LESSON MAKER PRO

One Input, One Output

Test tables, pairs, and graphs for functions.

GRADE 8 · 8.AT.C.6

8.AT.C.6 "Determine whether a relationship is a function by analyzing whether each input is assigned to exactly one output. Given a clearly defined set of input-output pairs in a table, mapping, or real-world description..."

NAME _____ DATE _____

THE FUNCTION RULE

A relationship is a function when each input has exactly one output. Different inputs may share an output. On a graph, two points with the same x-value and different y-values show that the relationship is not a function.

WORKED EXAMPLE

Is the relationship in the table a function?

Input	Output
11	21
11	22
12	21

1. Find inputs that appear more than once.
2. Input 11 has outputs 21 and 22.
3. One input has two different outputs.

Answer: No, it is not a function.

PRACTICE 4 problems

1 Is {(1, 4), (2, 5), (3, 4)} a function? Why?

ANSWER _____

2 Is {(4, 1), (4, 2), (5, 3)} a function? Why?

ANSWER _____

3 Is {(6, 2), (7, 2), (8, 2)} a function? Why?

ANSWER _____

4 Is {(2, 8), (3, 9), (2, 8)} a function? Why?

ANSWER _____

APPLY IT Show your work

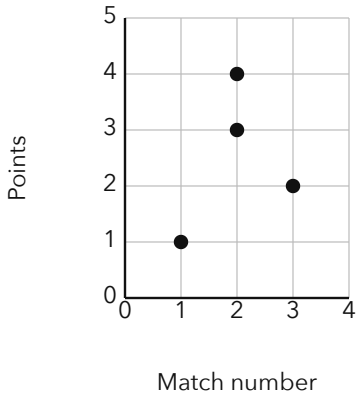
1 The table shows song lengths. Is song code to length a function? Why?

PLAYLIST

Song code	Length (seconds)
A	90
B	90
C	105

ANSWER _____

2 The graph shows one player's final points by match number. List both pairs for match 2. Is this a function? Why?



ANSWER _____

CHALLENGE One step up

Delete exactly one pair from {(5, 6), (6, 7), (5, 8), (7, 8)} to make a function. Name both pairs you could delete and explain why either choice works.

WORK SPACE AND ANSWER

ANSWER KEY

One Input, One Output

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Is {(1, 4), (2, 5), (3, 4)} a function? Why?	**Yes. Each input has exactly one output.**
2	Is {(4, 1), (4, 2), (5, 3)} a function? Why?	**No. Input 4 has outputs 1 and 2.**
3	Is {(6, 2), (7, 2), (8, 2)} a function? Why?	**Yes. Each input has exactly one output, even though the outputs match.**
4	Is {(2, 8), (3, 9), (2, 8)} a function? Why?	**Yes. The repeated input 2 has the same output both times.**

PART 2 · APPLY IT

1. **Yes. Each song code has one length.** The two songs that last 90 seconds have different codes, so no input has two outputs.
2. **(2, 3) and (2, 4). No, match 2 has two different point totals.** Read the two points above x = 2. They give different outputs for the same input.

CHALLENGE

Delete (5, 6) or (5, 8). Either deletion leaves input 5 with exactly one output, and the other inputs already have one output each.

Accept any explanation that correctly checks whether each input has exactly one output. For the challenge, students must name both possible deletions.