

Simplifying Expressions

KS3 Maths · Follows the national curriculum

Name _____ Class _____ Date _____

1. Worked example

Simplify $6x - 4 + 2x + 7$

Step 1 · Identify like terms: x terms and number terms

$6x$ and $2x$ | -4 and $+7$

Step 2 · Combine x terms: $6x + 2x$

$= 8x$

Step 3 · Combine number terms: $-4 + 7$

$= 3$

Answer: $8x + 3$

Check: Substitute $x=1$: $8+3=11$. Original: $6-4+2+7=11$ ✓

2. Now try one with the steps

Simplify $5x^2 + 3x - 2x^2 - x + 4$

Step 1 · Group x^2 terms

Step 2 · Group x terms

Step 3 · Number terms (nothing to combine)

Step 4 · Collect together

Answer:

3. Practice

Show your working. The marks tell you how much is expected.

1. Simplify: $5x + 3x$ [1]

2. Simplify: $7y - 2y + 3y$ [1]

3. Simplify: $4x + 3y - 2x + y$ [2]

4. Simplify: $3a^2 + 5a - a^2 + 2a$ [2]

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

6. Simplify: $4p + 3q - p - 5q + 2$ [2]

7. Simplify: $9m - 4m$ [1]

8. Simplify: $a + a + a + b + b$ [1]

9. Simplify: $6x - 2y - x + 5y$ [2]

10. Simplify: $3 \times 4y$ [1]

11. Simplify: $2a \times 5b$ [1]

12. Simplify: $12x \div 4$ [1]

13. Simplify: $4xy + 3yx - 2xy$ [2]

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

15. Simplify: $3a \times 2a$ [1]

16. A rectangle has length $3x + 2$ and width $x - 1$. Write a simplified expression for its perimeter. [3]

17. Simplify: $7ab - 3a + 2ba - 4b + 5a$ [3]

4. Before you hand it in

$4x + 3 = 7x$ (adding the 3 to the $4x$)

$4x$ and 3 are unlike terms — $4x$ is 4 lots of x , while 3 is just a number. They cannot be combined. $4x + 3$ is already simplified.

$3x + 5x = 8x^2$ (squaring the result)

$3x + 5x = 8x$. The variable and its power do NOT change when you add like terms — only the coefficient changes.

Leaving $5ab - 2ba$ unsimplified, thinking ab and ba are different

ab and ba are like terms because multiplication can be done in either order. $5ab - 2ba = 3ab$. Writing letters in alphabetical order helps you spot like terms.