Distribute Negative and Fractional Factors

TOPIC 4 / MATHEMATICS

Write. Represent. Explain.

45-minute lesson • Original classroom examples

What will we learn today?

- Distribute negative and fractional factors correctly.
- 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 rectangle is scaled by three-fourths; express its area factor.

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

Represent the relationship

A rectangle is scaled by three-fourths; express its area factor.

$$\frac{3}{4}(8y - 4) = 6y - 3$$

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

Worked example

Expand $-2(3x - 5)$.

$$-6x + 10$$

Check: Does the result match the original relationship?

Independent practice

1. Expand $(1/2)(8y + 6)$.

2. Expand $-(3/4)(8z - 4)$.

Check your reasoning

Question 1

$$4y + 3$$

Question 2

$$-6z + 3$$

Group challenge

Explain why $-3(x - 4)$ has a positive constant.

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

Group challenge • solution

$$-3(x-4) = -3x + 12$$

Compare methods. Does the answer make sense in context?

Additional Practice — If Time Allows

Expand $-(3/4)(8z - 4)$.

Extension: Create a similar problem with different numbers.

2-minute exit ticket

Expand $-(1/2)(6t + 8)$.

Work independently. Show enough steps to explain your thinking.

Exit ticket • answer

$$-3t - 4$$

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