

# Y7 Mastery: Unit 4 – Order of operations

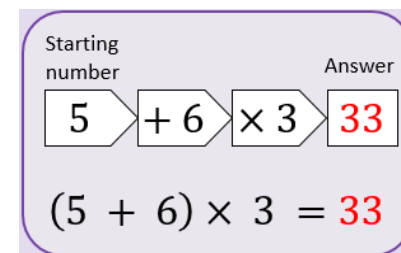
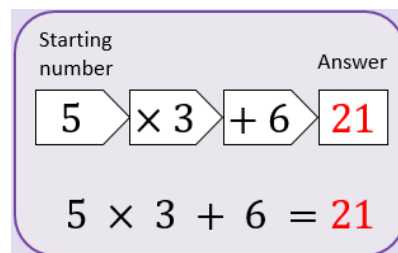
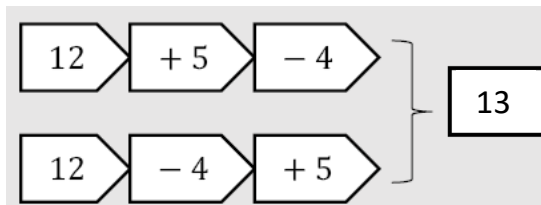
## Equal and Non-Equal Priority

### Order of Operations

<b>B</b>	<b>Brackets</b>	$10 \times (4 + 2) = 10 \times 6 = 60$
<b>I</b>	<b>Indices</b>	$5 + 2^2 = 5 + 4 = 9$
<b>D</b>	<b>Division</b>	$10 + 6 \div 2 = 10 + 3 = 13$
<b>M</b>	<b>Multiplication</b>	$10 - 4 \times 2 = 10 - 8 = 2$
<b>A</b>	<b>Addition</b>	$10 \times 4 + 7 = 40 + 7 = 47$
<b>S</b>	<b>Subtraction</b>	$10 \div 2 - 3 = 5 - 3 = 2$

In written calculations we do **multiplication (and division)** ahead of **addition (and subtraction)** unless brackets are used to change the order. In this case we needed brackets to '+6' first.

Division and multiplication have **equal priority**.  
Addition and subtraction have **equal priority**.  
If both appear in a calculation, we work left to right.



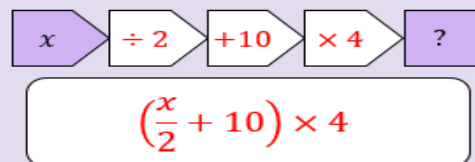
## Calculations with variables

When we don't know what the starting number is, we can call it  $x$ .

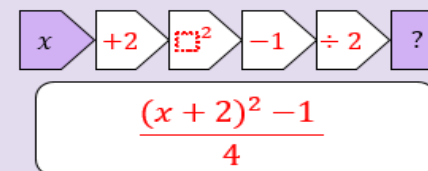
Each of these 'think of a number' statements has a function machine to show the order of operations.

When we write them as calculations, this is what they look like.

Think of a number, then divide by 2, next add 10, and finally multiply by 4.



Think of a number, then add two, next square your answer, subtract 1, and finally divide by 2.



Other Topics/Units this could appear in:

- Numbers, powers, roots, decimals and rounding
- Expressions and substituting into simple formulae
- Use of calculator
- Estimation
- Solving Equations
- Subject of
- Quadratic and cubic graphs

Keyword/Skill	Definition/Tips
BIDMAS	Brackets, indices, divide, multiply, add, subtract.
Priority	The order of importance of a list of things. Higher priority means this must be done first.
Operation	A process in which a number, quantity, expression, etc., is altered according to set formal rules, such as those of addition, multiplication, and division.
Distributivity	A way of splitting up a calculation to make it more manageable.
Commutativity	An operation is commutative if it can be applied to two numbers in any order.
Function Machine	A diagram that represents a machine that takes an <b>input</b> , applies a rule such as a set of operations and delivers the answer as an <b>output</b> .
Equivalent	Equal in value.
Variable	A symbol for a number we do not know yet.