

Input Output Detective

Find the x -values and y -values in each function.

GRADE 8 • 8.PFA.2.b

8.PFA.2.b "Identify the domain and range of a function represented as a set of ordered pairs, a table, or a graph of discrete points."

NAME _____

DATE _____

DOMAIN AND RANGE

The domain is the set of all input values, or x -values. The range is the set of all output values, or y -values. List each value only once, even if it appears in more than one ordered pair.

WORKED EXAMPLE

Find the domain and range of $\{(-2, 7), (1, 4), (5, 4)\}$.

1. The x -values are $-2, 1$, and 5 .
2. The y -values are $7, 4$, and 4 .
3. Write repeated values only once.

Answer: Domain: $\{-2, 1, 5\}$; Range: $\{4, 7\}$

PRACTICE 6 problems

- 1** Find the domain and range of $\{(3, -5), (6, 2), (9, -5), (12, 8)\}$.

ANSWER _____

- 2** This table represents a function. x : $-6, 0, 5, 10$ y : $11, -3, 11, 6$ Find the domain and range.

ANSWER _____

- 3** A graph has discrete points at $(-8, 9)$, $(-3, 0)$, $(2, 9)$, and $(13, -4)$. Find the domain and range.

ANSWER _____

- 4** This table represents a function. x : $14, 16, 18, 20$ y : $25, 19, 25, 13$ Find the domain and range.

ANSWER _____

- 5** Find the domain and range of $\{(-1/2, 3), (1/2, -6), (3/2, 3)\}$.

ANSWER _____

- 6** A graph has discrete points at $(0, 12)$, $(5, 10)$, $(10, 8)$, and $(15, 6)$. Find the domain and range.

ANSWER _____

APPLY IT Show your work

- 1** A music app tracks the number of songs Mateo adds to a playlist each week. The table shows week number and total songs added. Week number: 0, 5, 10, 15 Total songs added: 6, 12, 18, 24 What are the domain and range of this function?

WORK SPACE

ANSWER _____

- 2** At a school recycling event, a team records the number of bags collected and the number of bottles inside. The data points are (2, 9), (3, 13), (5, 21), and (6, 25). What are the domain and range?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A graph has discrete points at $(-9, 14)$, $(-5, 6)$, $(2, 14)$, $(11, 6)$, and $(17, -1)$. List the domain and range in increasing order. Then explain why the range has fewer values than the domain.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Find the domain and range of $\{(3, -5), (6, 2), (9, -5), (12, 8)\}$.	Domain: {3, 6, 9, 12}; Range: {-5, 2, 8}
2	This table represents a function. x: -6, 0, 5, 10 y: 11, -3, 11, 6 Find the domain and range.	Domain: {-6, 0, 5, 10}; Range: {-3, 6, 11}
3	A graph has discrete points at $(-8, 9)$, $(-3, 0)$, $(2, 9)$, and $(13, -4)$. Find the domain and range.	Domain: {-8, -3, 2, 13}; Range: {-4, 0, 9}
4	This table represents a function. x: 14, 16, 18, 20 y: 25, 19, 25, 13 Find the domain and range.	Domain: {14, 16, 18, 20}; Range: {13, 19, 25}
5	Find the domain and range of $\{(-1/2, 3), (1/2, -6), (3/2, 3)\}$.	Domain: $\{-1/2, 1/2, 3/2\}$; Range: {-6, 3}
6	A graph has discrete points at $(0, 12)$, $(5, 10)$, $(10, 8)$, and $(15, 6)$. Find the domain and range.	Domain: {0, 5, 10, 15}; Range: {6, 8, 10, 12}

PART 2 • APPLY IT

- Domain: {0, 5, 10, 15}; Range: {6, 12, 18, 24}** Use the week numbers as the input values, so they form the domain. Use the total songs added as the output values, so they form the range.
- Domain: {2, 3, 5, 6}; Range: {9, 13, 21, 25}** The first number in each point is the number of bags and belongs in the domain. The second number is the number of bottles and belongs in the range.

CHALLENGE

Domain: {-9, -5, 2, 11, 17}; Range: {-1, 6, 14}. The range has fewer values because 14 and 6 each occur more than once, but each range value is listed only once.

Accept domain and range values in any order if each set has the correct values and no repeats. Accept braces, lists, or clearly labeled sets.