LESSON MAKER PRO

Expression Remix

Expand, combine, and simplify linear expressions.

GRADE 8 · 8.PFA.1

8.PFA.1 "The student will represent, simplify, and generate equivalent algebraic expressions in one variable. Represent algebraic expressions using concrete manipulatives or pictorial representations (e.g., colored chips, algebra tiles)..."

NAME _____ DATE _____

SIMPLIFY IN ORDER

Use the distributive property to multiply every term inside parentheses. Then combine like terms, including constants, to write one equivalent expression.

WORKED EXAMPLE

Simplify 11(12x - 14) + 15x - 16.

1. Distribute 11: 132x - 154 + 15x - 16
2. Combine the x-terms: 147x - 154 - 16
3. Combine the constants: 147x - 170

Answer: 147x - 170

PRACTICE 6 problems

1 Simplify: 8x + 2x - 5

ANSWER _____

2 Simplify: 3(5x - 1) + 2x

ANSWER _____

3 Simplify: -4(x + 2) + 9x

ANSWER _____

4 Simplify: 1/2(4x - 6) + 3x

ANSWER _____

5 Simplify: 2(x - 3) - 4(x + 1)

ANSWER _____

6 Simplify: 3/4x + 1/2x - 5/4

ANSWER _____

APPLY IT Show your work

1 A game store charges x dollars for a game pass. You buy 4 passes. Each pass also has a $2 service fee, and you pay one $5 shipping fee. Write and simplify an expression for the total cost.

WORK SPACE

ANSWER _____

2 At a club, you make x keychains in each of 5 sessions. In each session, 2 keychains are given away. Then 7 extra keychains are added. Write and simplify an expression for the number of keychains left.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Are 3/5(10x - 5) - 1/4x + 2 and 23/4x - 1 equivalent expressions? Explain by simplifying the first expression.

WORK SPACE AND ANSWER

ANSWER KEY

Expression Remix

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Simplify: 8x + 2x - 5	**10x - 5**
2	Simplify: 3(5x - 1) + 2x	**17x - 3**
3	Simplify: -4(x + 2) + 9x	**5x - 8**
4	Simplify: 1/2(4x - 6) + 3x	**5x - 3**
5	Simplify: 2(x - 3) - 4(x + 1)	**-2x - 10**
6	Simplify: 3/4x + 1/2x - 5/4	**5/4x - 5/4**

PART 2 · APPLY IT

1. **4x + 13** The total is 4(x + 2) + 5. Distribute 4 and combine the constants to get 4x + 13.
2. **5x - 3** The expression is 5(x - 2) + 7. Distribute 5, then combine -10 and 7 to get 5x - 3.

CHALLENGE

Yes. 3/5(10x - 5) - 1/4x + 2 = 6x - 3 - 1/4x + 2 = 23/4x - 1, so the expressions are equivalent.

Accept equivalent expressions with terms written in a different order. Accept unsimplified intermediate work when the final expression is equivalent to the listed answer.