

Exam Questions

Functions

Introduction to Functions

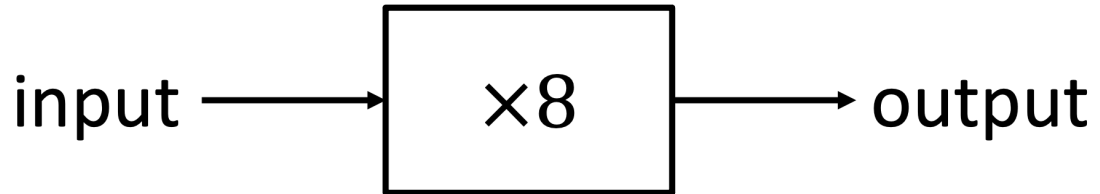
Easy (5 questions)	/6
Medium (5 questions)	/13
Hard (5 questions)	/21
Total Marks	/40

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Easy Questions

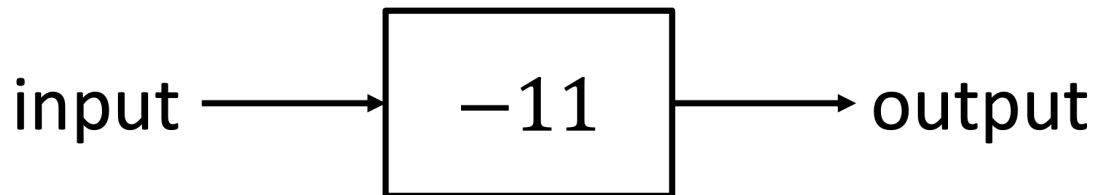
1 Here is a number machine.



Work out the **output** when the input is 5.

(1 mark)

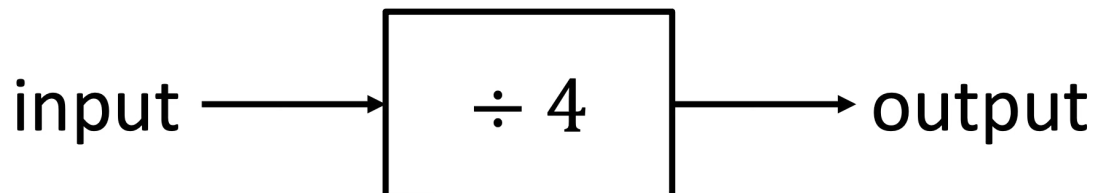
2 Here is a number machine.



Work out the **input** when the output is 18.

(1 mark)

3 Here is a table for a one-stage number machine.

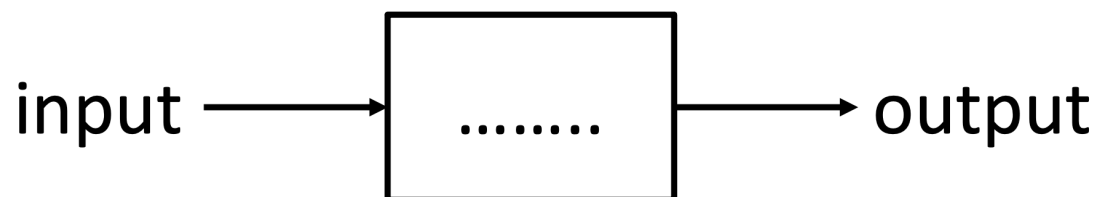


Complete the table.

Input	Output
8	2
12	3
20	
.....	9

(2 marks)

4 Here is a number machine.

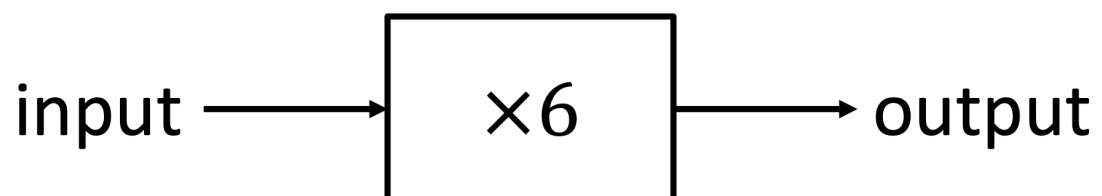


When the input is 12, the output is 3.

Complete the number machine.

(1 mark)

5 Here is a number machine.



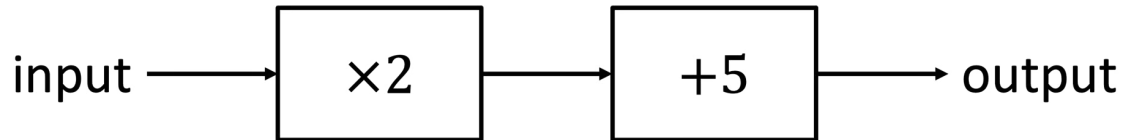
The input is x .

Write down an expression for the output in terms of x .

(1 mark)

Medium Questions

1 (a) Here is a function machine.



Work out the **output** when the input is 7.

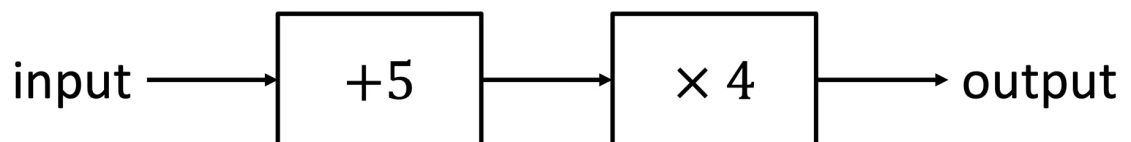
[1]

(1 mark)

(b) Work out the **input** when the output is 17.

(2 marks)

2 Here is a number machine.

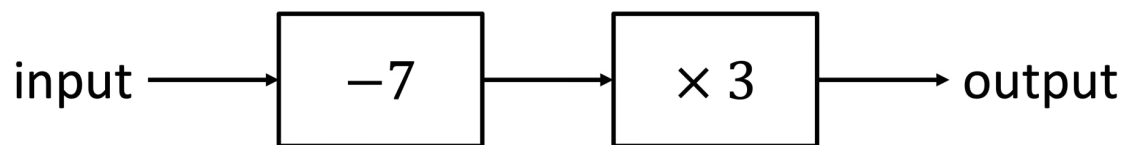


Complete the table.

Input	Output
2	28
4	36
7	
.....	72

(3 marks)

3 Here is a number machine.

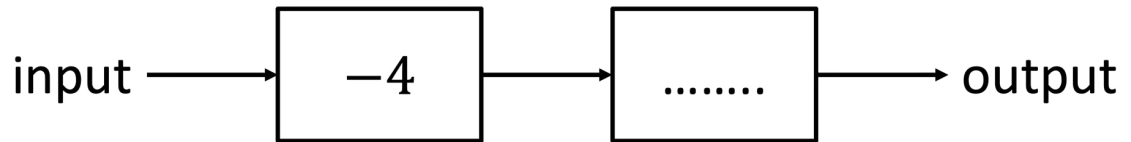


The input is x .

Write down an expression for the output in terms of x .

(2 marks)

4 Here is a number machine.

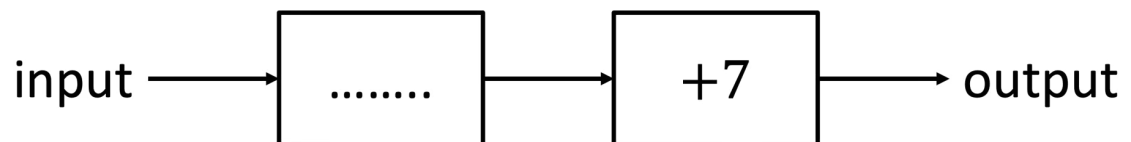


The output is 15 when the input is 9.

Complete the function machine.

(2 marks)

5 Here is a number machine.



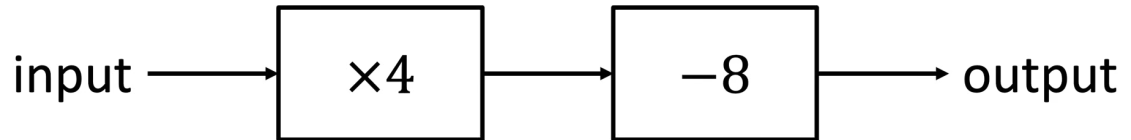
The output is 11 when the input is 8.

Complete the number machine.

(3 marks)

Hard Questions

1 Here is a function machine.

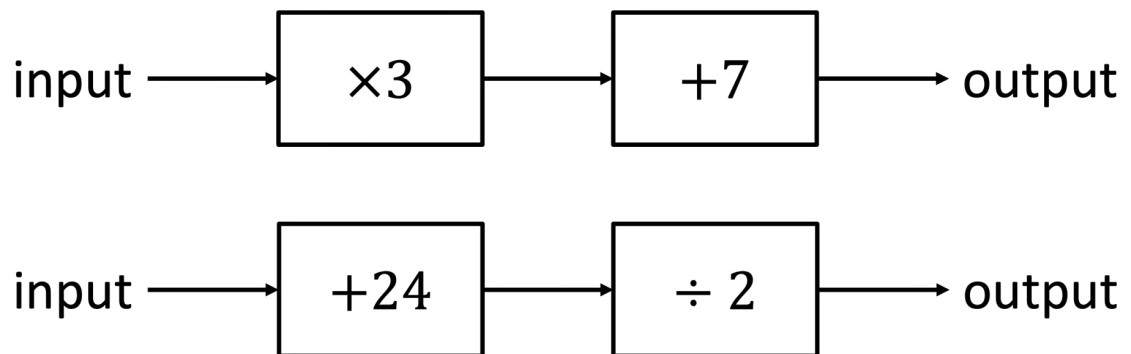


The output is 3 times the size of the input when the input is x .

Find the value of x .

(3 marks)

2 In the diagram are two number machines.



The input for both machines is x .

Find the value of x that will generate the same output value in both number machines.

(4 marks)

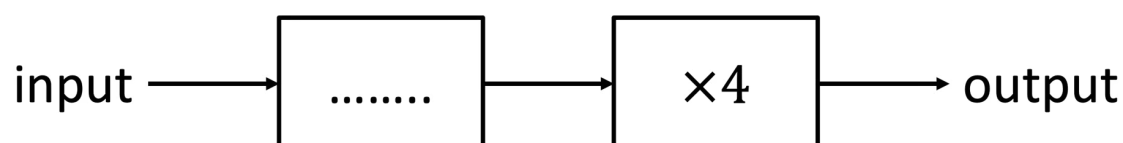
3 (a) A straight line has equation $y = 5x - 3$

Draw a number machine that will generate coordinates (x, y) that line on the straight line.

Let x be the input value and y be the output value.

(2 marks)

(b) A second number machine is shown in the diagram.



This number machine also generates coordinates (x, y) , where x is the input and y is the output. These coordinates on another straight line.

The two straight lines intersect when $y = 32$.

Complete the second number machine.

(4 marks)

4 (a) A function is represented by the following function machine.



A number is input into the machine.

The output is used as a new input.

The second output is 11.

Work out the number that was the **first input**.

(2 marks)

(b) A number is input into the machine.

The output given is the same number.

Work out the number.

(3 marks)

5 A function machine is shown below.



If the Input is 3, the Output is 5.

If the Input is 7, the Output is 25.

Use this information to fill in the two boxes.

(3 marks)