

Function Notation

For Pearson Edexcel GCSE Mathematics (1MA1) • Higher tier

Name _____

Total marks: **23**

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

1 $f(x) = x^2 - 4x$

(a) Find $f(-3)$

.....
(1)

(b) Solve $f(x) = 12$

.....
(3)

(Total for Question 1 is 4 marks)

2 $g(x) = \frac{3x}{x-2}$

(a) Find $g(4)$

.....
(1)

(b) Find $g(1)$

.....
(1)

(Total for Question 2 is 2 marks)

3 The function f is such that $f(x) = 3(x - 4)$

(a) Find the value of $f(10)$

.....
(1)

(b) Solve $f(x) = 15$

.....
(2)

(c) Find an expression for $f(2x)$
Give your answer in its simplest form.

.....
(1)

(Total for Question 3 is 4 marks)

4 $h(x) = x^2 + 5$
Dmitri needs to find the value of $h(-3)$
He writes

$$\begin{aligned} h(-3) &= -3^2 + 5 \\ &= -9 + 5 \\ &= -4 \end{aligned}$$

This is not correct.
Explain why.

.....
.....
(1)

(Total for Question 4 is 1 mark)

- 5 The function f is such that $f(x) = ax + b$ where a and b are constants.

$$f(2) = 3 \quad f(-1) = f(4) - 15$$

Find the value of a and the value of b .

$$a = \dots\dots\dots b = \dots\dots\dots$$

(3)

(Total for Question 5 is 3 marks)

- 6 $f(x) = 5x + 1$ and $g(x) = x^2$

Solve $f(x) = g(x) + 7$

$$\dots\dots\dots$$

(3)

(Total for Question 6 is 3 marks)

- 7 $h(x) = 2x^2 - x$

Show that $h(x + 2) - h(x) = 8x + 6$

(3)

(Total for Question 7 is 3 marks)

- 8** $f(x) = x^2 + 2x$ and $g(x) = 4x + 3$
Solve $f(x) = 2g(x) - 1$
Give your answers correct to 3 significant figures.

.....
(3)

(Total for Question 8 is 3 marks)
