

Answers

- 1 Find the output in each of these function machines when the input is 15

$$15 \rightarrow \boxed{+1000} \rightarrow \underline{1015}$$

$$15 \rightarrow \boxed{-9.2} \rightarrow \underline{5.8}$$

- 2 Find the missing numbers for each of these function machines.

$$\underline{12} \rightarrow \boxed{\times 4} \rightarrow 48$$

$$\underline{1.2} \rightarrow \boxed{\times 4} \rightarrow 4.8$$

$$0.6 \rightarrow \boxed{\underline{\times 8}} \rightarrow 4.8$$

- 3 What is the **inverse** function of this machine?

$$\rightarrow \boxed{-20} \rightarrow \underline{\quad +20 \quad}$$

2 marks

3 marks

1 mark

- 4 Simplify these expressions.

$$3 \times b \quad \underline{\quad 3b \quad}$$

$$b + b + b \quad \underline{\quad 3b \quad}$$

$$b \div 3 \quad \underline{\quad \frac{b}{3} \quad}$$

1 mark

- 5 Write expressions to show each output.

$$\begin{array}{l} x \rightarrow \boxed{+2} \rightarrow \underline{x + 2} \\ x + 3 \rightarrow \boxed{+2} \rightarrow \underline{x + 5} \end{array}$$

$$\begin{array}{l} x \rightarrow \boxed{\times 2} \rightarrow \underline{2x} \\ x + 3 \rightarrow \boxed{\times 2} \rightarrow \underline{2(x + 3) \text{ or } 2x + 6} \end{array}$$

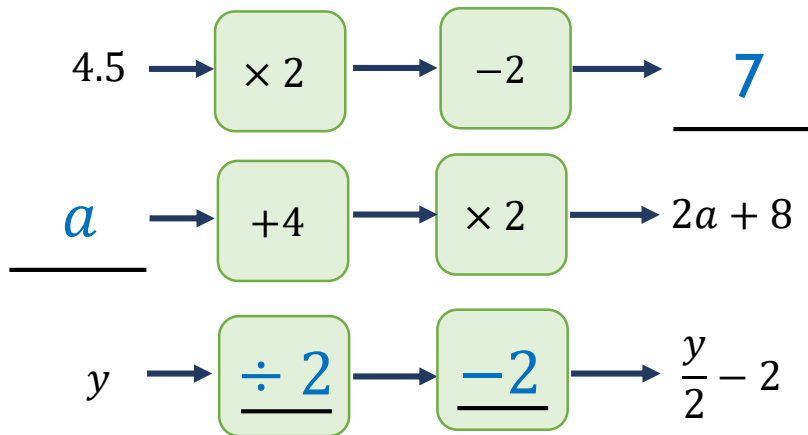
2 marks

- 6 Circle the expression that will have the largest value when $a = 4$

$8 - a$	$a - 8$
$\frac{8}{a}$	$\frac{a}{8}$

1 mark

7 Complete the missing values.



8 $x = 9$ and $y = 1$

Work out the value of the expression $\frac{x - y}{2}$

4

If the value of y increases, what will happen to the value of the expression?

It will get smaller (or equivalent)

9 Tick the equations that are straight line graphs.

$y = 6 - x$ $y = 5 + x^2$

$y = 3 + \frac{x}{2}$ $y = 2x + 3$

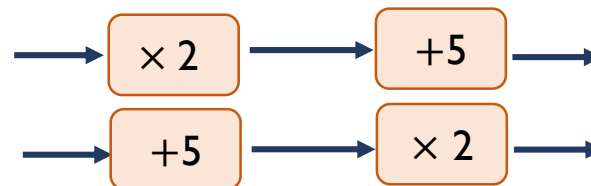
3 marks

1 mark

1 mark

1 mark

10 Mia says that given the same input, both function machines will always have the same output.



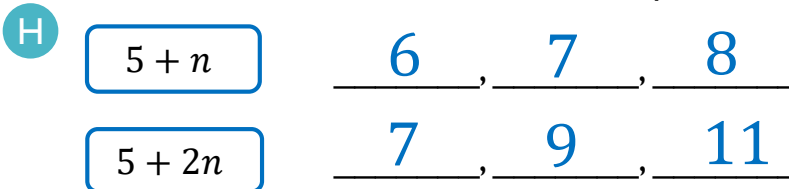
Give an example to show Mia is **wrong**.

Any example showing different output from the same input

e.g. $10 \times 2 + 5 = 25$ and $(10 + 5) \times 2 = 30$

1 mark

11 Find the first three terms of these sequences.



2 marks

Describe a difference between the two sequences.

e.g. The first sequence goes up by 1 each time; the second sequence goes up by 2 each time.

1 mark

Total marks