22.02.21   Fluent in five

1) 10% of 187 =
2) 15% of 150 =
3) 19% of 480 =
4) 4246 ÷ 6 =
5) 6423 x 27 =
6) 15.89 x 7 =

1) 10% of 180 =
2) 30% of 90 =
3) 5% of 120 =
4) 8912 - 4 =
5) 184 x 6 =
6) 14.67 + 29.80 =

WALT form algebraic expressions

https://vimeo.com/499980673

Today we are going to look at our function machines to create rules (expressions) that would work no matter what the input is.

For example

input   output

y •———→ | + 4 | •———→

How we could you write this as a number sentence?

How could we express these?

Input   Output

x •——→ | x 2 | •——→

x •——→ | - 6 | •——→

x •——→ | + 5 | •——→

x •——→ | ÷ 3 | •——→

Write the missing statements.

5 more than y	$2y$
y less than 5	$y - 5$
y multiplied by 5	$5 - y$
y divided by 5	$y + 5$
double y	$5y$
	y^2
	$\dfrac{y}{5}$

What happens if there are two functions?

Input   Output

$a \longrightarrow \boxed{\times 4} \longrightarrow \boxed{+ 5} \longrightarrow$
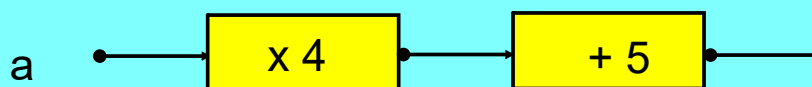
How do we express the output?

Let's try these together

× 6		+ 5

+ 7		- 6

+ 3		÷ 2
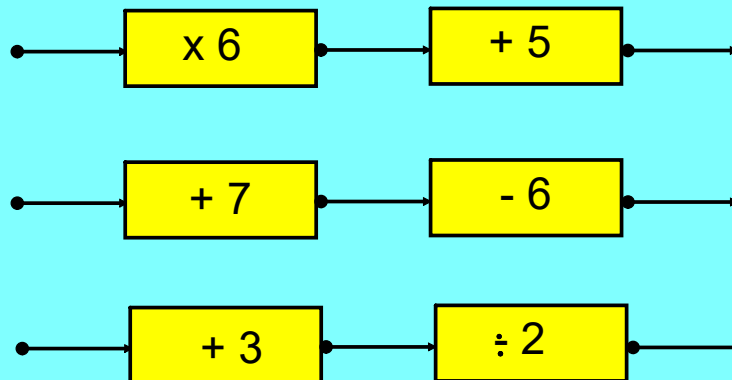
Varied Fluency

Mo uses cubes to write expressions for function machines.

Input ⟶ + 4 ⟶ Output   Input ⟶ × 4 ⟶ Output

y ⟶ $y + 4$ y ⟶ $4y$
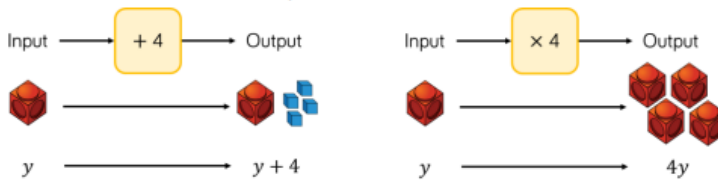
Use Mo's method to represent the function machines.
What is the output for each machine when the input is a?

Input ⟶ + 2 ⟶ Output   Input ⟶ × 3 ⟶ Output

Eva is writing expressions for two-step function machines.

Input ⟶ × 2 ⟶ + 3 ⟶ Output

x ⟶ $2x$ ⟶ $2x + 3$
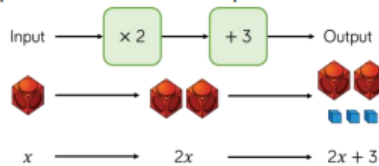
Use Eva's method to write expressions for the function machines.

Input ⟶ × 3 ⟶ + 2 ⟶ Output   Input ⟶ × 5 ⟶ + 2 ⟶ Output

Amir inputs m into these function machines.

Input $\longrightarrow$ × 2 $\longrightarrow$ + 1 $\longrightarrow$ Output

Input $\longrightarrow$ + 1 $\longrightarrow$ × 2 $\longrightarrow$ Output
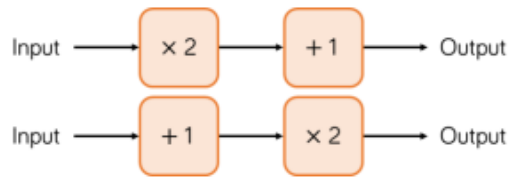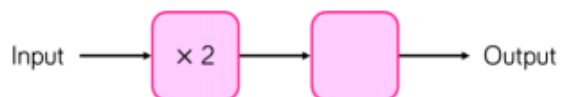
He says the outputs of the machines will be the same.

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.

Input $\longrightarrow$ × 2 $\longrightarrow$ ☐ $\longrightarrow$ Output

What is the missing part of the function?

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