LESSON MAKER PRO

Expression Power Moves

Use operation properties to simplify, expand, and factor.

GRADE 7 · 7.PAR.2.1

7.PAR.2.1 "Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients."

NAME _____ DATE _____

USE PROPERTIES WISELY

Use the distributive property to multiply a factor by every term inside parentheses. Combine like terms only when their variable parts match, and factor by reversing the distributive property.

WORKED EXAMPLE

Simplify: 7/5(x + 10) - 3/5x

1. Distribute: 7/5(x + 10) = 7/5x + 14.
2. Rewrite: 7/5x + 14 - 3/5x.
3. Combine x-terms: (7/5 - 3/5)x = 4/5x.

Answer: 4/5x + 14

PRACTICE 6 problems

1 Simplify: 1/2x + 6x - 1/2x + 8

ANSWER _____

2 Simplify: 11/12x - 1/6x + 9

ANSWER _____

3 Expand and simplify: 2/9(18x + 27)

ANSWER _____

4 Factor completely: 8x + 12

ANSWER _____

5 Simplify: (13/8x + 11) - (1/8x - 6)

ANSWER _____

6 Factor completely: 9/2x - 6

ANSWER _____

APPLY IT Show your work

1 For a school gaming tournament, a club's first supply order costs 1/2x + 16 dollars. A second order costs 1/8x - 2 dollars, where x is the number of teams. Write and simplify an expression for both orders together.

WORK SPACE

ANSWER _____

2 A headphone bundle is priced at 11/12x + 18 dollars, where x is the price of a music player in dollars. A coupon reduces the price by 1/6x + 6 dollars. Write and simplify the final price.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Simplify: 11/6(12x - 9) - 1/2(8x + 16)

WORK SPACE AND ANSWER

ANSWER KEY

Expression Power Moves

GRADE 7 · 7.PAR.2.1

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Simplify: 1/2x + 6x - 1/2x + 8	**6x + 8**
2	Simplify: 11/12x - 1/6x + 9	**3/4x + 9**
3	Expand and simplify: 2/9(18x + 27)	**4x + 6**
4	Factor completely: 8x + 12	**4(2x + 3)**
5	Simplify: (13/8x + 11) - (1/8x - 6)	**3/2x + 17**
6	Factor completely: 9/2x - 6	**3/2(3x - 4)**

PART 2 · APPLY IT

1. **5/8x + 14 dollars** Add the x-terms and add the constants: 1/2x + 1/8x + 16 - 2. The total is 5/8x + 14 dollars.
2. **3/4x + 12 dollars** Subtract the coupon expression from the bundle price. Combine 11/12x - 1/6x and 18 - 6 to get 3/4x + 12 dollars.

CHALLENGE

18x - 49/2

Accept equivalent simplified expressions with terms in a different order. For factoring items, accept equivalent factored forms, including forms with a negative factor distributed correctly.