LESSON MAKER PRO

Expression Workshop

Distribute, combine, and simplify

HIGH SCHOOL · A1.A.3

A1.A.3 "Create and evaluate equivalent algebraic expressions and equations using algebraic properties. Solve equations involving several variables for one variable in terms of the others. Simplify polynomial expressions by adding, subtracting..."

NAME _____ DATE _____

THE BIG IDEA

Use the distributive property to multiply each term inside parentheses. Then combine like terms, which have the same variable raised to the same power. If you subtract a group in parentheses, subtract every term in that group.

WORKED EXAMPLE

Simplify 7(2x + 5) - 3x.

1. Distribute: 14x + 35 - 3x
2. Group like terms: (14x - 3x) + 35
3. Combine: 11x + 35

Answer: 11x + 35

PRACTICE 6 problems

1 Simplify 4(x + 6).

ANSWER _____

2 Simplify 8(x + 9) + 6x.

ANSWER _____

3 Simplify 6(4x + 1) - 8x.

ANSWER _____

4 Simplify 9(x - 4) + 12x.

ANSWER _____

5 Simplify -4(6x - 9) + 10x.

ANSWER _____

6 Simplify (x + 8)(x + 4).

ANSWER _____

APPLY IT Show your work

1 An art club orders 4 batches of sticker sheets. Each batch has x sheets that cost $6 per sheet, plus a $9 setup charge. Write and simplify an expression for the total cost.

WORK SPACE

ANSWER _____

2 At a school market, a student sells x pins for $8 each and x + 6 patches for $4 each. The student pays a $12 booth fee. Write and simplify an expression for the money left after paying the fee.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Simplify $(x + 6)(x + 8) - (x + 4)(x + 9)$. Explain why the x^2 terms disappear.

WORK SPACE AND ANSWER

ANSWER KEY # Expression Workshop

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Simplify 4(x + 6).	**4x + 24**
2	Simplify 8(x + 9) + 6x.	**14x + 72**
3	Simplify 6(4x + 1) - 8x.	**16x + 6**
4	Simplify 9(x - 4) + 12x.	**21x - 36**
5	Simplify -4(6x - 9) + 10x.	**-14x + 36**
6	Simplify (x + 8)(x + 4).	**$x^2 + 12x + 32$**

PART 2 · APPLY IT

1. **$24x + $36** Each batch costs $6x + $9. Distribute in 4(6x + 9) to get 24x + 36 dollars.
2. **$12x + $12** Subtract the fee from sales: 8x + 4(x + 6) - 12 = 12x + 12 dollars.

CHALLENGE

x + 12. Each product contains x^2, so subtracting the second product gives $x^2 - x^2 = 0$.

Accept equivalent expressions that are fully simplified. For the word problems, the dollar sign may be placed before the expression or stated in words.