Algebraic Expressions Example

Simplifying combines the distributive property with like-term rules. Like terms have the same variable part; add their coefficients and combine constants separately.

WORKED EXAMPLE

Simplify 3(2x − 5) + 4x + 7.

$$a(b + c) = ab + ac;\ mx + nx = (m + n)x$$

Step-by-step solution

Step 1: Distribute 3

Multiply 3 by each term inside the parentheses.

$$3(2x - 5) + 4x + 7 = 6x - 15 + 4x + 7$$

Step 2: Group like terms

Collect the x-terms and the constants.

$$(6x + 4x) + (-15 + 7)$$

Step 3: Simplify

Add coefficients and constants.

$$10x - 8$$

ANSWER

$$10x - 8$$

Check

For x = 2, the original gives 3(4 − 5) + 8 + 7 = 12; the simplified form gives 10(2) − 8 = 12.