**Essential Question**  How can you find the domain and range of a function?

**ACTIVITY:** The Domain and Range of a Function

Work with a partner. The table shows the number of adult and child tickets sold for a school concert.

<table>
<thead>
<tr>
<th>Number of Adult Tickets, $x$</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Child Tickets, $y$</td>
<td>8</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

The variables $x$ and $y$ are related by the linear equation $4x + 2y = 16$.

a. Write the equation in **function form** by solving for $y$.

b. The **domain** of a function is the set of all input values. Find the domain of the function represented by the table.

Domain = ____________________________

Why is $x = 5$ not in the domain of the function?

Why is $x = \frac{1}{2}$ not in the domain of the function?

c. The **range** of a function is the set of all output values. Find the range of the function represented by the table.

Range = ____________________________
d. Functions can be described in many ways.
   - by an equation
   - by an input-output table
   - in words
   - by a graph
   - as a set of ordered pairs

Use the graph to write the function as a set of ordered pairs.

**ACTIVITY: Finding Domains and Ranges**

Work with a partner.
- Complete each input-output table.
- Find the domain and range of each function represented by the table.

a. \( y = -3x + 4 \)

\[
\begin{array}{c|c|c|c|c|c}
 x & -2 & -1 & 0 & 1 & 2 \\
 y & \ & \ & \ & \ & \\
\end{array}
\]

b. \( y = \frac{1}{2}x - 6 \)

\[
\begin{array}{c|c|c|c|c|c|c}
 x & 0 & 1 & 2 & 3 & 4 \\
 y & \ & \ & \ & \ & \\
\end{array}
\]

c.

\[
\begin{array}{c|c|c|c|c|c|c|c|c|c|c}
 x & \ & \ & \ & \ & \ & \ & \ & \ & \ & \\
 y & \ & \ & \ & \ & \ & \ & \ & \ & \ & \\
\end{array}
\]

d.

\[
\begin{array}{c|c|c|c|c|c|c|c|c|c|c}
 x & \ & \ & \ & \ & \ & \ & \ & \ & \ & \\
 y & \ & \ & \ & \ & \ & \ & \ & \ & \ & \\
\end{array}
\]
4.1 Domain and Range of a Function (continued)

What Is Your Answer?

3. **IN YOUR OWN WORDS** How can you find the domain and range of a function?

4. The following are general rules for finding a person’s foot length.

To find the length $y$ (in inches) of a woman’s foot, divide her shoe size $x$ by 3 and add 7.

To find the length $y$ (in inches) of a man’s foot, divide his shoe size $x$ by 3 and add 7.3.

**a.** Write an equation for one of the statements.

**b.** Make an input-output table for the function in part (a).

Use shoe sizes $\frac{5}{2}$ to 12.

**c.** Label the domain and range of the function represented by the table.