

Algebra 1 · Functions, Domain, Range and Function Notation · Quiz

Common Core F-IF.A.1, F-IF.A.2, F-IF.B.5 · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

Ten multiple-choice questions check whether you can recognize functions, evaluate function notation, read graphs and describe domain and range. Choose the single best answer, then read the explanation to learn from any miss.

Algebra 1 Common Core: **F-IF.A.1 · F-IF.A.2 · F-IF.B.5**

Questions

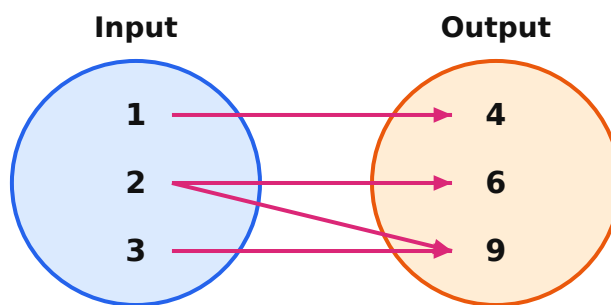
Question 1

Which relation is a function?

- A. $\{(3,1),(3,2),(4,6)\}$
- B. $\{(0,5),(1,5),(2,5)\}$
- C. $\{(2,7),(5,1),(2,9)\}$
- D. $\{(1,1),(4,2),(1,3)\}$

Question 2

Is the mapping a function?



Arrows from inputs to outputs.

- A. No, because the input 2 has two outputs, 6 and 9
- B. Yes, because every input has at least one output
- C. No, because the output 9 is used two times
- D. Yes, because the outputs 4, 6 and 9 are different

Question 3

If $f(x) = 4x - 7$, what is $f(-3)$?

- A. -5
- B. 5
- C. -10
- D. -19

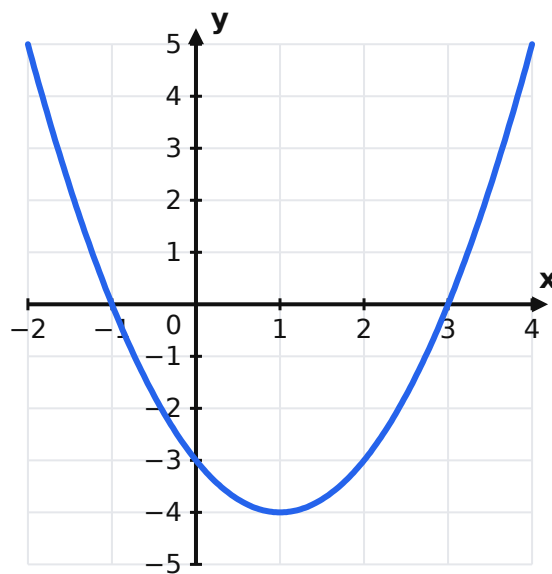
Question 4

If $g(x) = x^2 - 5x$, what is $g(-2)$?

- A. 6
- B. 14
- C. -14
- D. -6

Question 5

Use the graph of $f(x) = x^2 - 2x - 3$. What is $f(2)$?



The graph of $f(x) = x^2 - 2x - 3$.

- A. 2
- B. -4
- C. 3
- D. -3

Question 6

If $f(x) = 2x + 1$ and $f(\alpha) = 15$, what is α ?

- A. 7

- B. 31
- C. 14
- D. 8

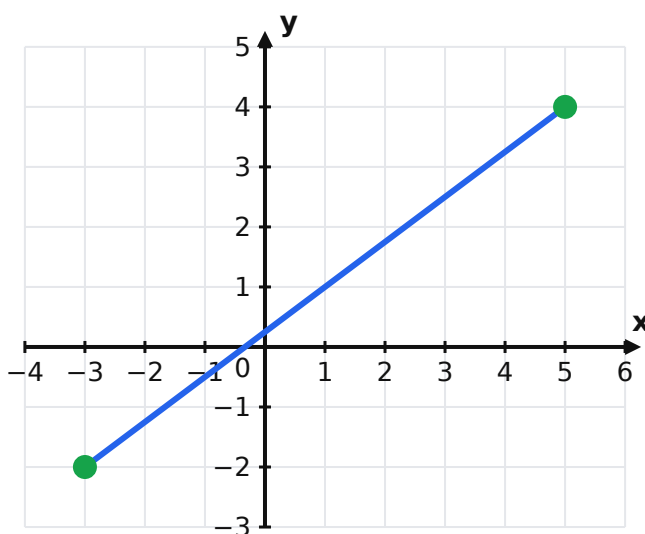
Question 7

$H(d)$ is the height in inches of a plant d days after planting. What does $H(10)=18$ mean?

- A. Eighteen days after planting, the plant is 10 inches tall
- B. The plant gains 10 inches every 18 days
- C. Ten days after planting, the plant is 18 inches tall
- D. The plant was 18 inches tall on the day it was planted

Question 8

What are the domain and range of the function graphed?



A line segment with closed endpoints.

- A. Domain $-2 \leq x \leq 4$; range $-3 \leq y \leq 5$
- B. Domain $-3 < x < 5$; range $-2 < y < 4$
- C. Domain $-3 \leq x \leq 5$; range $-2 \leq y \leq 4$
- D. All real numbers; range $-2 \leq y \leq 4$

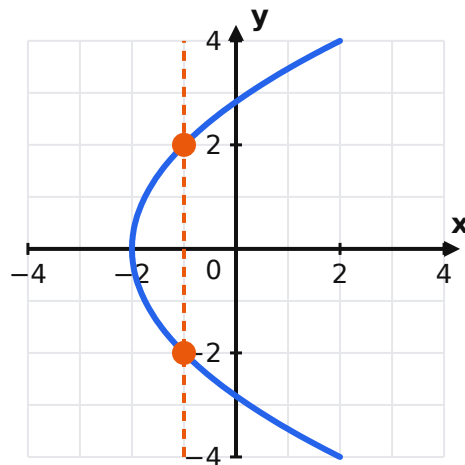
Question 9

A school store sells pencils for \$0.25 each, and a student can buy 1 to 8 pencils. What is the range of the cost function $C(n)=0.25n$?

- A. Every amount from .25 to .00
- B. .25, .50, .75, .00, .25, .50, .75, .00
- C. 1, 2, 3, 4, 5, 6, 7, 8
- D. Every amount from to .00

Question 10

A vertical line crosses a graph at two points, as shown. What does this tell you?



A vertical line meets this graph twice.

- A. The graph is not a function, because one x -value has two outputs
- B. The graph is a function with two outputs
- C. The graph is a function, because each y -value is used once
- D. The graph is not a function, because it is curved

Answer key

1. **B** - In the first set every input (0, 1, 2) appears once. Repeated outputs are allowed. In each other set an input is repeated with different outputs.
2. **A** - The input 2 has two arrows. Using an output twice, like 9, is allowed.
3. **D** - $f(-3) = 4(-3) - 7 = -12 - 7 = -19$. Getting -5 comes from adding 7 instead of subtracting it.
4. **B** - $g(-2) = (-2)^2 - 5(-2) = 4 + 10 = 14$. The value 6 comes from treating $(-2)^2$ as -4 .
5. **D** - At $x = 2$ the graph is at $y = -3$: $4 - 4 - 3 = -3$. The value -4 is the lowest point, which is at $x = 1$.
6. **A** - Solve $2a + 1 = 15$ to get $a = 7$. Choosing 31 means computing $f(15)$ instead.
7. **C** - The input (10 days) is inside the parentheses; the output (18 inches) is the value. Swapping them is the usual mistake.
8. **C** - The domain is the left-to-right span, x from -3 to 5 , and the endpoints are closed. The range is the bottom-to-top span.
9. **B** - Only whole numbers of pencils can be bought, so the cost takes only those eight values. The numbers 1 to 8 are the domain.
10. **A** - The line $x = -1$ is one input, and it meets the graph at $y = 2$ and $y = -2$. Curved graphs, like parabolas, can be functions.

Remember:

- Every input of a function has exactly one output; two inputs may share an output.
- A graph is a function if no vertical line crosses it twice.
- $f(a) = b$ means the output is b when the input is a .
- Domain is the set of inputs; range is the set of outputs.
- Discrete data has separate values; continuous data fills an interval.