



Higher Mathematics

Inverse Functions - Questions

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)

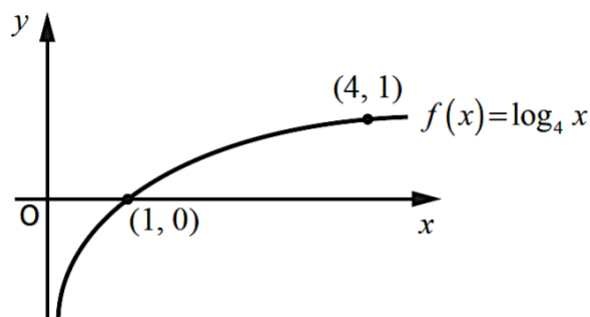
Functions f and g are defined on $\mathbb{R}$, the set of real numbers.

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

2018 Paper 1 Question 2, (3)

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

$$g(x) = \frac{1}{5}x - 4.$$

Find the inverse function, $g^{-1}(x)$.

2019 Paper 2 Question 8, (3) (1)

A function, f , is given by $f(x) = \sqrt[3]{x} + 8$.

The domain of f is $1 \leq x \leq 1000$, $x \in \mathbb{R}$.

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

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

(b) State the domain of f^{-1} .

2022 Paper 1 Question 3, (3)

A function, h , is defined by $h(x) = 4 + \frac{1}{3}x$, where $x \in \mathbb{R}$.

Find the inverse function, $h^{-1}(x)$.

2023 Paper 2 Question 6, (3)

A function $f(x)$ is defined by $f(x) = \frac{2}{x} + 3$, $x > 0$.

Find the inverse function, $f^{-1}(x)$.



2024 Paper 1 Question 5, (3)

A function, h , is defined by $h(x) = 2x^3 - 7$ where $x \in \mathbb{R}$.

Find the inverse function, $h^{-1}(x)$.

2025 Paper 2 Question 4, (3)

A function, g , is defined by $g(x) = (x-4)^3$, where $x \in \mathbb{R}$.

Find the inverse function, $g^{-1}(x)$.

2026 Paper 2 Question 3, (3)

A function, g , is defined on $\mathbb{R}$, the set of real numbers, by

$$g(x) = \frac{1}{5}x + 6.$$

Find the inverse function, $g^{-1}(x)$.