Maths Knowledge Organiser YEAR 7 Core/Higher- PART 1



Key Language

1	Sequence	a succession of terms formed according to a rule		
2	Terms the numbers in a sequence			
3	Term to termlets you find the next term in a sequence if you know the previous termrule		ous term	
4	Difference	the numerical difference between two numbers		
5	Linear sequence	 a number pattern which increases (or decreases) by the same amount each time. E.G. 3, 7, 11, 15 or 10, 8, 6, 4 		
6	Common difference.	The amount a linear sequence increases or decreases by.		
7	Non-linear sequence	a number pattern which does not increases (or decreases) by the same amount .		
8	Geometric	A sequence that multiplies (or divides) by the same value each time. E.g. 3, 6, 12, 24, 48 or 40, 20, 10, 5, 2.5		
9	Fibonacci	Formed by adding the previous two terms. Eg. 1, 1, 2, 3, 5, 8, 13		
10	Ascending	means to go up in value		
11	Descending	means to go down in value		
12	Square	multiply a number by itself e.g. The square of 5 is 5×5 =5 ² = 25		
13	Inverse operations	the opposite operations e.g. the inverse of multiplication is division		
14	Commutative	where a calculation can be done in any order to give the same result e.g. $5 \times 4 = 4 \times 5$ $6 + 3 = 3 + 6$		
15	Substitute	where we replace a letter with a number.		
16	Evaluate	means to calculate the value of.		
17	Equation	a statement that two things are equal		
18	Consecutive numbers	numbers which follow in order without gaps. e.g. 12, 13, 14		
19	Unknown	another word for a variable, a value we don't know yet.		
20	Solve	find the value of the unknown		
21	Equality	having the same value e.g. 1minute = 60 seconds	Know	
22	Equivalent ≡	means of equal value e.g. $2x + 3x \equiv 5x$ is true for all values of x		

Expressions are made up of terms which may include letters, number and operators

Variable is a quantity that can take on a range of values, often denoted by a letter, *x*, *y* etc.

Coefficient is the number in front of a variable

Constant is a number or quantity that does not vary

Equation is a statement that two things are equal, it contains expressions on both sides of the equal sign. e.g. 5 = 2x + 1.

We solve equations by doing the inverse operation

Terms in algebra are single numbers, variables or product of several numbers and variables.

Like terms contain the same variable e.g. 4a and -2a or 8 and 13 or $9m^2$ and $3m^2$ **Unlike terms** do not contain the same variable e.g. 4y and 3x are unlike terms The **Index** of a number tells you how many times to multiply the number by itself e.g. y^3 means $y \times y \times y$.

We say y^3 as "y to the power of 3" or y cubed.

Indices is the plural of index

Functions



A "Function" machine takes an input, applies a rule(operation) then delivers an answer, output.

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Two step function machine has two operations.

Linear functions result in a straight line graph

PRACTICE QUESTIONS



- 1. What is 6²?
- 2. Write down the next three consecutive numbers after 20.
- 3. What is the difference between 3 and 10?
- 4. What is the product of 3 and 10?
- 5. What type of sequence is this? 5, 15, 45, 135...
- 6. What type of sequence is this? 5, 11, 16, 27, 43...
- 7. What type of sequence is this? 11, 8, 5, 2...
- 8. What does substitute mean in maths?
- 9. What letter do we use for the vertical axes?
- 10. Write these numbers in ascending order.: 3, 8, 1, 5, 12
- 11. What is an equation?
- 12. What symbol do we use for equivalent?
- 13. What is the inverse operation to division?
- 14. What is the index in t^5 ?
- 15. Which part of this is the coefficient of x? 6x + 2.
- 16. Which two of these terms are like terms? 5x, 5y, 5, 4x, x^5 .
- 17. What do we call a number that goes into a function machine?
- 18. What type of functions produce a straight line graph?
- 19. What does commutative mean?
- 20. Is 10 8 commutative?
- 21. What is a variable?
- 22. What does equality mean?
- 23. How do we solve equations?
- 24. What is the term to term rule for this sequence: 6, 11, 16, 21...
- 25. What is the term to term rule for this sequence: 81, 27, 9, 3, 1...

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ANSWERS		14.5			
1	36	15.6			
2	21 22 23	16. 4x and 5x			
2.	21, 22, 23	17. Input			
⊿	20	18. Linear			
4. 5.	Geometric (non-linear)	19. where a calculation can be done in any order to give the same result			
6.	Fibonacci type (non- linear)				
7.	Linear	20. No as 10 - 8 = 2 but 8 – 10 = -2			
8	Replace a letter with a number	21. a quantity that can take on a range of			
9	Y	values			
10	1 3 5 8 1 2	22. Having the same value.			
10.	a statement that two things are	23 By doing the inverse operation.			
11.	a statement that two things are	24. Add 5			
10	equal	25. Divide by 3			
12.	=				
13.	Multiplication				