LESSON MAKER PRO

Function Finder

Check inputs, outputs, tables, and graphs.

GRADE 8 · 8.PFA.2.a

8.PFA.2.a "Determine whether a relation, represented by a set of ordered pairs, a table, or a graph of discrete points is a function. Sets are limited to no more than 10 ordered pairs."

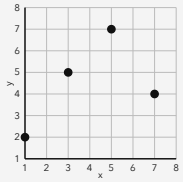
NAME _____ DATE _____

ONE INPUT, ONE OUTPUT

A relation is a function when each input, or x-value, is paired with only one output, or y-value. Different inputs may share the same output. On a graph, a relation is a function if no vertical line would pass through more than one plotted point.

WORKED EXAMPLE

Does the plotted relation represent a function?



1. Read the x-values: 1, 3, 5, and 7.
2. Each x-value appears only once.
3. No input is paired with two different outputs.

Answer: Yes, the relation is a function.

PRACTICE 6 problems

1 Determine whether this relation is a function: {(9, 10), (10, 11), (11, 12), (12, 13)}

ANSWER _____

2 Determine whether this relation is a function: {(9, 10), (10, 11), (9, 13), (13, 14)}

ANSWER _____

3 An input-output table has these rows: x = 9, y = 15; x = 10, y = 16; x = 11, y = 17; x = 12, y = 18. Is the relation a function?

ANSWER _____

4 An input-output table has these rows: x = 9, y = 15; x = 10, y = 16; x = 10, y = 18; x = 12, y = 19. Is the relation a function?

ANSWER _____

5 Determine whether this relation is a function: {(9, 15), (10, 15), (11, 16), (12, 16), (13, 17), (14, 17)}

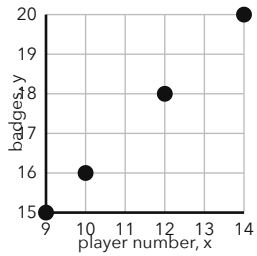
ANSWER _____

6 A student says this relation is not a function because y = 15 is used twice: {(9, 15), (10, 15), (11, 18), (12, 19)}. Is the student correct? Explain briefly.

ANSWER _____

APPLY IT Show your work

1 At an esports club, the graph shows each player number, x, and the number of badges earned, y, during a single event. Does player number map to badges as a function?



ANSWER _____

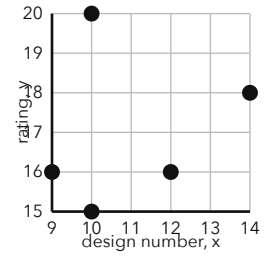
2 During several rounds of a gaming tournament, the relation between player number, x, and score, y, is {(9, 15), (10, 16), (10, 18), (12, 19)}. Does player number map to score as a function? Explain.

WORK SPACE

ANSWER _____

CHALLENGE One step up

The graph shows design number, x, and rating, y, for a student game-design showcase. Does the relation represent a function? Explain how the vertical line test supports your answer.



WORK SPACE AND ANSWER

ANSWER KEY

Function Finder

GRADE 8 · 8.PFA.2.a

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Determine whether this relation is a function: {(9, 10), (10, 11), (11, 12), (12, 13)}	**Yes, it is a function.**
2	Determine whether this relation is a function: {(9, 10), (10, 11), (9, 13), (13, 14)}	**No, it is not a function.**
3	An input-output table has these rows: x = 9, y = 15; x = 10, y = 16; x = 11, y = 17; x = 12, y = 18. Is the relation a function?	**Yes, it is a function.**
4	An input-output table has these rows: x = 9, y = 15; x = 10, y = 16; x = 10, y = 18; x = 12, y = 19. Is the relation a function?	**No, it is not a function.**
5	Determine whether this relation is a function: {(9, 15), (10, 15), (11, 16), (12, 16), (13, 17), (14, 17)}	**Yes, it is a function.**
6	A student says this relation is not a function because y = 15 is used twice: {(9, 15), (10, 15), (11, 18), (12, 19)}. Is the student correct? Explain briefly.	**No. It is a function because each x-value has only one y-value.**

PART 2 · APPLY IT

1. **Yes, player number maps to badges as a function.** Each player number on the graph has exactly one badge total. No x-value is paired with two y-values.
2. **No, player number does not map to score as a function.** Player number 10 is paired with both 16 and 18. One input has two different outputs.

CHALLENGE

No, it is not a function. A vertical line at x = 10 passes through two points, so one input has two outputs.

Accept "yes" or "no" with the correct function classification. For explanations, accept equivalent wording that identifies one repeated x-value with different y-values, or states that every x-value has only one y-value.