Expressions and Equivalence

Lesson 3 Order of Operations

Standards 6.EE.A.1, 6.EE.A.2c

Learning target I can evaluate expressions using the order of operations.

Materials Algebra tiles or rectangle models, pencils, expression cards.

Lesson Flow 50 Minutes

0–5 Activate prior knowledge. Read the learning target. Ask students what they already know about order of operations. Use a quick model or estimate to make their starting ideas visible.

5–17 Teach and model. Work inside parentheses, then evaluate exponents. Multiply and divide from left to right; then add and subtract from left to right. Multiplication does not automatically come before division. Work through the two examples on the attached instruction page. Have students name the first step before showing it.

17–22 Guided practice. Revisit worked Example 2 with its solution covered. Students propose the next step and explain why it is valid; uncover and compare with the worked solution.

22–45 Independent classwork. Assign the attached 10 questions in order. Check items 1–3 for entry-level understanding, 4–6 for connected procedures, 7–8 for representation and explanation, and 9–10 for application or justification. Ask students to use the instruction-page notes area or extra grids for longer work.

45–50 Check understanding. Use classwork question 10 as an exit discussion: Evaluate 6 ÷ 2 × 6 + 2^2. Show the intermediate steps. Compare the result with the answer key and ask a student to defend the method.

Support and Extension

Support Model item 1 together with the listed tools, then have students attempt item 2 independently. Watch exponents versus multiplication, operation order, and distributing to every term.

Extension Ask students to solve a final item another way, draw a second representation, or create a related problem with a checked answer.

Next step Record which students can explain the target independently. Begin the next teaching session with a brief correction for any recurring error.

Name _____ Date _____

Expressions and Equivalence

Lesson 3 Order of Operations

Standards 6.EE.A.1, 6.EE.A.2c

Learning target I can evaluate expressions using the order of operations.

Learn and Discuss

Work inside parentheses, then evaluate exponents. Multiply and divide from left to right; then add and subtract from left to right. Multiplication does not automatically come before division.

Example 1 Evaluate 5 + 6 × 4. Show the intermediate steps.
Solution 29. Use parentheses and exponents first, then × and ÷ left to right, then + and -. Result: 29.
Example 2 Evaluate 6 ÷ 3 × 7 + 3^2. Show the intermediate steps.
Solution 23. Use parentheses and exponents first, then × and ÷ left to right, then + and -. Result: 23.

Classwork Show Your Work

Complete the 10 problems on the following page. Refer to the examples, draw models, and check your results.

My Notes or Second Method

Lesson 3 Order of Operations

Name _____ Show calculations, models, and units.

1. Evaluate 7 + 6 × 3. Show the intermediate steps.

2. Evaluate 2 + 4 × 2. Show the intermediate steps.

3. Evaluate 5 + 7 × 4. Show the intermediate steps.

4. Evaluate (7 + 6) × 4^2. Show the intermediate steps.

5. Evaluate (2 + 2) × 3^2. Show the intermediate steps.

6. Evaluate (2 + 2) × 6^2. Show the intermediate steps.

7. Evaluate 16 ÷ 2 × 5 + 2^2. Show the intermediate steps.

8. Evaluate 21 ÷ 3 × 4 + 3^2. Show the intermediate steps.

9. Evaluate 8 ÷ 4 × 5 + 4^2. Show the intermediate steps.

10. Evaluate 6 ÷ 2 × 6 + 2^2. Show the intermediate steps.

Order of Operations

Expressions and Equivalence

1. 25
Reasoning Use parentheses and exponents first, then × and ÷ left to right, then + and -. Result: 25.

2. 10
Reasoning Use parentheses and exponents first, then × and ÷ left to right, then + and -. Result: 10.

3. 33
Reasoning Use parentheses and exponents first, then × and ÷ left to right, then + and -. Result: 33.

4. 208
Reasoning Use parentheses and exponents first, then × and ÷ left to right, then + and -. Result: 208.

5. 36
Reasoning Use parentheses and exponents first, then × and ÷ left to right, then + and -. Result: 36.

6. 144
Reasoning Use parentheses and exponents first, then × and ÷ left to right, then + and -. Result: 144.

7. 44
Reasoning Use parentheses and exponents first, then × and ÷ left to right, then + and -. Result: 44.

8. 37
Reasoning Use parentheses and exponents first, then × and ÷ left to right, then + and -. Result: 37.

9. 26
Reasoning Use parentheses and exponents first, then × and ÷ left to right, then + and -. Result: 26.

10. 22
Reasoning Use parentheses and exponents first, then × and ÷ left to right, then + and -. Result: 22.