Evaluate Expressions with Rational Numbers

TOPIC 4 / MATHEMATICS

Write. Represent. Explain.

45-minute lesson • Original classroom examples

What will we learn today?

- Substitute fractions and decimals accurately, preserving signs.
- 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 craft shop charges $2.50 per kit and subtracts a $4 coupon.

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

Represent the relationship

A craft shop charges $2.50 per kit and subtracts a $4 coupon.

$$C = 2.5k - 4$$

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

Worked example

Evaluate (3/4)n − 2 for n = 8.

$$\frac{3}{4}(8) - 2 = 4$$

Check: Does the result match the original relationship?

Independent practice

1. Evaluate $-2.5x + 4$ when $x = -2$.

2. Evaluate $(1/2)a + 3$ when $a = -6$.

Check your reasoning

Question 1

$$-2.5(-2)+4=9$$

Question 2

$$\frac{1}{2}(-6)+3=0$$

Group challenge

Compare x/2 + 3 and (x + 3)/2 when x = 8.

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

Group challenge • solution

7 vs. 5.5

Compare methods. Does the answer make sense in context?

Additional Practice — If Time Allows

Interpret $\frac{3}{4}n - 2$ for $n = 8$.

Extension: Create a similar problem with different numbers.

2-minute exit ticket

Evaluate (2/3)y + 1 when y = 9.

Work independently. Show enough steps to explain your thinking.

Exit ticket • answer

$$\frac{2}{3}(9) + 1 = 7$$

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