Add Multi-Variable Expressions

TOPIC 4 / MATHEMATICS

Write. Represent. Explain.

45-minute lesson • Original classroom examples

What will we learn today?

- Combine matching terms across expressions with two variables.
- 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

A school club combines supply quantities for two projects.

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

Represent the relationship

A school club combines supply quantities for two projects.

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

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

Worked example

Add (2x + 3y − 7) + (−5x + 2y + 4).

$$-3x + 5y - 3$$

Check: Does the result match the original relationship?

Independent practice

1. Add $(4a - b + 6) + (-a + 3b - 2)$.

2. Add $(2p - 5q) + (-3p + q)$.

Check your reasoning

Question 1

$$3a + 2b + 4$$

Question 2

$$-p - 4q$$

Group challenge

A student combines 4x and 4y. Explain the error.

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

Group challenge • solution

$4x + 4y \neq 8x$ in general

Compare methods. Does the answer make sense in context?

Additional Practice — If Time Allows

Add $(2p - 5q) + (-3p + q)$.

Extension: Create a similar problem with different numbers.

2-minute exit ticket

Add $(-x + 2y + 3) + (4x - y - 8)$.

Work independently. Show enough steps to explain your thinking.

Exit ticket • answer

$$3x + y - 5$$

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