Expressions and Equivalence

Lesson 11 Combining Like Terms

Standards 6.EE.A.3

Learning target I can combine terms with the same variable part.

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 combining like terms. Use a quick model or estimate to make their starting ideas visible.

5–17 Teach and model. Terms with the same variable part count the same kind of object. Add their coefficients. Keep constants separate from variable terms and distribute before combining when parentheses are present. 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: Simplify $4(x + 4) + 7x$. Explain which terms combine. 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 _____

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Learn and Discuss

Terms with the same variable part count the same kind of object. Add their coefficients. Keep constants separate from variable terms and distribute before combining when parentheses are present.

Example 1 Simplify 7x + 6x. Explain which terms combine.
Solution 13x. Add coefficients of x terms; add only constants to constants. Distribute first if needed.
Example 2 Simplify 8(x + 3) + 2x. Explain which terms combine.
Solution 10x + 24. Add coefficients of x terms; add only constants to constants. Distribute first if needed.

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 11 Combining Like Terms

Name _____ Show calculations, models, and units.

1. Simplify 5x + 4x. Explain which terms combine.

2. Simplify 6x + 2x. Explain which terms combine.

3. Simplify 3x + 4x. Explain which terms combine.

4. Simplify 3x + 6 + 2x + 3. Explain which terms combine.

5. Simplify 5x + 5 + 2x + 5. Explain which terms combine.

6. Simplify 4x + 2 + 3x + 4. Explain which terms combine.

7. Simplify 8(x + 3) + 5x. Explain which terms combine.

8. Simplify 5(x + 3) + 4x. Explain which terms combine.

9. Simplify 7(x + 3) + 4x. Explain which terms combine.

10. Simplify 4(x + 4) + 7x. Explain which terms combine.

Combining Like Terms

Expressions and Equivalence

1. 9x
Reasoning Add coefficients of x terms; add only constants to constants. Distribute first if needed.

2. 8x
Reasoning Add coefficients of x terms; add only constants to constants. Distribute first if needed.

3. 7x
Reasoning Add coefficients of x terms; add only constants to constants. Distribute first if needed.

4. 5x + 9
Reasoning Add coefficients of x terms; add only constants to constants. Distribute first if needed.

5. 7x + 10
Reasoning Add coefficients of x terms; add only constants to constants. Distribute first if needed.

6. 7x + 6
Reasoning Add coefficients of x terms; add only constants to constants. Distribute first if needed.

7. 13x + 24
Reasoning Add coefficients of x terms; add only constants to constants. Distribute first if needed.

8. 9x + 15
Reasoning Add coefficients of x terms; add only constants to constants. Distribute first if needed.

9. 11x + 21
Reasoning Add coefficients of x terms; add only constants to constants. Distribute first if needed.

10. 11x + 16
Reasoning Add coefficients of x terms; add only constants to constants. Distribute first if needed.