

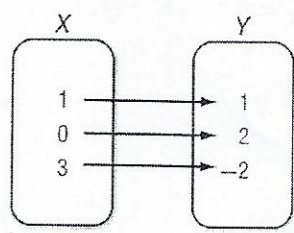
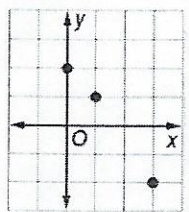
1-6 Study Guide and Intervention

Relations

Represent a Relation A **relation** is a set of ordered pairs. A relation can be represented by a set of ordered pairs, a table, a graph, or a **mapping**. A mapping illustrates how each element of the domain is paired with an element in the range. The set of first numbers of the ordered pairs is the **domain**. The set of second numbers of the ordered pairs is the **range** of the relation.

Example: a. Express the relation $\{(1, 1), (0, 2), (3, -2)\}$ as a table, a graph, and a mapping.

x	y
1	1
0	2
3	-2

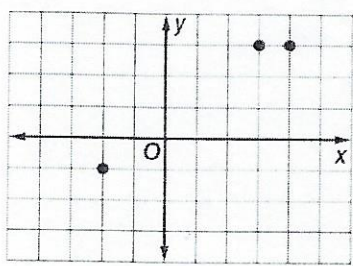


b. **Determine the domain and the range of the relation.**

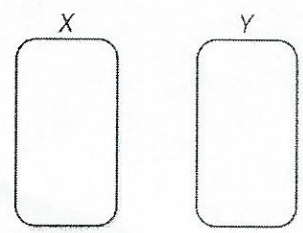
The domain for this relation is $\{0, 1, 3\}$. The range for this relation is $\{-2, 1, 2\}$.

Exercises

1A. Express the relation $\{(-2, -1), (3, 3), (4, 3)\}$ as a table, a graph, and a mapping.



x	y



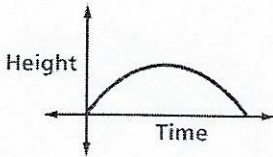
1B. Determine the domain and the range of the relation.

1-6 Study Guide and Intervention *(continued)*

Relations

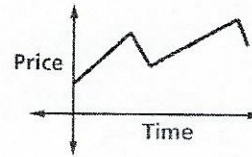
Graphs of a Relation The value of the variable in a relation that is subject to choice is called the **independent variable**. The variable with a value that is dependent on the value of the independent variable is called the **dependent variable**. These relations can be graphed without a scale on either axis, and interpreted by analyzing the shape.

Example 1: The graph below represents the height of a football after it is kicked downfield. Identify the independent and the dependent variable for the relation. Then describe what happens in the graph.



The independent variable is time, and the dependent variable is height. The football starts on the ground when it is kicked. It gains altitude until it reaches a maximum height, then it loses altitude until it falls to the ground.

Example 2: The graph below represents the price of stock over time. Identify the independent and dependent variable for the relation. Then describe what happens in the graph.

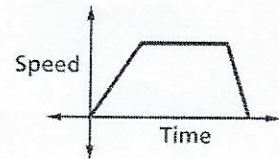


The independent variable is time and the dependent variable is price. The price increases steadily, then it falls, then increases, then falls again.

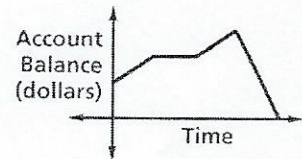
Exercises

Identify the independent and dependent variables for each relation. Then describe what is happening in each graph.

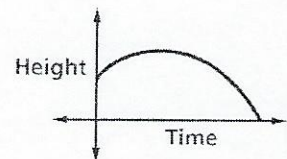
1. The graph represents the speed of a car as it travels to the grocery store.



2. The graph represents the balance of a savings account over time.



3. The graph represents the height of a baseball after it is hit.



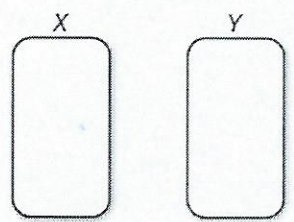
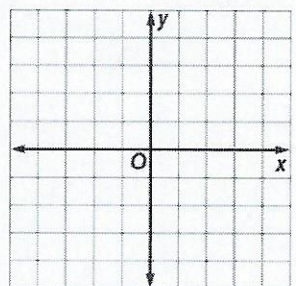
1-6 Skills Practice

Relations

Express each relation as a table, a graph, and a mapping. Then determine the domain and range.

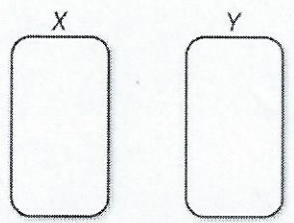
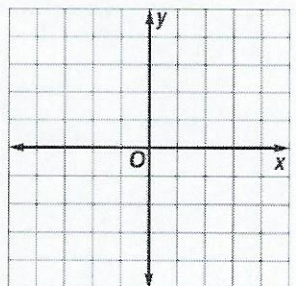
1. $\{(-1, -1), (1, 1), (2, 1), (3, 2)\}$

x	y



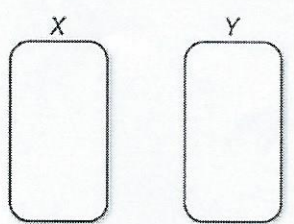
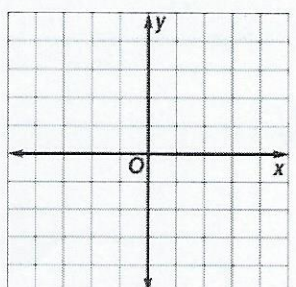
2. $\{(0, 4), (-4, -4), (-2, 3), (4, 0)\}$

x	y



3. $\{(3, -2), (1, 0), (-2, 4), (3, 1)\}$

x	y



Identify the independent and dependent variables for each relation.

- The more hours Maribel works at her job, the larger her paycheck becomes.
- Increasing the price of an item decreases the amount of people willing to buy it.