

Surname	
Other Names	
Candidate's Signature	

GCSE 9 - 1 Questions

Composite and Inverse Functions

Calculator Allowed

INSTRUCTIONS TO CANDIDATES

- Write your name in the space provided.
- Write your answers in the spaces provided in this question paper.
- Answer ALL questions.
- Any working should be clearly shown in the spaces provided since marks may be awarded for partially correct solutions.
- You should have a ruler, compass and protractor where required.

Total Marks :

1) Let

$$g(x) = x^2 + 1$$

$$f(x) = 5x$$

a) Find $f(4)$

Answer _____ [2]

b) Find $g(3)$

Answer _____ [2]

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

Answer _____ [2]

d) Show that $fg(7)$ does not equal $gf(3)$

[4]

2) Let

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

$$g(x) = x - 5$$

a) Find $g(-3)$

Answer _____ [2]

b) Write down $g^{-1}(x)$

Answer _____ [2]

c) Find $gg(x)$

Answer _____ [2]

d) Solve $f(x)=0$

Answer _____ [4]

3) Let

$$f(x) = 8x + 3$$

$$g(x) = 4x$$

a) Find $f(8)$

Answer _____ [2]

b) Find $gg(x)$

Answer _____ [2]

c) Find $ff(x)$

Answer _____ [2]

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

Answer _____ [2]

4) Let

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

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

Answer _____ [4]

5) Let

$$f(x) = 2x + 3$$

$$g(x) = x^3$$

a) Find $f(2)$

Answer _____ [2]

b) Find $fg(x)$

Answer _____ [2]

c) Find $gf(x)$

Answer _____ [2]

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

Answer _____ [2]

6) Let

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

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

a) Find $g(2)$

Answer _____ [2]

b) Find $fg(x)$

Answer _____ [2]

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

Answer _____ [2]

7) Let

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

$$g(x) = -2x^2 + 8$$

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

Answer _____ [2]

b) Find $fg(1)$

Answer _____ [2]

8) Let

$$f(x) = 2x - 1$$
$$g(x) = 3x^2 + 2$$

a) Find $fg(1)$

Answer _____ [3]

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

Answer _____ [3]

9) Let

$$f(x) = 2x + 4$$

$$g(x) = 7x^2$$

a) Find $g(3)$

Answer _____ [2]

b) Find $fg(x)$

Answer _____ [2]

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

Answer _____ [2]

10) Let

$$f(x) = 7 - 2x$$

$$g(x) = x + 3$$

a) Find $gf(x)$

Answer _____ [2]

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

Answer _____ [2]

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

Answer _____ [2]

11) Let

$$f(x) = 3x$$

$$g(x) = 2x - 5$$

a) $h(x)=fg(x)$. Calculate $h(x)$

Answer_____ [3]

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

Answer_____ [4]