

Grade 8 · Introduction to Functions · Test

Common Core 8.F.A.1, 8.F.A.2, 8.F.A.3 · mathovore.fr

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

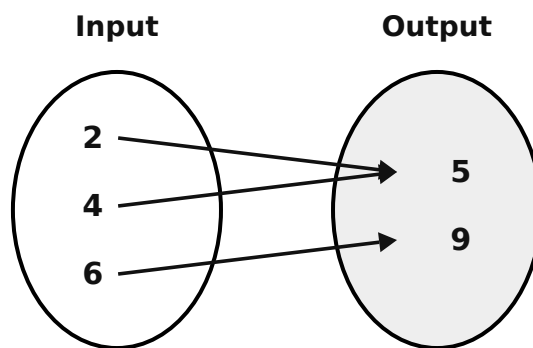
This test has nine questions worth 20 points in total and should take about 45 minutes. Show your reasoning in complete sentences where asked. Questions cover deciding whether a relation is a function, evaluating and writing rules, linear versus nonlinear functions, and comparing two functions. Calculators are not needed.

Test information

- **Grade:** Grade 8
- **Chapter:** Introduction to Functions
- **Common Core:** 8.F.A.1, 8.F.A.2, 8.F.A.3
- **Time:** 45 minutes
- **Total:** 20 points (Question 1: 2 pts; Question 2: 2 pts; Question 3: 2 pts; Question 4: 2 pts; Question 5: 3 pts; Question 6: 3 pts; Question 7: 2 pts; Question 8: 2 pts; Question 9: 2 pts)

Question 1: Mapping diagram (2 points)

Does the mapping diagram show a function? Explain.



A mapping from inputs to outputs.

Question 2: Table of values (2 points)

A relation has inputs 1, 3, 3, 5 and outputs 4, 6, 8, 10 in that order. Is it a function? Explain.

Question 3: Evaluate (2 points)

For $f(x) = -3x + 5$, find $f(-2)$ and $f(4)$.

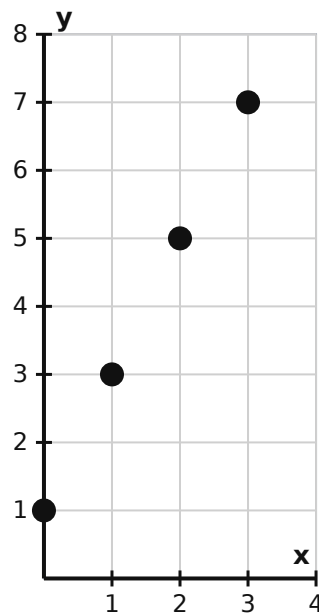
Question 4: Write an equation (2 points)

The inputs 1, 2, 3, 4 give outputs 5, 9, 13, 17. Write an equation for the function.

Question 5: Points on a line (3 points)

The graph shows four points of a function.

- Is the function linear? Explain. (1 point)
- Find the rate of change. (1 point)
- Write an equation. (1 point)



Four points of a function.

Question 6: Linear or nonlinear? (3 points)

Classify each function as linear or nonlinear.

- $y = 6x - 2$ (1 point)
- The area $A = s^2$ of a square with side s (1 point)
- x : 1, 2, 3, 4 and y : 2, 5, 10, 17 (1 point)

Question 7: Compare two functions (2 points)

Function A is $y = 5x + 2$. Function B has the table: $x = 0, 2, 4$ and $y = 1, 9, 17$. Which function

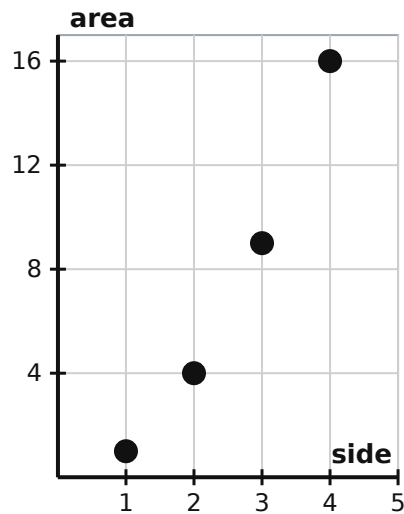
has the greater rate of change? Which has the greater initial value?

Question 8: Taxi fare (2 points)

A taxi charges \$3 plus \$2 per mile, so the fare is $f(m) = 2m + 3$ dollars for m miles. Find the fare for 7 miles and the number of miles for a fare of \$25.

Question 9: Area graph (2 points)

The graph shows the area of a square for sides 1, 2, 3 and 4. Is the function linear? Justify your answer using the graph or the values.



Area of a square against its side.