



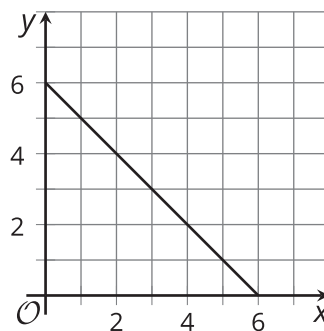
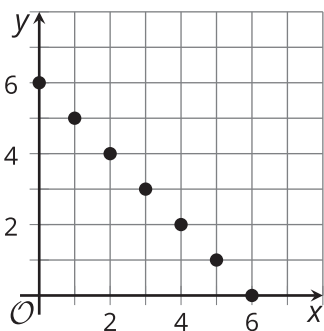
# Interpreting Functions

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



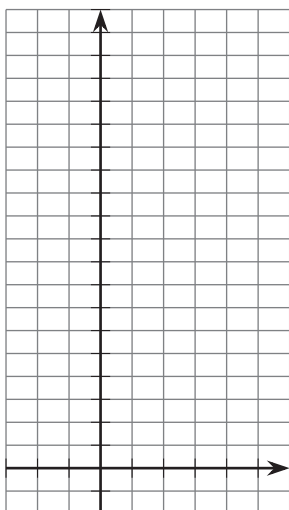
## 12.2

## Connected or Not?

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

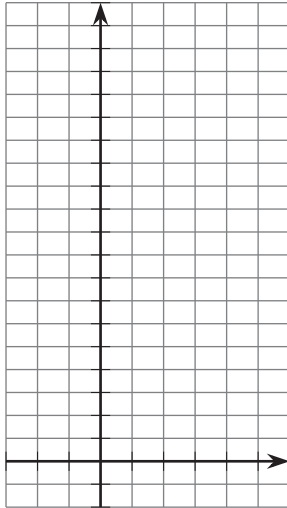
- Make a table of at least 5 pairs of values that represent the relationship.
- Plot the points. Label the axes of the graph.
- Answer these questions and explain your reasoning: Should the points be connected? Are there any input or output values that don't make sense?

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  $c(m) = 1.50m + 3.50$ .



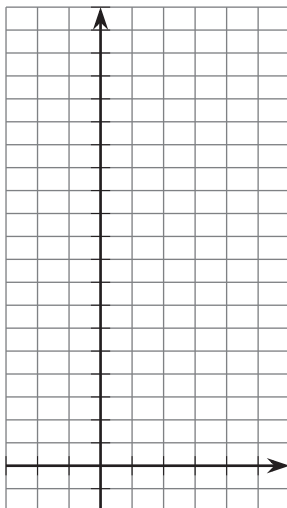
$m$	$c$

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  $a(p) = 5 + 1.50p$ .



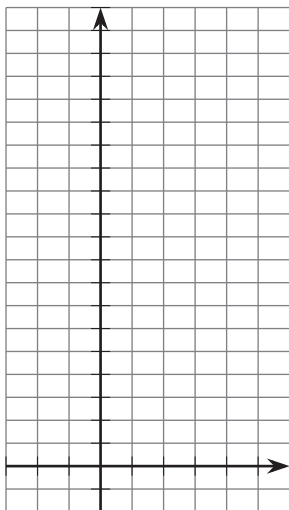
$p$	$a$

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

