

Inverse and Composite Functions

Question Paper

Level	GCSE
Subject	Maths
Exam Board	Edexcel GCSE
Topic	Inverse and Composite Functions
Grade Level	Grade 7
Booklet	Question Paper

Time Allowed: 53 minutes

Score: /44

Percentage: /100

Grade Boundaries:

1. Given that $f(x) = x - 4$ find:

a) $f(5)$

..... (1)

b) $f(3)$

..... (1)

2. Given that $g(x) = 2x^2 - 10$ find:

a) $g(2)$

..... (1)

b) $g(-2)$

..... (1)

c) *Solve:* $g(x) = 8$

..... (3)

3. Given that $f(x) = 3x - 5$ find:

a) $f(3)$

..... (1)

b) $f(-2)$

..... (1)

c) *Solve*: $f(x) = 1$

..... (2)

4. Given that $f(x) = x^2 - 3$ find:

a) $f(10)$

..... (1)

b) $f(-1)$

..... (1)

c) *Find*: $f^{-1}(x)$

..... (2)

5. Given that $f(x) = 2x - 4$ and $g(x) = 3x + 5$

a) Find: $gf(3)$

..... (2)

b) Work out an expression for: $f^{-1}(x)$

..... (2)

c) Solve: $f(x) = g(x)$

..... (2)

6. Given that $f(x) = 3x + 1$ and $g(x) = x^2$

a) Write down an expression for: $fg(x)$

..... (2)

b) Work out an expression for: $gf(x)$

..... (2)

c) Solve: $fg(x) = gf(x)$

..... (3)

7. Given that $f(x) = x^2 - 17$ and $g(x) = x + 3$

a) Work out an expression for: $g^{-1}(x)$

..... (2)

b) Work out an expression for: $f^{-1}(x)$

..... (2)

c) Solve: $f^{-1}(x) = g^{-1}(x)$

..... (4)

8. A function f is defined such that

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

a) Find an expression for $f(x-2)$

..... (2)

b) Hence solve: $f(x-2) = 0$

..... (2)

9. A function f is defined such that

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

a) Find: $f^{-1}(x)$

..... (2)

The function g is such that

$$g(x) = kx^2 \text{ where } k \text{ is a constant}$$

Given that $fg(2) = 12$

b) Work out the value of k

..... (2)