



Higher Mathematics

Domain - Questions

Marks are indicated in brackets after each question number

2013 Paper 1 Question 13, (2)

A function f is defined on a suitable domain by $f(x) = \frac{x+2}{x^2-7x+12}$.

What value(s) of x cannot be in this domain?

2014 Paper 1 Question 12, (2)

A function f , defined on a suitable domain, is given by $f(x) = \frac{6x}{x^2+6x-16}$.

What restrictions are there on the domain of f ?

2015 Paper 2 Question 2, (2) (3) (2)

Functions f and g are defined on suitable domains by

$$f(x) = 10 + x \quad \text{and} \quad g(x) = (1 + x)(3 - x) + 2.$$

- (a) Find an expression for $f(g(x))$.
- (b) Express $f(g(x))$ in the form $p(x+q)^2 + r$.
- (c) Another function h is given by $h(x) = \frac{1}{f(g(x))}$.

What values of x cannot be in the domain of h ?



2019 Paper 1 Question 12, (2) (1)

Functions f and g are defined by

- $f(x) = \frac{1}{\sqrt{x}}$, where $x > 0$
- $g(x) = 5 - x$, where $x \in \mathbb{R}$.

- (a) Determine an expression for $f(g(x))$.
- (b) State the range of values of x for which $f(g(x))$ is undefined.

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} .

2024 Paper 2 Question 8, (2) (2)

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

- $f(x) = 2x^2 - 18$
- $g(x) = x + 1$.

- (a) Find an expression for $f(g(x))$.
- (b) Find the values of x for which $\frac{1}{f(g(x))}$ is undefined.