

3/2/21

LO: to form algebraic expressions (medium).

Varied Fluency

Use the cubes method to represent the function machines.
What is the output for each machine when the input is a ?

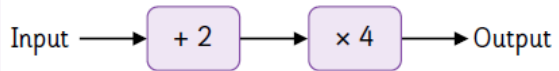
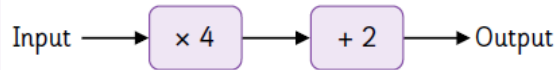
<p>Input \rightarrow $\times 6$ \rightarrow Output</p> <p><input type="text"/> \rightarrow <input type="text"/></p>	<p>Input \rightarrow <input type="text"/> \rightarrow Output</p> <p><input type="text"/> \rightarrow <input type="text"/></p>
<p>Input \rightarrow <input type="text"/> \rightarrow Output</p> <p><input type="text"/> \rightarrow <input type="text"/></p>	<p>Input \rightarrow <input type="text"/> \rightarrow Output</p> <p><input type="text"/> \rightarrow <input type="text"/></p>

Use two-step function machines to write expressions for the function machine.

<p>Input \rightarrow $\times 5$ \rightarrow <input type="text"/> \rightarrow Output</p> <p><input type="text"/> \rightarrow <input type="text"/> \rightarrow <input type="text"/></p>	<p>Input \rightarrow <input type="text"/> \rightarrow $+ 5$ \rightarrow Output</p> <p><input type="text"/> \rightarrow <input type="text"/> \rightarrow <input type="text"/></p>
<p>Input \rightarrow <input type="text"/> \rightarrow $+ 3$ \rightarrow Output</p> <p><input type="text"/> \rightarrow <input type="text"/> \rightarrow <input type="text"/></p>	<p>Input \rightarrow $\times 9$ \rightarrow <input type="text"/> \rightarrow Output</p> <p><input type="text"/> \rightarrow <input type="text"/> \rightarrow <input type="text"/></p>

Reasoning and Problem Solving

Zach inputs m into these function machines.



He says the outputs of the machines will be the same.

Do you agree? Explain your answer.

This function machine gives the same output for every input.
For example if the input is 5 then the output is 5 and so on.



What is the missing part of the function?

What other pairs of functions can you think of that will do the same?

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Answers on next page

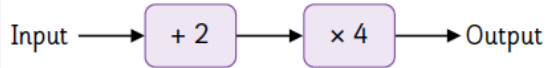
Use the cubes method to represent the function machines.
What is the output for each machine when the input is a ?

<p>Input \rightarrow $\times 6$ \rightarrow Output</p> <p>a \rightarrow $6a$</p>	<p>Input \rightarrow $+ 2$ \rightarrow Output</p> <p>a \rightarrow $a + 2$</p>
<p>Input \rightarrow $+ 8$ \rightarrow Output</p> <p>a \rightarrow $a + 8$</p>	<p>Input \rightarrow $\times 7$ \rightarrow Output</p> <p>a \rightarrow $7a$</p>

Use two-step function machines to write expressions for the function machine.

<p>Input \rightarrow $\times 5$ \rightarrow $+ 4$ \rightarrow Output</p> <p>x \rightarrow $5x$ \rightarrow $5x + 4$</p>	<p>Input \rightarrow $\times 2$ \rightarrow $+ 5$ \rightarrow Output</p> <p>x \rightarrow $2x$ \rightarrow $2x + 5$</p>
<p>Input \rightarrow $\times 3$ \rightarrow $+ 3$ \rightarrow Output</p> <p>x \rightarrow $3x$ \rightarrow $3x + 3$</p>	<p>Input \rightarrow $\times 9$ \rightarrow $+ 7$ \rightarrow Output</p> <p>x \rightarrow $9x$ \rightarrow $9x + 7$</p>

Zach inputs m into these function machines.



He says the outputs of the machines will be the same.

Do you agree? Explain your answer.

No, because $4m + 2$ isn't the same as $4m + 8$.

$4m + 2$



$4m + 8$



Children may use examples with numbers to show.

This function machine gives the same output for every input.

For example if the input is 5 then the output is 5 and so on.



What is the missing part of the function?

What other pairs of functions can you think of that will do the same?

$\div 6$

Other pairs of functions that will do the same are functions that are the inverse of each other e.g. $\times 5$, $\div 5$.