

Inverse Functions

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

Name _____

Total marks: **27**

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

1 $f(x) = \frac{3x - 4}{2}$
Find $f^{-1}(x)$

$$f^{-1}(x) = \dots\dots\dots$$

(2)

(Total for Question 1 is 2 marks)

2 $f(x) = x^3 - 1$
(a) Find $f^{-1}(x)$

$$f^{-1}(x) = \dots\dots\dots$$

(2)

(b) Find $f^{-1}(26)$

$$\dots\dots\dots$$

(1)

(Total for Question 2 is 3 marks)

3 $g(x) = \frac{x}{x+5}$
Find $g^{-1}(x)$

$g^{-1}(x) = \dots\dots\dots$
(3)

(Total for Question 3 is 3 marks)

4 $f(x) = 3x + 5$ and $g(x) = x - 7$
Solve $f^{-1}(x) = g(x)$

$\dots\dots\dots$
(3)

(Total for Question 4 is 3 marks)

5 The functions f and g are such that

$$f(x) = x^2 - 3x \quad \text{and} \quad g(x) = \frac{x+6}{2}$$

(a) Find $g^{-1}(x)$

$$g^{-1}(x) = \dots\dots\dots (2)$$

(b) Given that $gf(k) = 5$
find the possible values of k .

$$\dots\dots\dots (3)$$

(Total for Question 5 is 5 marks)

6 The functions f and g are such that

$$f(x) = 10 - 3x \quad \text{and} \quad g(x) = \sqrt{x+4}$$

(a) Find $fg(5)$

$$\dots\dots\dots (2)$$

(b) Find $f^{-1}(x)$

$$f^{-1}(x) = \dots\dots\dots (2)$$

(Total for Question 6 is 4 marks)

- 7** $f(x) = \frac{2}{x}$
 $g(x) = x + 3$
 $h(x) = gf(x)$
 Find $h^{-1}(x)$

$$h^{-1}(x) = \dots\dots\dots (3)$$

(Total for Question 7 is 3 marks)

- 8** The functions p and q are such that
 $p(x) = 4x - 3$ and $q(x) = \frac{x}{x+1}$

- (a) Find $p^{-1}(9)$

$$\dots\dots\dots (1)$$

- (b) Find $p^{-1}q(x)$
 Give your answer as a single fraction in its simplest form.

$$p^{-1}q(x) = \dots\dots\dots (3)$$

(Total for Question 8 is 4 marks)
