

Grade 8 - Understanding Functions - Quiz

Common Core 8.F.A.1, 8.F.A.2, 8.F.A.3 · maths-pdf.fr/en/

Name: _____ Class: _____ Date: ____/____/____

Pick the best answer for each of the 10 questions about functions, function notation, linear and nonlinear functions and comparing functions (Common Core 8.F.A.1, 8.F.A.2 and 8.F.A.3). Read each question carefully, then read the explanation to learn from any mistake.

Grade 8 · Common Core State Standards: **8.F.A.1, 8.F.A.2, 8.F.A.3**

Questions

Question 1

Which relation is NOT a function?

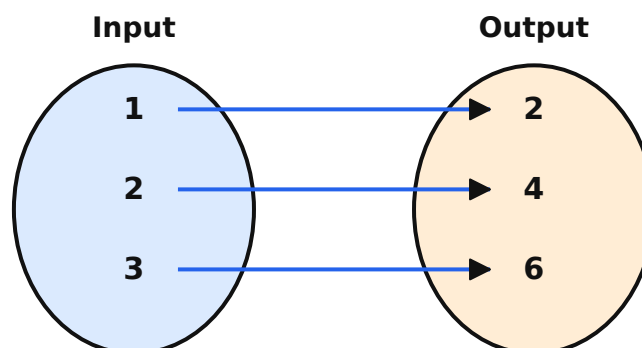
- A. $(1,2), (2,2), (3,2)$
- B. $(0,1), (1,3), (2,5)$
- C. $(1,2), (1,5), (3,4)$
- D. $(4,4), (5,5), (6,6)$

Question 2

If $g(x) = 3x - 4$, what is $g(5)$?

- A. 19
- B. 11
- C. 1
- D. 8

Question 3



Mapping diagram.

Which rule matches the mapping diagram?

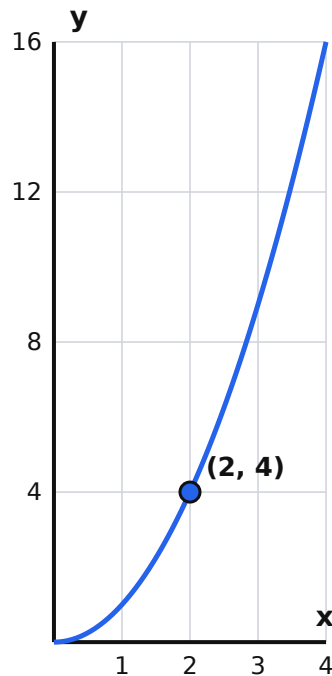
- A. $y = x + 1$
- B. $y = x + 2$
- C. $y = 3x$
- D. $y = 2x$

Question 4

Which table shows a linear function?

- A. x: 0, 1, 2, 3 and y: 5, 8, 11, 14
- B. x: 0, 1, 2, 3 and y: 1, 2, 4, 8
- C. x: 1, 2, 3, 4 and y: 1, 4, 9, 16
- D. x: 1, 2, 3, 4 and y: 2, 3, 5, 8

Question 5



A graph.

What kind of function is graphed?

- A. Linear
- B. Nonlinear
- C. Not a function
- D. Constant

Question 6

What is the rate of change of $y = -4x + 9$?

- A. 9
- B. 4
- C. -4
- D. -9

Question 7

The function $f(x) = 3x - 1$ gives $f(x) = 14$. What is x ?

- A. 5
- B. 13
- C. 4.33
- D. 41

Question 8

x	0	2	4
R(x)	5	9	13

Function R.

Function P is $P(x) = 4x - 3$. Function R is given by the table. Which has the greater rate of change?

- A. P (rate 4)
- B. R (rate 2)
- C. They are equal
- D. R (it starts higher)

Question 9

Which equation is NOT linear?

- A. $y = 6x$
- B. $y = x^2 + 1$
- C. $y = 4 - x$
- D. $y = 0.5x + 3$

Question 10

A vertical line is not a function because

- A. it has no slope
- B. it is too steep to measure

- C. it never touches the y-axis
- D. one input has many outputs

Answers

1. **C** - The input 1 has two outputs, 2 and 5.
2. **B** - $3 \times 5 - 4 = 11$. Adding 4 instead of subtracting gives 19.
3. **D** - Each output is twice the input.
4. **A** - The first table increases by 3 every time; the others do not.
5. **B** - The graph is a curve, so the rate of change is not constant. It passes the vertical line test, so it is a function.
6. **C** - In $y = mx + b$, the rate of change is $m = -4$.
7. **A** - $3x - 1 = 14$, so $x = 5$.
8. **A** - P has rate 4; R changes by 4 for every 2 units of x , a rate of 2. R starts higher, but P rises faster.
9. **B** - A squared variable makes the graph a curve.
10. **D** - The input of a vertical line, like $x = 3$, has infinitely many outputs.

Remember

- Every input has exactly one output in a function.
- Function notation: $f(x) = 2x + 1$ means $f(3) = 7$.
- Vertical line test: a graph is a function only if no vertical line touches it twice.
- Linear functions have a constant rate of change and graph as straight lines.
- Compare functions using rate of change and initial value, whatever their representation.