



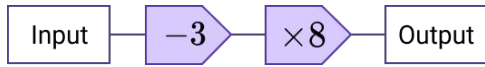
THIRD SPACE
LEARNING

GCSE Exam Questions

Functions in Algebra | Algebra

GCSE Exam Questions: Functions in Algebra

1) Below is a function machine.



(a) Find the output if the input is 10.

(1)

(b) Write a simplified expression for the input if the output is $24n - 32$.

(3)
(4 marks)

2) If $f(x) = 5 - 2x$ and $g(x) = 2x + 6$,

(a) Find x when $f(x) = -9$.

(2)

(b) Write an expression for $gf(x)$.

(3)
(5 marks)

3) Let $g(x) = \frac{x - 3}{4}$ and $h(x) = \frac{x}{2} + 3$.

Solve when $g^{-1}(x) = h^{-1}(x)$.

(4 marks)

GCSE Exam Questions: Functions in Algebra

4) Let $f(x) = x^2 + 1$ and $g(x) = 3x - 1$

(a) Find $fg(-8)$.

(2)

(b) Find values of x that satisfy $gf(x) = 77$.

(4)
(6 marks)

GCSE Exam Questions: Functions in Algebra Answers

	Question	Answer	Marks
1)	Below is a function machine. <div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; padding: 2px 10px;">Input</div> <div style="border: 1px solid black; padding: 2px 10px; background-color: #e0e0ff;">-3</div> <div style="border: 1px solid black; padding: 2px 10px; background-color: #e0e0ff;">×8</div> <div style="border: 1px solid black; padding: 2px 10px;">Output</div> </div>		
(a)	Find the output if the input is 10.	(a) 56	(1)
(b)	Write a simplified expression for the input if the output is $24n - 32$.	(b) $\frac{24n - 32}{8}$ $3n - 4 + 3$ $3n - 1$	(1) (1) (1)
2)	If $f(x) = 5 - 2x$ and $g(x) = 2x + 6$		
(a)	Find x when $f(x) = -9$	(a) $2x = 14$ $x = 7$	(1) (1)
(b)	Write an expression for $gf(x)$.	(b) $2(5 - 2x) + 6$ $10 - 4x + 6$ $16 - 4x$	(1) (1) (1)
3)	Let $g(x) = \frac{x - 3}{4}$ and $h(x) = \frac{x}{2} + 3$. Solve when $g^{-1}(x) = h^{-1}(x)$.	$g^{-1}(x) = 4x + 3$ $h^{-1}(x) = 2(x - 3)$ or $2x - 6$ $4x + 3 = 2x - 6$ $x = -4.5$	(1) (1) (1) (1)
4)	Let $f(x) = x^2 + 1$ and $g(x) = 3x - 1$		
(a)	Find $fg(-8)$.	(b) $g(-8) = -25$ $f(-25) = 626$	(1) (1)
(b)	Find values of x that satisfy $gf(x) = 77$.	(b) $3(x^2 + 1) - 1$ seen $3x^2 + 2 = 77$ $x^2 = 25$ $x = 5$ and $x = -5$	(1) (1) (1) (1)

Where to go next?

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