

Function Notation

For AQA GCSE Mathematics (8300) • Higher tier

Name _____

Total marks: **29**

Answer **all** questions in the spaces provided. Show your working: marks are given for correct method.

1 $f(x) = 5 - 2x^2$

(a) Work out $f(3)$

[1 mark]

Answer _____

(b) Work out $f(-\frac{1}{2})$

[1 mark]

Answer _____

(c) Solve $f(x) = -27$

[2 marks]

Answer _____

2 $f(x) = x^3 - x^2$

Circle the value of $f(-2)$

[1 mark]

3 $g(x) = \frac{x+5}{3}$

(a) Work out $g(7)$

[1 mark]

Answer _____

(b) Solve $g(x) = x - 1$

[2 marks]

Answer _____

4 $h(x) = x^2 + 3x$

Show that $h(x+1) = x^2 + 5x + 4$

[2 marks]

5 $f(x) = 3x - 2$

Solve $f(2x) = f(x) + 10$

[3 marks]

Answer _____

- 6 $f(x) = ax + b$ where a and b are constants.
 $f(4) = 3 \times f(1)$ and $f(2) = 10$
Work out the values of a and b .

[3 marks]

$a =$ _____ $b =$ _____

- 7 $f(x) = x^2$
Olu says,
“ $f(2x)$ is always equal to $2f(x)$ ”
Is Olu correct?
Show working to support your answer.

[2 marks]

- 8 $f(x) = 5 - 2x$
Nia says,
“The equation $f(x) = f(x + 3)$ has no solutions.”
Is Nia correct?
Show working to support your answer.

[2 marks]

- 9 $f(x) = 2x - 1$ and $g(x) = x^2$
Expand and simplify $g(x - 3) - f(2x)$

[3 marks]

Answer _____

- 10 $f(x) = x + 2$ and $g(x) = 3x + 10$
Solve $(f(x))^2 = g(x)$

[3 marks]

Answer _____

- 11 $h(x) = 3 \times 2^x$
(a) Work out $h(-1)$

[1 mark]

Answer _____

- (b) Solve $h(x) = 96$

[2 marks]

$x =$ _____