

# 1.6 Represent Functions as Rules and Tables

TEKS A.1.A, A.1.B, A.1.C, A.2.B

**Before**

You wrote algebraic expressions and equations.

**Now**

You will represent functions as rules and as tables.

**Why?**

So you can describe consumer costs, as in Example 1.



## Key Vocabulary

- function
- domain
- range
- independent variable
- dependent variable

When you pump gas, the total cost depends on the number of gallons pumped. The total cost is a *function* of the number of gallons pumped.

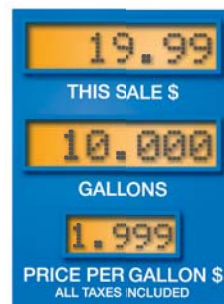
A **function** consists of:

- A set called the **domain** containing numbers called **inputs**, and a set called the **range** containing numbers called **outputs**.
- A pairing of inputs with outputs such that each input is paired with exactly one output.

### EXAMPLE 1 Identify the domain and range of a function

The input-output table shows the cost of various amounts of regular unleaded gas from the same pump. Identify the domain and range of the function.

<b>Input (gallons)</b>	10	12	13	17
<b>Output (dollars)</b>	19.99	23.99	25.99	33.98



#### Solution

- The domain is the set of inputs: 10, 12, 13, and 17. The range is the set of outputs: 19.99, 23.99, 25.99, and 33.98.



#### GUIDED PRACTICE for Example 1

1. Identify the domain and range of the function.

<b>Input</b>	0	1	2	4
<b>Output</b>	5	2	2	1

**MAPPING DIAGRAMS** A function may be represented by a *mapping diagram*. Notice that an output may be paired with more than one input, but no input is paired with more than one output.

