Name ANSWERS	Class

MATHS TEACHER HUB

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Function machines

(9 – 1) Topic booklet

Foundation

These questions have been collated from previous years GCSE Mathematics papers.

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser.	Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- You must **show all your working out.**
- If the question is a **1F** question you are not allowed to use a calculator.
- If the question is a **2F** or a **3F** question, you may use a calculator to help you answer.

Information

- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Answer ALL questions
Write your answers in the space provided.
You must write down all the stages in your working.

7 Here is a number machine.

(a) Work out the **output** when the input is 4

8

(1)

(b) Work out the **input** when the output is 11

5

(2)

(c) Show that there is a value of the input for which the input and the output have the same value.

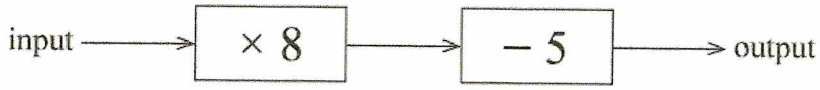
input
2 × 3 = 6

6 – 4 = 2
output

(2)

(Total for Question 7 is 5 marks)

8 Here is a number machine.



(a) Work out the output when the input is 6

43

(1)

Here is a different number machine.

÷3

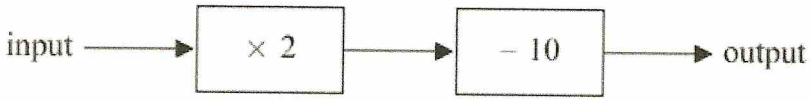
When the input is 17, the output is 10

(b) Complete the number machine.

(1)

November 2019 – Paper 2F **(Total for Question 8 is 2 marks)**

9 Here is a number machine.



(a) Work out the output when the input is 13

16

(1)

(b) Work out the input when the output is 28

19

(2)

(c) Show that there is a number for which the output is the same as the input.

input

$10 \times 2 = 20$

$20 - 10 = 10$

output

(2)

May 2024 – Paper 1F **(Total for Question 9 is 5 marks)**

10 Here is a number machine.

(a) Work out the **output** when the input is 8

38

(1)

(b) Work out the **input** when the output is 28

6

(2)

(Total for Question 10 is 3 marks)

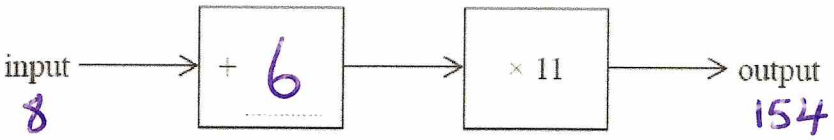
12 Here is a number machine.

(a) Work out the output when the input is 28

9

(1)

Here is a different number machine.
The number machine is not complete.



When the input is 8, the output is 154

(b) Complete the number machine.

(2)

(Total for Question 12 is 3 marks)

12 The diagram shows a number machine.

(a) Find the output when the input is 7

11

(1)

(b) Find the input when the output is 41

22

(2)

(Total for Question 12 is 3 marks)