

## Higher Mathematics

### Inverse Functions - Questions - 2013-2017

Marks are indicated in brackets after each question number

#### 2015 Paper 1 Question 5, (2) (1)

A function  $g$  is defined on  $\mathbb{R}$ , the set of real numbers, by  $g(x) = 6 - 2x$ .

- (a) Determine an expression for  $g^{-1}(x)$ .
- (b) Write down an expression for  $g(g^{-1}(x))$ .

#### 2016 Paper 1 Question 6, (3) (1)

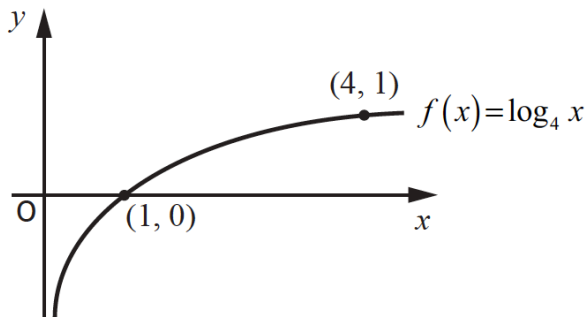
Functions  $f$  and  $g$  are defined on  $\mathbb{R}$ , the set of real numbers.

The inverse functions  $f^{-1}$  and  $g^{-1}$  both exist.

- (a) Given  $f(x) = 3x + 5$ , find  $f^{-1}(x)$ .
- (b) If  $g(2) = 7$ , write down the value of  $g^{-1}(7)$ .

#### 2016 Paper 1 Question 10, (2)

The diagram below shows the graph of the function  $f(x) = \log_4 x$ , where  $x > 0$ .



The inverse function,  $f^{-1}$ , exists.

On the diagram in your answer booklet, sketch the graph of the inverse function.

2017 Paper 1 Question 6, (3)

A function,  $h$ , is defined by  $h(x) = x^3 + 7$ , where  $x \in \mathbb{R}$ .

Determine an expression for  $h^{-1}(x)$ .