LESSON MAKER PRO

Polynomial Mix-Up

Add, subtract, and multiply to write equivalent expressions.

HIGH SCHOOL · A1.A.3.2

A1.A.3.2 "Simplify polynomial expressions by adding, subtracting, or multiplying."

NAME _____ DATE _____

COMBINE WITH CARE

Combine terms only when they have the same variable and exponent. To subtract a polynomial, change the sign of each term you subtract. To multiply polynomials, distribute each term, then combine like terms.

WORKED EXAMPLE

Simplify (14x + 17) - (19x - 23).

1. Change the signs of the terms being subtracted: 14x + 17 - 19x + 23.
2. Group like terms: (14x - 19x) + (17 + 23).
3. Combine: -5x + 40.

Answer: -5x + 40

PRACTICE 6 problems

1 Simplify $(6x^2 - 5x + 8) + (9x^2 + 2x - 10)$.

ANSWER _____

2 Simplify $(12x^2 + x - 7) + (-5x^2 + 6x + 4)$.

ANSWER _____

3 Simplify $(10x^2 + 6x - 8) - (3x^2 - 5x + 9)$.

ANSWER _____

4 Simplify $(9x^2 - 12x + 2) - (-6x^2 + 8x - 5)$.

ANSWER _____

5 Simplify $(x + 6)(x - 2)$.

ANSWER _____

6 Simplify $(2x - 7)(5x + 8)$.

ANSWER _____

APPLY IT Show your work

1 A gaming tournament has x teams with x + 6 players on each team. Every player pays a $10 entry fee. Write a simplified polynomial for the total entry fees, in dollars.

WORK SPACE

ANSWER _____

2 A student sells x handmade pins for $6 each and receives $10 in tips. Supplies cost $2 per pin, and table rental costs $9. Write a simplified polynomial for the money left after costs, in dollars.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Simplify (2x + 5)(x - 6) - (x - 3)(x + 7). Show one step that makes the subtraction clear.

WORK SPACE AND ANSWER

ANSWER KEY # Polynomial Mix-Up

HIGH SCHOOL · A1.A.3.2

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Simplify $(6x^2 - 5x + 8) + (9x^2 + 2x - 10)$.	**$15x^2 - 3x - 2$**
2	Simplify $(12x^2 + x - 7) + (-5x^2 + 6x + 4)$.	**$7x^2 + 7x - 3$**
3	Simplify $(10x^2 + 6x - 8) - (3x^2 - 5x + 9)$.	**$7x^2 + 11x - 17$**
4	Simplify $(9x^2 - 12x + 2) - (-6x^2 + 8x - 5)$.	**$15x^2 - 20x + 7$**
5	Simplify $(x + 6)(x - 2)$.	**$x^2 + 4x - 12$**
6	Simplify $(2x - 7)(5x + 8)$.	**$10x^2 - 19x - 56$**

PART 2 · APPLY IT

1. **$10x^2 + 60x$ dollars** There are $x(x + 6)$ players. Multiply by \$10 per player and distribute.
2. **$4x + 1$ dollars** Subtract total costs from total income: $(6x + 10) - (2x + 9) = 4x + 1$.

CHALLENGE

$2x^2 - 7x - 30 - (x^2 + 4x - 21) = x^2 - 11x - 9$

Accept equivalent terms in any order. For the challenge, the shown step should keep parentheses around the second product or correctly change the signs of all its terms.