



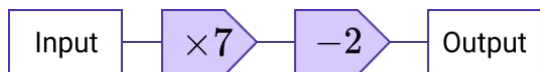
THIRD SPACE
LEARNING

GCSE Exam Questions

Function Machines | Algebra

GCSE Exam Questions: Function Machines

1) Here is a function machine:



(a) What is the output when the input is 6?

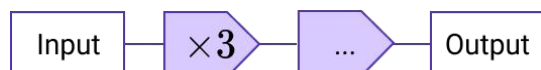
(1)

(a) What is the input when the output is 26?

(1)
(2 marks)

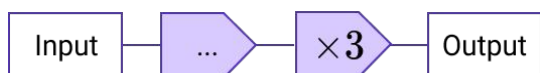
2) (a) The output of this function machine is 25 when the input is 9.

Fill in the missing operation.



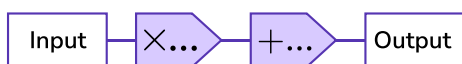
(2)

(b) The output of this function machine is 12 when the input is 5. Fill in the missing operation.



(2)
(4 marks)

3) Fill in the missing values for the function machine.



$$3 \longrightarrow 13$$

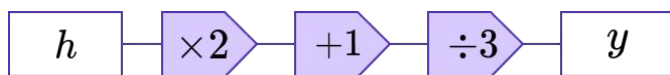
$$5 \longrightarrow 17$$

$$11 \longrightarrow 29$$

(2 marks)

GCSE Exam Questions: Function Machines

- 4) (a) Use the function machine to write a formula for y in terms of h .



(3)

- (b) Use inverse operations to write a formula for h in terms of y .

(3)
(6 marks)

GCSE Exam Questions: Function Machines Answers

	Question	Answer	Marks
1)	Here is a function machine: <div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; padding: 5px;">Input</div> <div style="border: 1px solid black; padding: 5px;">$\times 7$</div> <div style="border: 1px solid black; padding: 5px;">$- 2$</div> <div style="border: 1px solid black; padding: 5px;">Output</div> </div>		
(a)	What is the output when the input is 6?	(a) 40	(1)
(b)	What is the input when the output is 26?	(b) 4	(1)
2) (a)	The output of this function machine is 25 when the input is 9. Fill in the missing operation. <div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; padding: 5px;">Input</div> <div style="border: 1px solid black; padding: 5px;">$\times 3$</div> <div style="border: 1px solid black; padding: 5px;">...</div> <div style="border: 1px solid black; padding: 5px;">Output</div> </div>	(a) 9×3 or $27 - 2$ <div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; padding: 5px;">Input</div> <div style="border: 1px solid black; padding: 5px;">$\times 3$</div> <div style="border: 1px solid black; padding: 5px;">$- 2$</div> <div style="border: 1px solid black; padding: 5px;">Output</div> </div>	(1) (1)
(b)	The output of this function machine is 12 when the input is 5. Fill in the missing operation. <div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; padding: 5px;">Input</div> <div style="border: 1px solid black; padding: 5px;">...</div> <div style="border: 1px solid black; padding: 5px;">$\times 3$</div> <div style="border: 1px solid black; padding: 5px;">Output</div> </div>	(b) $12 \div$ or $4 - 1$ <div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; padding: 5px;">Input</div> <div style="border: 1px solid black; padding: 5px;">$- 1$</div> <div style="border: 1px solid black; padding: 5px;">$\times 3$</div> <div style="border: 1px solid black; padding: 5px;">Output</div> </div>	(1) (1)
3)	Fill in the missing values for the function machine. <div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; padding: 5px;">Input</div> <div style="border: 1px solid black; padding: 5px;">$\times \dots$</div> <div style="border: 1px solid black; padding: 5px;">$+ \dots$</div> <div style="border: 1px solid black; padding: 5px;">Output</div> </div> $3 \longrightarrow 13$ $5 \longrightarrow 17$ $11 \longrightarrow 29$	$\times 2$ $+ 7$	(1) (1)
4) (a)	Use the function machine to write a formula for y in terms of h . <div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; padding: 5px;">h</div> <div style="border: 1px solid black; padding: 5px;">$\times 2$</div> <div style="border: 1px solid black; padding: 5px;">$+ 1$</div> <div style="border: 1px solid black; padding: 5px;">$\div 3$</div> <div style="border: 1px solid black; padding: 5px;">y</div> </div>	(a) $2h$ $2h + 1$ $y = \frac{2h + 1}{3}$	(1) (1) (1)
(b)	Use inverse operations to write a formula for h in terms of y .	(b) $3y$ $3y - 1$ $h = \frac{3y - 1}{2}$	(1) (1) (1)

Where to go next?

For more diagnostic questions, and GCSE maths revision resources and worksheets to support students in fixing any misconceptions take a look at the free Third Space Learning [GCSE maths revision](#) pages.

Scan the QR code to discover our library of FREE GCSE maths revision resources

Do you have KS4 students who need additional support in maths?



Our specialist tutors will help students to develop the skills they need to succeed at GCSE in weekly one to one online revision lessons. Trusted by secondary schools across the UK.

Visit thirdspacelearning.com to find out more.