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| **Seven times tables**  7 x 1 = 7  7 x 2 = 14  7 x 3 = 21  7 x 4 = 28  7 x 5 = 35  7 x 6 = 42  7 x 7 = 49  7 x 8 = 56  7 x 9 = 63  7 x 10 = 70  7 x 11 = 77  7 x 12 = 84 | **Vertical** axis is called the *y*-axis  **Horizontal** axis is called the *x*-axis  **Sequences**    A “**Sequence**” is a succession of terms formed according to a rule  “**Terms**” are the numbers in a sequence  “**Term to term** **rule”** lets you find the next term in a sequence if you know the previous term  “**Difference**” is the numerical difference between two numbers  e.g. difference in between 8 and 5 is 8 – 5= 3  A **linear sequence** is a number pattern which increases (or decreases) by the same amount each time. The amount it increases or decreases by is known as the common difference. E.g 4,7,10,13… and 15,11,7,3…  A **non-linear sequence** is a number pattern which does not increases (or decreases) by the same amount    “**Ascending**” means to go up  “**Descending**” means to go down | A “**Function**” machine takes an **input**, applies a rule(operation) then delivers an answer, **output**.  **Algebraic Notation 1**  Image result for function machine input output  The four basic **operations** are + - x ÷  To **square** a number is to multiply a number by itself e.g. The square of 5 is 5×5 =5²= 25  **Inverse** operations are the opposite operations e.g the inverse of multiplication is division  **“Expressions”** are made up of terms which may include letters, number and operators  e.g. ab², ab + 5 and 4d -5  **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 |
| **Algebraic Notation 2**  **Commutative** is where a calculation can be done in any order to give the same result  e.g. 5 x 4 = 4 x 5 6 + 3 = 3 + 6  **Substitute** is where we replace a letter with a number.  **Evaluate** means to calculate the value of.  e.g. if y = 7 evaluate 5y . Answer 5 x 7 = 35  **Brackets** are used in pairs to group things together e.g. 2(x + 1) is two lots of x + 1  **Equation** is a statement that two things are equal, it contains expressions on both sides of the equal sign. e.g. 5 = 2x + 1  **Two step function machine** has two operations    **Consecutive** numbers are numbers which follow in order without gaps. e.g 12, 13, 14…  **Linear** functions result in a straight line graph    Linear | 7 + 3 = 10  7 = 10 – 3  10 – 7 = 3  **Equality and Equivalence**  **Equality** means having the same value  e.g. 1minute = 60 seconds  **Fact families** are a group of maths facts using the same numbers    **Unknown** is another word for a variable, a value we don’t know yet. The Unknown has one distinct value  When we **solve** an equation we find the value of the unknown  e.g. solve x + 5 = 8 answer x = 3  In the above example x = 3 is the **solution** (answer)  We solve equations by doing the **inverse** operation  **Terms** in algebra are single numbers, variables or product of several numbers and variables  **Product** is the result when you multiply one number by another. Product of 4 and *x* is 4*x* | **Equality and Equivalence 2**  **Like terms** contain the same variable eg 4a and -2a or 8 and 13 or 9m2 and 3m2  **Unlike terms** do not contain the same variable e.g. 4*y* and 3*x* are unlike terms  **Equivalen**t means of equal value  e.g 2x + 3x 5xis true for all values of x  We can **simplify** an expression by **collecting** like terms. e.g. 7a + 5b – 2a + b ≡5a + 6b  A mathematical **convention** is an agreed way of doing something in maths eg we write 3 × y as 3*y* not y3  **One step** equations have only one operation  e.g. 3*x* = 15 6 = *y* – 2  **Two step** equations have two operations  e.g. 3*y* + 5 = 9 + 7 = 3  The **Index** of a number tells you how many times to multiply the number by itself  e.g. *y*3 means *y × y × y*.  We say *y*3 as “*y* to the power of 3” or *y* cubed  **Indices** is the plural of index |