

MATHS · Y6

Algebra & Equations

Knowledge Organiser — Y6

Key vocabulary

1

Variable

A letter that represents an unknown number or a number that can change.

Example: In $3n + 2$, the variable is n

2

Expression

A mathematical phrase — numbers and variables combined — but WITHOUT an equals sign.

Example: $3x + 4$, or $2a - 7$

3

Equation

A mathematical statement that two things are EQUAL, using an equals sign.

Example: $3x + 4 = 13$

4

Formula

A rule written using letters that shows a relationship between quantities.

Example: Area of a rectangle = $l \times w$, or $A = lw$

5

Substitution

Replacing a variable with a number to work out the value of an expression.

Example: If $n = 5$, then $3n + 2 = 3 \times 5 + 2 = 17$

6

Solving an equation

Finding the value of the unknown that makes the equation true.

Example: $3x = 12 \rightarrow x = 4$ (because $3 \times 4 = 12$)



7

Inverse operation

The opposite operation — used to 'undo' steps when solving.

Example: To solve $x + 5 = 12$: subtract 5 from both sides $\rightarrow x = 7$

Equations — the balance method

Whatever you do to one side, do to the other

- THINK OF AN EQUATION AS A BALANCE SCALE: both sides must stay equal.
- To solve: get the variable on its own by doing the same thing to both sides.
- EXAMPLE: $n + 7 = 15 \rightarrow$ subtract 7 from both sides $\rightarrow n = 8$
- EXAMPLE: $3n = 24 \rightarrow$ divide both sides by 3 $\rightarrow n = 8$
- EXAMPLE: $2n + 3 = 11 \rightarrow$ subtract 3 $\rightarrow 2n = 8 \rightarrow$ divide by 2 $\rightarrow n = 4$
- CHECK: substitute your answer back in: $2(4) + 3 = 11 \checkmark$
- COMMON PATTERNS: $n + a = b$ means $n = b - a$; $an = b$ means $n = b \div a$

