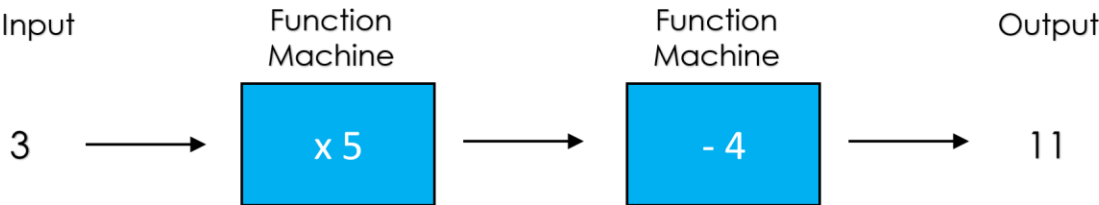
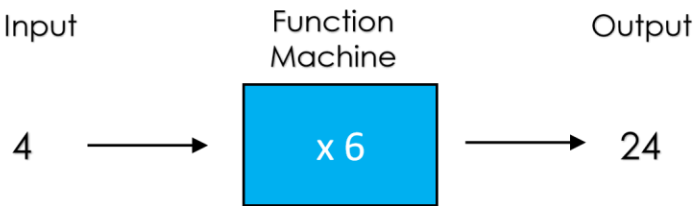


Function Machines:

A function machine is where a set rule is applied to an original number to create a new one.



Using letters to represent numbers:

We can use letters to represent numbers in a calculation/ equation. Sometimes, these numbers may be a set number that is given or needs to be found. On other occasions, they may represent variables.

e.g.
 $13 + a = 20$
 $a = 7$

To write a multiplication, we simply put the letter after the number we are multiplying by.

e.g.
 $4a$ rather than $4 \times a$
 $6c = 18$
 $c = 3$



Key Vocabulary



Equations – A statement that the values of two mathematical expressions are equal using the = sign e.g. $7 \times 4 = 28$

Expression – A collection of symbols or letters that express a quantity

Formulae – A mathematical relationship or rule expressed in symbols

Function machine – Where a set rule is applied to an original number that then creates a new number e.g. $\times 4$

Input – The original number that goes into the function machine

Inverse – Completing the opposite operation e.g. the inverse of addition is subtraction

Output – The number that comes out (answer) of the function machine once a calculation has been done

Variable - A quantity that may change within the context of a mathematical problem

Substituting values:

Sometimes, we may be given a set value that we have to put into an expression to find the answer.

$b = 5$

$32 + b =$ $32 + 5 = 37$

$17 - b =$ $17 - 5 = 12$

$7b =$ $7 \times 5 = 35$

Solving equations:

We may be given algebraic expressions like the ones below where we have to solve the value of the letter. This will require us to do the inverse operation.

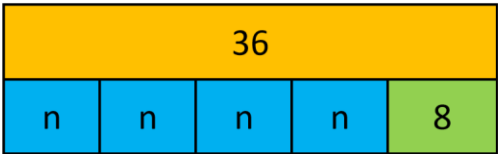
e.g.

$3c - 5 = 16$



$16 + 5 = 21$
 $3c = 21$
 $21 \div 3 = 7$
 $c = 7$

$4n + 8 = 36$



$36 - 8 = 28$
 $4n = 28$
 $28 \div 4 = 7$
 $n = 7$

Variables:

Sometimes, we may have an expression where the answer will vary depending on what we put in.

e.g.
 $6b + 5 = c$

We haven't been told what b is so we can put in different values that will change c.

e.g.
 $b = 3$ $b = 7$
 $6 \times 3 = 18 + 5 = 23$ $6 \times 7 = 42 + 5 = 47$
 $c = 23$ $c = 47$