1 The functions g and h are such that

$$g(x) = \sqrt[3]{2x - 5} \qquad h(x) = \frac{1}{x}$$

(a) Find g(16)

.....

(1)

(b) Find $hg^{-1}(x)$
Give your answer in terms of x in its simplest form.

$hg^{-1}(x) =$ .....

(3)

(Total for Question 1 is 4 marks)

2 $f(x) = \sqrt[3]{x}$

$g(x) = 2x + 3$

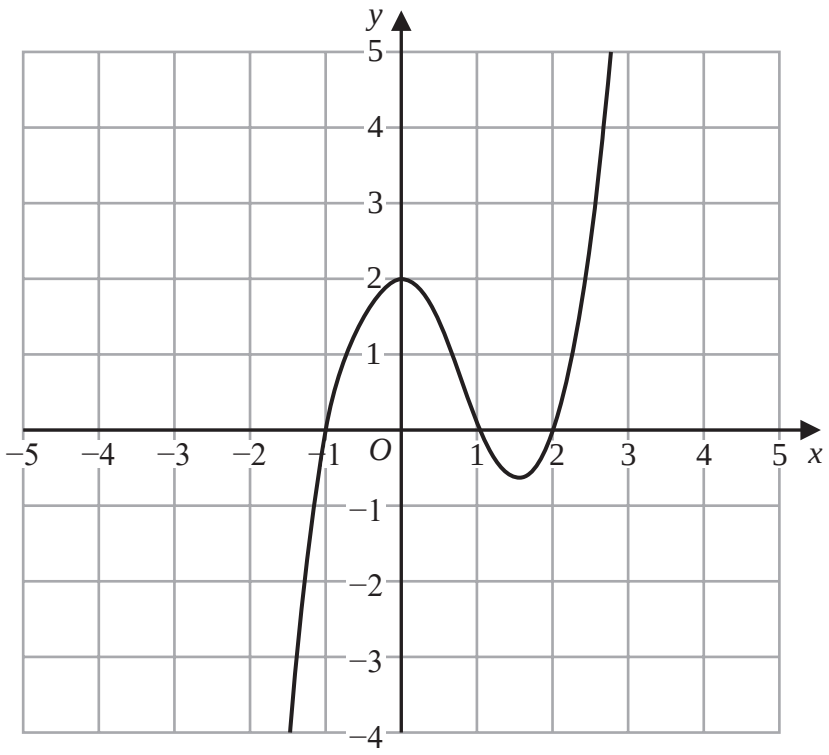
$h(x) = fg(x)$

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

$h^{-1}(x) =$ .....

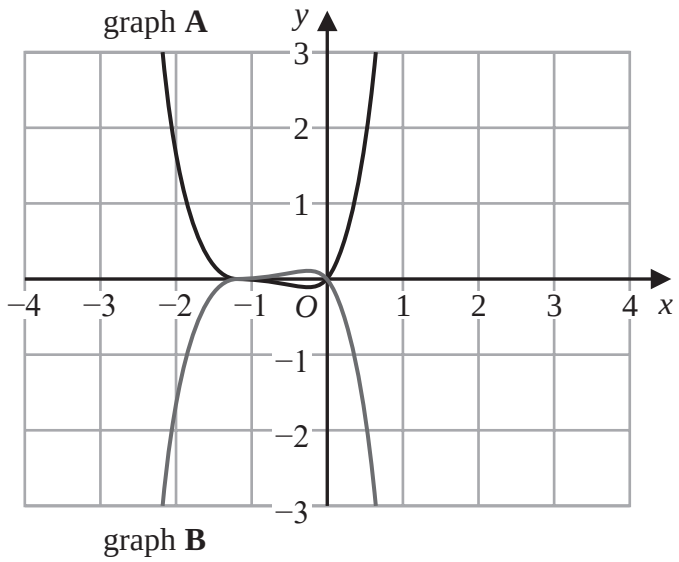
(Total for Question 2 is 3 marks)

3 The graph of $y = f(x)$ is shown on the grid below.



(a) On the grid above, sketch the graph of $y = f(x + 2)$

(1)



On this grid, graph **A** has been reflected to give graph **B**.
The equation of graph **A** is $y = g(x)$

(b) Write down an equation of graph **B**.

.....

(1)

(Total for Question 3 is 2 marks)

4 For $x \geqslant 0$, the functions f and g are such that

$$f(x) = 3x + 4 \qquad g(x) = \frac{\sqrt{x} + 2}{5}$$

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

$g^{-1}(x) =$ .....

(2)

(b) Solve $gf(x) = 3$

$x =$ .....

(3)

(Total for Question 4 is 5 marks)

5 The functions f and g are given by

$$f(x) = \frac{12}{x+1} \quad \text{and} \quad g(x) = 5 - 3x$$

(a) Find $f(-3)$

.....

(1)

(b) Find $fg(1)$

.....

(2)

(c) Find $g^{-1}(4)$

.....

(2)

(Total for Question 5 is 5 marks)