Factor Expressions using the GCF

TOPIC 4 / MATHEMATICS

Write. Represent. Explain.

45-minute lesson • Original classroom examples

What will we learn today?

- Undo distribution by identifying a greatest common factor.
- 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 display shows 12 identical x-items and 18 fixed items grouped evenly.

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

Represent the relationship

A display shows 12 identical x-items and 18 fixed items grouped evenly.

$$12x + 18 = 6(2x + 3)$$

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

Worked example

Factor 12x + 18.

$$6(2x + 3)$$

Check: Does the result match the original relationship?

Independent practice

1. Factor 15a − 25.

2. Factor 24m + 36n.

Check your reasoning

Question 1

$$5(3a - 5)$$

Question 2

$$12(2m + 3n)$$

Group challenge

Explain how distribution checks a factored expression.

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

Group challenge • solution

$$6(2x + 3) = 12x + 18$$

Compare methods. Does the answer make sense in context?

Additional Practice — If Time Allows

Factor 24m + 36n.

Extension: Create a similar problem with different numbers.

2-minute exit ticket

Factor $18y - 12$.

Work independently. Show enough steps to explain your thinking.

Exit ticket • answer

$$6(3y - 2)$$

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