Domain and range of a function

Grade 7 | Higher | 10 questions, 25 marks

GCSE Maths topic practice

Scan for the solutions

Name: _____ **Date:** _____ **Score:** _____ **/ 25**

1 The function f is defined by $f : x \mapsto 3x - 7$

a. Work out $f(5)$.

b. Work out $f(-2)$.

(2 marks)

Answer _____

2 $f(x) = \dfrac{5}{x - 6}$

State the value of x that cannot be included in the domain of f.

(1 mark)

Answer _____

3 The function f has domain $\{1, 2, 3, 4\}$ and is defined by $f : x \mapsto x^2 - 1$

List the members of the range of f.

(2 marks)

Answer _____

4 $h(x) = \sqrt{(x - 4)}$ and $g(x) = \dfrac{4}{2x + 3}$

a. State the largest possible domain of h.

b. State the value of x that must be excluded from the domain of g.

(3 marks)

Answer _____

5 $f(x) = 3x - 2$ for $-1 \leq x \leq 4$

Find the range of f.

(2 marks)

Answer _____

Free for classroom and home use: print, photocopy and share. Not for resale or re-hosting.

6 The function f is defined by $f : x \mapsto \dfrac{3}{x^2 - 16}$

Find the two values of x that must be excluded from the domain of f. (2 marks)

Answer _____

7 $f(x) = x^2$ for $-3 \leq x \leq 2$

Leon says that the range of f is $4 \leq f(x) \leq 9$.

Leon is wrong. Find the correct range of f. (2 marks)

Answer _____

8 The function g is defined by $g : x \mapsto \dfrac{2}{x}$ for $x > 0$

a. Work out $g(0.4)$.

b. State the range of g. (3 marks)

Answer _____

9 $f(x) = 2x^2 - 12x + 5$ for all real values of x.

a. Write $f(x)$ in the form $a(x - b)^2 + c$.

b. Hence find the range of f. (4 marks)

Answer _____

Free for classroom and home use: print, photocopy and share. Not for resale or re-hosting.

10 The function f is defined by $f : x \mapsto x^2 + 3$ with domain $x \geq 0$

a. State the range of f.

b. Write down the domain of the inverse function f^{-1}.

c. Write down the range of f^{-1}.

(4 marks)

Answer _____

End of questions | Total 25 marks

Free for classroom and home use: print, photocopy and share. Not for resale or re-hosting.