Apply Properties of Equality: Multiply and Divide

TOPIC 4 / MATHEMATICS

Write. Represent. Explain.

45-minute lesson • Original classroom examples

What will we learn today?

- Use inverse operations on both sides to isolate a variable.
- 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

Seven identical boxes contain 63 pencils altogether. How many in each box?

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

Represent the relationship

Seven identical boxes contain 63 pencils altogether. How many in each box?

$$7p = 63$$

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

Worked example

Solve 7p = 63 by dividing both sides by 7.

$$\frac{7p}{7} = \frac{63}{7} \Rightarrow p = 9$$

Check: Does the result match the original relationship?

Independent practice

1. Solve $x \div 8 = 11$.

2. Solve $3.5m = 28$.

Check your reasoning

Question 1

$$x = 88$$

Question 2

$$m = 8$$

Group challenge

Two students use different steps to solve 6q = 54. Which steps preserve equality?

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

Group challenge • solution

$$\frac{6q}{6} = \frac{54}{6} \Rightarrow q = 9$$

Compare methods. Does the answer make sense in context?

Additional Practice — If Time Allows

Explain 7p = 63 by dividing both sides by 7.

Extension: Create a similar problem with different numbers.

2-minute exit ticket

Solve b ÷ 4 = 7.25.

Work independently. Show enough steps to explain your thinking.

Exit ticket • answer

$$b = 29$$

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