LESSON MAKER PRO

One Input, One Output

Check whether each relationship is a function.

GRADE 8 · 8.AT.C.6.a

8.AT.C.6.a "Given a clearly defined set of input-output pairs in a table, mapping, or real-world description, determine whether the relationship is a function and explain why."

NAME _____ DATE _____

THE FUNCTION TEST

A relationship is a function when each input has only one output. Different inputs can share an output. A repeated input is fine if its output stays the same.

WORKED EXAMPLE

Does this table show a function?

Input	Output
11	7
12	8
11	9

1. Find the repeated input: 11.
2. Its outputs are 7 and 9.
3. One input has two outputs.

Answer: No, this relationship is not a function.

PRACTICE 4 problems

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

ANSWER _____

2 Is {(0, 6), (0, 3), (2, 6)} a function? Explain.

ANSWER _____

3 Is {(-3, 1), (-1, 2), (3, 0)} a function? Explain.

ANSWER _____

4 Is {(5, -1), (5, -1), (6, -2)} a function? Explain.

ANSWER _____

APPLY IT Show your work

1 Sam records the points earned at each game level. Are points a function of level? Explain.

SAM'S GAME SCORES

Level	Points
1	4
2	6
1	3

ANSWER _____

2 At a school store, Ana (ID 1) buys a blue cap, Bo (ID 2) buys a red cap, and Cam (ID 3) buys a blue cap. Is cap color a function of student ID? Explain.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A game saves (level, badge) pairs: (1, 4), (2, 5), (1, 4), (3, 6). Is badge a function of level? Change one output to make it NOT a function. Explain.

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? Explain.	**Yes. Each input has one output.**
2	Is {(0, 6), (0, 3), (2, 6)} a function? Explain.	**No. Input 0 has outputs 6 and 3.**
3	Is {(-3, 1), (-1, 2), (3, 0)} a function? Explain.	**Yes. Each input has one output.**
4	Is {(5, -1), (5, -1), (6, -2)} a function? Explain.	**Yes. The repeated input 5 has the same output both times.**

PART 2 · APPLY IT

1. **No. Level 1 has two different point totals, 4 and 3.** Compare the outputs for the repeated input, level 1.
2. **Yes. Each student ID has one cap color.** Each ID appears once. Two students buying blue caps does not change the answer.

CHALLENGE

Yes. Both pairs with input 1 have output 4. Change the third pair to (1, 2). Then input 1 has outputs 4 and 2, so the new relationship is not a function.

Accept any explanation that checks whether an input has different outputs. For the challenge, either pair with input 1 may be changed to give it an output other than 4.