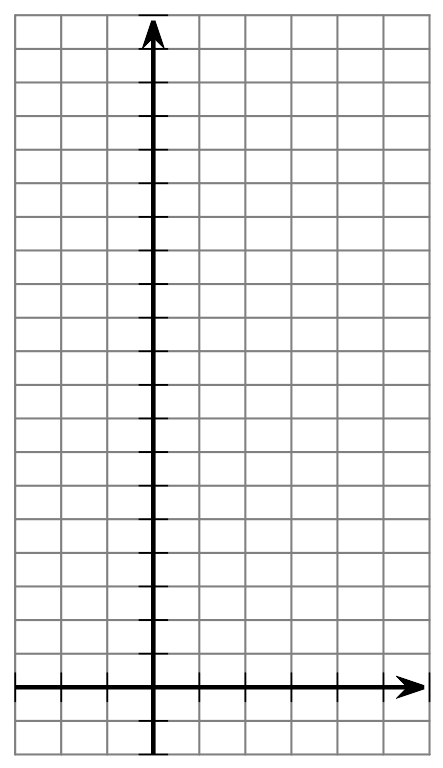
1. A cab charges $1.50 per mile plus $3.50 for entering the cab. The cost of the ride is a function of the miles, , ridden and is defined by .

* 

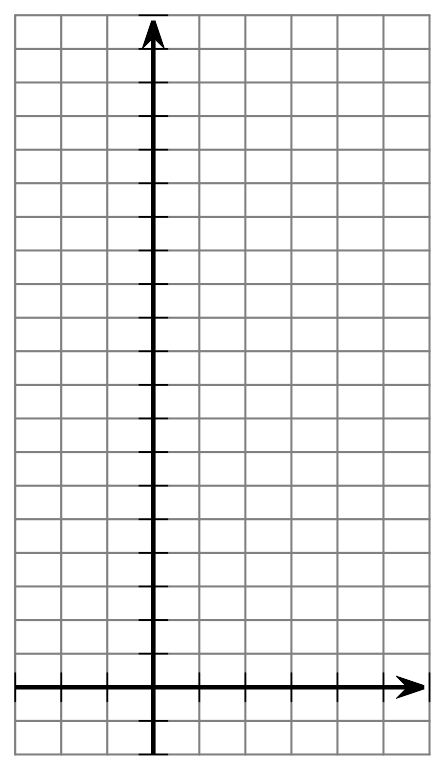
1. The admission to the state park is $5.00 per vehicle plus $1.50 per passenger. The total admission for one vehicle is a function of the number of passengers, , defined by the equation .

* 

1. A new species of mice is introduced to an island, and the number of mice is a function of the time in months, , since they were introduced. The number of mice is represented by the model .

* 

1. When you fold a piece of paper in half, the visible area of the paper gets halved. The area is a function of number of folds, , and is defined by .

* 

### 9.3: Thinking Like a Modeler

To make sense in a given context, many functions need restrictions on the domain and range. For each description of a function

* describe the domain and range
* describe what its graph would look like (separate dots, or connected?)

1. weight of a puppy as a function of time
2. number of winter coats sold in a store as a function of temperature outside
3. number of books in a library as a function of number of people who live in the community the library serves
4. height of water in a tank as a function of volume of water in the tank
5. amount of oxygen in the atmosphere as a function of elevation above or below sea level
6. thickness of a folded piece of paper as a function of number of folds



© CC BY 2019 by Illustrative Mathematics®