1st Class Maths

Domain and Range

Revise this topic →

← Check your work

This booklet features original exam style questions designed by me. They do not feature in past papers but are good practice for your exams.

The content is designed to reflect the style of the AQA Level 2 Certificate in Further Maths.
It may not be suitable for other courses.

@1stclassmaths

Do not write outside the box

Answer **all** questions in the spaces provided.

1 (a) The function f is given by $f(x) = x^2 + 2$ with domain $5 < x < 11$

Work out the range of the function. **[2 marks]**

Answer _____

1 (b) The function g is given by $g(x) = \sqrt{x - 4}$

Give a reason why $x > 0$ is not a suitable domain for $g(x)$ **[1 mark]**

1 (c) The function h is given by $h(x) = 4x + 2$

The range is $-18 < h(x) < 10$

Work out the domain of the function. **[2 marks]**

Answer _____

Do not write outside the box

2 (a) The function f is given by $f(x) = 2 - 5x$ with domain $-3 < x < 5$

Work out the range of the function. **[2 marks]**

Answer _____

2 (b) The function g is given by $g(x) = \frac{x + 1}{x - 3}$

Give a reason why $x > 0$ is not a suitable domain for $g(x)$ **[1 mark]**

2 (c) The function h is given by $h(x) = 2x^3$

The range is $-250 < h(x) < 16$

Work out the domain of the function. **[2 marks]**

Answer _____

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3 (a) The function f is given by $f(x) = \frac{36}{x}$

The range is $1.5 < f(x) < 12$

Work out the domain of the function. **[2 marks]**

Answer _____

3 (b) The function g is given by $g(x) = \frac{100}{2x - 3}$

Write down the value of x for which the function not defined. **[1 mark]**

Answer _____

3 (c) The function h is given by $h(x) = \sin(x) + 1$ for all x

Write down the range of the function. **[2 marks]**

Answer _____

Do not write outside the box

4 (a) The function f is given by $f(x) = 2^x - 1$ for all x

Work out the range of the function. **[2 marks]**

Answer _____

4 (b) The function g is given by $g(x) = x^4$ with domain $x < -3$

Work out the range of the function. **[2 marks]**

Answer _____

4 (c) The function h is given by $h(x) = 3x^2$

The range is $0 \leq h(x) \leq 300$

Work out the domain of the function. **[2 marks]**

Answer _____

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5 The function f is given by $f(x) = \cos(x)$ with domain $30° < x < 60°$

Work out the range of the function. **[2 marks]**

Answer _____

6 The function g is given by $g(x) = x^2 + 4x - 3$ for all x

Work out the range of the function. **[3 marks]**

Answer _____

Do not write outside the box

7 (a) $f(x) = x^3 - 9x^2 + 24x - 15$

$y = f(x)$ has two stationary points.

Work out the coordinates of the two stationary points and determine their nature.

[6 marks]

Stationary Point (_____ , _____) Nature _____

Stationary Point (_____ , _____) Nature _____

7 (b) $f(x)$ has domain $0 < x < 3$

Work out the range of the function.

[2 marks]

Answer _____

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