Your notes

GCSE Maths: revision notes

Algebraic notation and simplifying

Contents

1. Algebra words
2. Notation
3. Collecting like terms
4. Multiplying and dividing
5. Key terms
6. Quick questions
7. What to do next

Algebra words

- A **term** is a single number, letter or product, such as 3x or 5ab. An **expression** is a group of **terms**, such as 3x + 2y – 5.
- An **equation** has an equals sign and can be solved, such as 3x + 2 = 11. A **formula** links quantities, such as V = IR.
- An **identity** is true for every value of the variable, shown with ≡, such as 2(x + 3) ≡ 2x + 6.

Notation

- 3x means 3 × x; ab means a × b; x^2 means x × x; $4x^2$ means 4 × x × x.
- a/b means a ÷ b. Write numbers before letters, and letters in alphabetical order: 3ab, not b3a.

Collecting like terms

- **Like terms** have exactly the same letters and powers: 3x and –x are **like terms**; 3x and $3x^2$ are not.
- 3x + 2y – x + 5y = 2x + 7y. Keep the sign in front of each **term** with it.

Multiplying and dividing

- Multiply the numbers, then the letters: 2a × 3b = 6ab; 4x × 2x = $8x^2$.
- Use index laws for powers: $3a^2b \times 4ab^3 = 12a^3b^4$.
- Divide the numbers, then cancel letters: $12x^2 \div 4x = 3x$; $18xy \div 6y = 3x$.

Key terms

Term	A single number, letter or product, such as 5x.
Expression	A collection of terms with no equals sign.

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Equation	A statement with an equals sign that is true for particular values.
Formula	A rule linking two or more quantities, such as A = lw.
Identity	A statement that is true for all values, shown with ≡.
Like terms	Terms with the same letters and powers, which can be collected.
Coefficient	The number in front of a letter, such as 3 in 3x.

Your notes

Quick questions

Cover the answers and test yourself: remembering is what makes it stick.

1. Simplify $3x + 2y – x + 5y$.
2. Simplify $2a \times 3b$.
3. What does $4x^2$ mean?
4. Simplify $5p – 2p + 3$.
5. Simplify $4x \times 2x$.
6. Simplify $12x^2 \div 4x$.
7. Which of these is an equation?
8. Which of these is an identity?

Answers

1. $2x + 7y$
2. $6ab$
3. $4 \times x \times x$
4. $3p + 3$
5. $8x^2$
6. $3x$
7. $3x + 2 = 11$
8. $2(x + 3) \equiv 2x + 6$

What to do next

Practise 12 questions on this topic

Try 7 exam questions, with mark schemes

Read the lesson, one step at a time

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