

Algebra — Revision Booklet

Name:

Date:

INQUIRY

Use this booklet to revise all the key ideas, formulas, and methods from our Algebra unit. Work through the examples and practise questions.

Discuss with your partner. Write your initial ideas below:

Key Vocabulary

| Term | Definition |
|--------------------------|---|
| Expression | Numbers + variables + operations. NO equals sign. |
| Equation | Has an equals sign. Two sides must balance. |
| Variable | A letter representing an unknown number. |
| Coefficient | The number in front of a variable (in $3x$, it's 3). |
| Constant | A number on its own (in $3x + 5$, it's 5). |
| Like terms | Same variable, same power ($3x$ and $7x$). |
| Inverse operation | The opposite operation (+ undoes -, x undoes /). |
| Substitution | Replacing a variable with a given number. |
| BIDMAS | Order of operations. |
| Sequence | An ordered list of numbers following a rule. |
| Common difference | Amount added each time in an arithmetic sequence. |
| nth term | Formula that gives any term: $T = dn + c$. |

Topic 1: Expressions — Key Ideas

1. Simplify: $5x + 3 - 2x + 7$ [2 marks]

Show your working:

2. Write an expression: the cost of d dumplings at 8 yuan each, plus a 5 yuan box fee. [2 marks]

Show your working:

Topic 2: Substitution — Key Ideas

3. If $a = 5$, find: (a) $3a + 4$ (b) $a^2 - 6$ (c) $2a^2 + a$ [3 marks]

Show your working:

4. Speed formula: $s = d / t$. A KTX train in Korea covers 400 km in 2.5 hours. Find its speed. [2 marks]

Show your working:

Topic 3: One-Step Equations — Key Ideas

5. Solve and check: $x + 9 = 24$ [2 marks]

Show your working:

6. Solve and check: $6m = 42$ [2 marks]

Show your working:

Topic 4: Two-Step Equations — Key Ideas

7. Solve: $4n - 3 = 21$ [2 marks]

Show your working:

8. Solve: $(y + 4) / 3 = 6$ [2 marks]

Show your working:

9. A Nanjing taxi costs 11 yuan plus 2.40 yuan per km after 3 km. Total fare = 35 yuan. Find the distance. [3 marks]

Show your working:

Topic 5: Sequences — Key Ideas

10. Find the n th term for: 6, 11, 16, 21, 26, ... Then find the 30th term. [3 marks]

11. The n th term is $T = 5n - 3$. Which term equals 72? [2 marks]

Show your working: