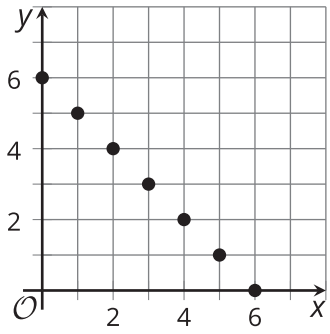
Interpreting Functions

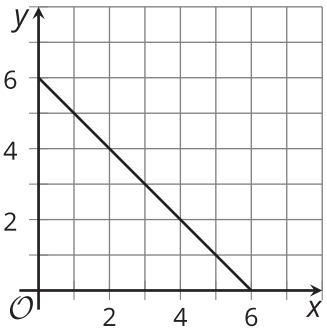
Let's describe the domain of a function based on the context it models.

12.1 Notice and Wonder: What Do You See?

Here is a table of values of data that was collected and two graphs of the data. What do you notice? What do you wonder?

x	0	1	2	3	4	5	6
y	6	5	4	3	2	1	0



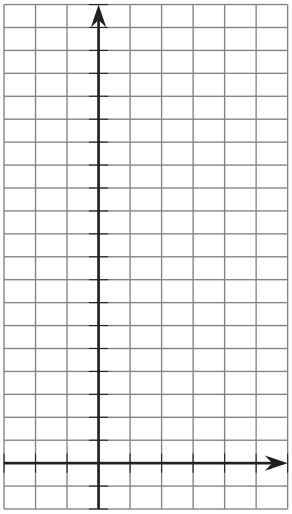


12.2 Connected or Not?

Here are descriptions of relationships between quantities. For each description:

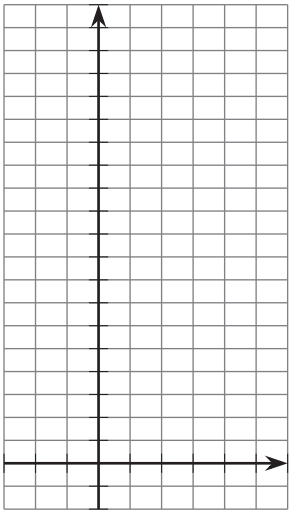
- Make a table of at least 5 pairs of values that represent the relationship.
- Plot the points. Label the axes of the graph.
- Answer these questions and explain your reasoning: Should the points be connected? Are there any input or output values that don't make sense?

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 m, and is defined by $c(m) = 1.50m + 3.50$.



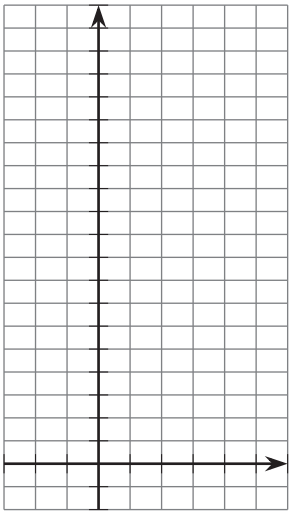
m	c

2. 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 p, defined by the equation $a(p) = 5 + 1.50p$.



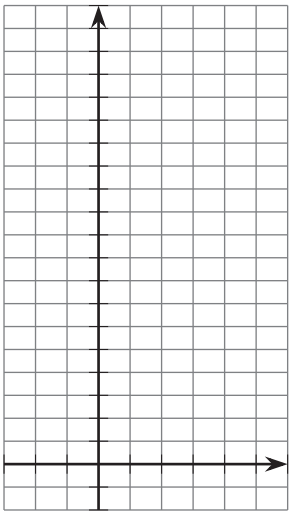
p	a

3. A new species of mice is introduced to an island, and the number of mice is a function of the time in months t since they were introduced. The number of mice is represented by the model $b(t) = 16 \cdot (1.5)^t$.



t	b

4. When you fold a piece of paper in half, the visible area of the paper gets halved. The area is a function of the number of folds n, and is defined by $A(n) = 93.5\left(\frac{1}{2}\right)^n$.



n	A

12.3 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