LESSON MAKER PRO

Expression Remix

Expand, combine, and simplify linear expressions.

GRADE 8 · 8.PFA.1.b

8.PFA.1.b "Simplify and generate equivalent algebraic expressions in one variable by applying the order of operations and properties of real numbers..."

NAME _____ DATE _____

SIMPLIFY IN ORDER

Use the distributive property to multiply through parentheses first. Then combine like terms, which have the same variable part, and combine constant terms.

WORKED EXAMPLE

Simplify: 11(2x - 5) + 9x

1. Distribute 11: 22x - 55 + 9x
2. Combine the x-terms: 31x - 55

Answer: 31x - 55

PRACTICE 6 problems

1 Simplify: 4x + 8x - 6

ANSWER _____

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

ANSWER _____

3 Simplify: (3/4)x + (1/4)x - 8

ANSWER _____

4 Simplify: -8x + 3(6x - 4)

ANSWER _____

5 Simplify: 12 - 4(x - 6) + 3x

ANSWER _____

6 Simplify: (1/3)(15x + 12) - x

ANSWER _____

APPLY IT Show your work

1 In a video game, you earn 4x coins for completing quests. A bonus feature adds 3(x + 8) coins. Write and simplify an expression for the total number of coins.

WORK SPACE

ANSWER _____

2 A student club earns $7x from selling custom keychains and receives $4x in sponsor funding. The club pays $3(x + 6) for materials. Write and simplify an expression for the club's profit.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Simplify: (4/7)(14x - 21) - 6(x - 8) + 4x. Explain which step you must do before combining like terms.

WORK SPACE AND ANSWER

ANSWER KEY # Expression Remix

GRADE 8 · 8.PFA.1.b

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Simplify: 4x + 8x - 6	**12x - 6**
2	Simplify: 6(x + 4) - 3x	**3x + 24**
3	Simplify: (3/4)x + (1/4)x - 8	**x-8**
4	Simplify: -8x + 3(6x - 4)	**10x - 12**
5	Simplify: 12 - 4(x - 6) + 3x	**36 - x**
6	Simplify: (1/3)(15x + 12) - x	**4x + 4**

PART 2 · APPLY IT

1. **7x + 24** Add the quest coins and bonus coins: 4x + 3(x + 8). Distribute the 3, then combine like terms.
2. **8x - 18** Profit equals money earned minus material costs: 7x + 4x - 3(x + 6). Distribute the negative 3, then combine like terms.

CHALLENGE

6x + 36. You must distribute through both sets of parentheses before combining like terms.

Accept equivalent forms with terms in a different order, such as -x + 36 for problem 5. Check that students distribute a negative factor correctly in the word problem and challenge.