Solve Inequalities by Addition or Subtraction

TOPIC 4 / MATHEMATICS

Write. Represent. Explain.

45-minute lesson • Original classroom examples

What will we learn today?

- Undo addition or subtraction and preserve the inequality symbol.
- 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

The ticket price plus an $8 fee exceeds $21.

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

Represent the relationship

The ticket price plus an $8 fee exceeds $21.

$$p + 8 > 21$$

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

Worked example

Solve p + 8 > 21.

$$p > 13$$

Check: Does the result match the original relationship?

Independent practice

1. Solve $x - 5 \leq 12$.

2. Solve $a + 3.5 \geq 10$.

Check your reasoning

Question 1

$$x \leq 17$$

Question 2

$$a \geq 6.5$$

Group challenge

A student changes < to > after adding to both sides. Explain why that is unnecessary.

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

Group challenge • solution

$$x - 4 < 9 \Rightarrow x < 13$$

Compare methods. Does the answer make sense in context?

Additional Practice — If Time Allows

Explain p + 8 > 21.

Extension: Create a similar problem with different numbers.

2-minute exit ticket

Solve $y - 7 > -2$.

Work independently. Show enough steps to explain your thinking.

Exit ticket • answer

$$y > 5$$

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