Add Algebraic Expressions

TOPIC 4 / MATHEMATICS

Write. Represent. Explain.

45-minute lesson • Original classroom examples

What will we learn today?

- Remove grouping when adding, then combine like terms.
- Use an equation, inequality, table, or diagram to justify your reasoning.
- Explain your answer using mathematical vocabulary and units.

5-minute warm-up

Discuss with a partner: What previous algebra or number skill will help with today’s lesson?

Show one calculation or example in your notebook.

Why this lesson matters

Two savings accounts have balances $3x + 8$ and $5x - 3$.

What is known? What is unknown? Which quantities are related?

Represent the relationship

Two savings accounts have balances 3x + 8 and 5x − 3.

$$(3x + 8) + (5x - 3) = 8x + 5$$

Explain the meaning of the variable, numbers, and operations.

Worked example

Add $(3x + 8) + (5x - 3)$.

$$8x + 5$$

Check: Does the result match the original relationship?

Independent practice

1. Add $(2a - 5) + (4a + 9)$.

2. Add $(x + 12) + (3x - 6)$.

Check your reasoning

Question 1

$$6a + 4$$

Question 2

$$4x + 6$$

Group challenge

Explain why the plus between parentheses does not reverse signs.

Each group member must explain one step or defend one claim.

Group challenge • solution

$$(a - b) + (c - d) = a - b + c - d$$

Compare methods. Does the answer make sense in context?

Additional Practice — If Time Allows

Add $(x + 12) + (3x - 6)$.

Extension: Create a similar problem with different numbers.

2-minute exit ticket

Add $(7m - 3) + (m + 11)$.

Work independently. Show enough steps to explain your thinking.

Exit ticket • answer

$$8m + 8$$

Reflect: What would you check before moving to the next lesson?