Equations with Rational Numbers: Applications

TOPIC 4 / MATHEMATICS

Write. Represent. Explain.

45-minute lesson • Original classroom examples

What will we learn today?

- Use fractional and decimal quantities in real situations.
- 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 recipe uses two-thirds of a bag and that amount weighs 8 kilograms.

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

Represent the relationship

A recipe uses two-thirds of a bag and that amount weighs 8 kilograms.

$$\frac{2}{3}b = 8$$

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

Worked example

Find the full bag mass b when two-thirds is 8 kg.

$$b = 8 \div \frac{2}{3} = 12$$

Check: Does the result match the original relationship?

Independent practice

1. A fourth of a distance is 3.5 km. Find the full distance.

2. Solve 0.24p = 1.68.

Check your reasoning

Question 1

$$\frac{1}{4}d = 3.5 \Rightarrow d = 14$$

Question 2

$$p = 7$$

Group challenge

Explain the difference between three-fourths of x and x divided by three-fourths.

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

Group challenge • solution

$$\frac{3}{4}x \quad \neq \quad x \div \frac{3}{4}$$

Compare methods. Does the answer make sense in context?

Additional Practice — If Time Allows

Solve 0.24p = 1.68.

Extension: Create a similar problem with different numbers.

2-minute exit ticket

Solve (3/8)r = 6.

Work independently. Show enough steps to explain your thinking.

Exit ticket • answer

$$r = 16$$

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