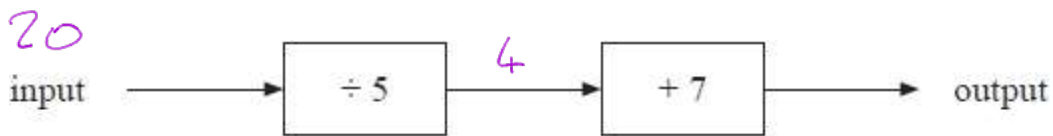


GCSE QUESTIONS WITH CLUES

Q1. NON-CALCULATOR

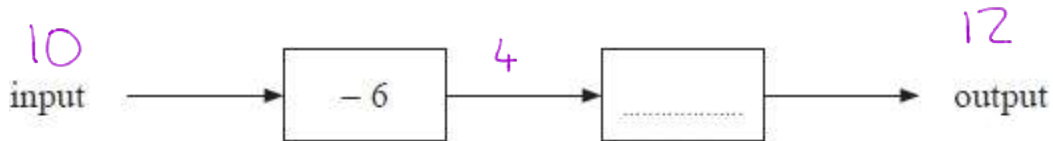
Here is a two-stage number machine.



(a) Work out the output when the input is 20

.....
(1)

Here is a different two-stage number machine.



When the input is 10, the output is 12

(b) Complete the number machine.

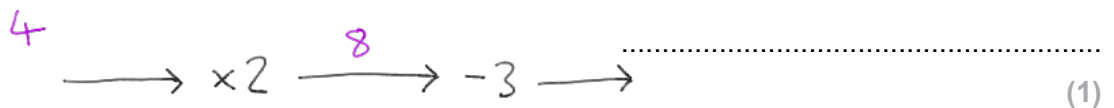
(1)
(Total for question = 2 marks)

Q2. NON-CALCULATOR

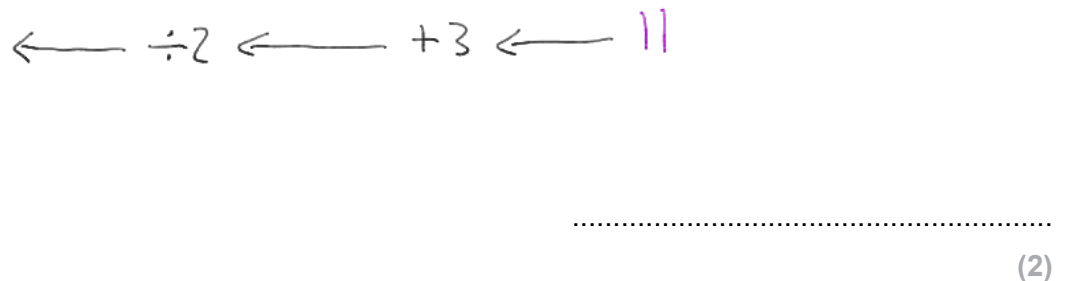
Here is a number machine.



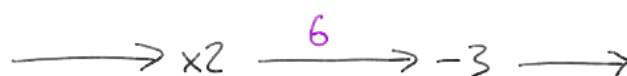
(a) What is the output when the input is 4?



(b) What is the input when the output is 11?



(c) Show that there is an input for the machine for which the output is the same as the input.



(2)
(Total for question = 5 marks)

Q3. CALCULATOR ALLOWED

Here is a number machine.



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

$$8 \longrightarrow \times 5 \xrightarrow{40} - 2 \longrightarrow \dots\dots\dots$$

(1)

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

$$\longleftarrow \div 5 \xleftarrow{30} + 2 \longleftarrow 28 \dots\dots\dots$$

(2)

(Total for question = 3 marks)

Q4. CALCULATOR ALLOWED

Here is a number machine.



(a) Find the output when the input is 6

$$6 \longrightarrow \times 6 \xrightarrow{36} + 7 \longrightarrow \dots\dots\dots$$

(1)

(b) Find the output when the input is -4

$$-4 \longrightarrow \times 6 \xrightarrow{-24} + 7 \longrightarrow \dots\dots\dots$$

(1)

(c) Find the input when the output is 79

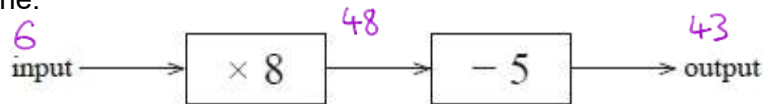
$$\longleftarrow \div 6 \xleftarrow{72} - 7 \longleftarrow 79 \dots\dots\dots$$

(2)

(Total for question = 4 marks)

Q5. CALCULATOR ALLOWED

Here is a number machine.



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

.....
(1)

Here is a different number machine.



When the input is 17, the output is 10

(b) Complete the number machine.

(1)

(Total for question = 2 marks)

Q6. CALCULATOR ALLOWED

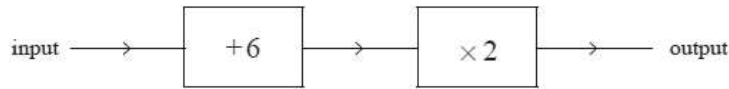
Daisy thinks of a whole number.
She multiplies the number by 3. Daisy's answer is 34

(a) Explain how you know Daisy's answer is wrong.

.....
.....

(1)

Here is a number machine.



Abbie says that when the output is 36 the input is 60

Here is her working.

$$36 - 6 = 30 \quad \longleftarrow -6 \quad \longleftarrow \div 2 \quad \longleftarrow 36$$

$$30 \times 2 = 60$$

Abbie is wrong.

(b) Explain what she has done wrong.

.....
.....

(2)

(Total for question = 3 marks)

Q7. CALCULATOR ALLOWED

Here is a number machine.



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

$$4 \longrightarrow \times 3 \longrightarrow 12 \longrightarrow -4 \longrightarrow \dots$$

(1)

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

$$\dots \longleftarrow \div 3 \longleftarrow 15 \longleftarrow +4 \longleftarrow 11$$

(2)

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

$$\dots \longrightarrow \times 3 \longrightarrow 6 \longrightarrow -4 \longrightarrow \dots$$

(2)

(Total for question = 5 marks)