LESSON MAKER PRO

Polynomial Power Moves

Add, subtract, and multiply expressions with confidence.

HIGH SCHOOL · HSA-APR.A

CCSS.Math.Content.HSA-APR.A "Perform arithmetic operations on polynomials"

NAME _____ DATE _____

BUILD AND COMBINE

To add or subtract polynomials, combine only like terms, terms with the same variable and exponent. To multiply polynomials, distribute each term in one expression to every term in the other expression, then combine like terms.

WORKED EXAMPLE

Simplify $(11x - 13)(x + 14)$.

1. Distribute 11x: $11x(x + 14) = 11x^2 + 154x$.
2. Distribute -13: $-13(x + 14) = -13x - 182$.
3. Combine like terms: $11x^2 + 154x - 13x - 182 = 11x^2 + 141x - 182$.

Answer: $11x^2 + 141x - 182$

PRACTICE 6 problems

1 Simplify: $(4x + 1) + (6x - 8)$

ANSWER _____

2 Simplify: $(9x^2 - 4x + 6) - (x^2 + 8x - 1)$

ANSWER _____

3 Simplify: $3x(4x - 3)$

ANSWER _____

4 Simplify: $(x - 6)(x + 4)$

ANSWER _____

5 Simplify: $(2x + 9)(3x - 1)$

ANSWER _____

6 Simplify: $(5x^2 - 2x + 7) + (3x^2 + 6x - 4) - (x^2 + x + 8)$

ANSWER _____

APPLY IT Show your work

1 A student designs a rectangular sticker for a laptop. Its length is (x + 4) inches and its width is (3x - 5) inches. Write and simplify an expression for the sticker's area.

WORK SPACE

ANSWER _____

2 For a school esports tournament, revenue is modeled by $6x^2 + 9x - 12$ dollars and expenses are modeled by $x^2 - 4x + 8$ dollars. Write and simplify an expression for the tournament's profit.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Simplify: $(2x - 3)(x^2 + 5x - 4) - (x + 2)(3x - 7)$

WORK SPACE AND ANSWER

ANSWER KEY

Polynomial Power Moves

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Simplify: $(4x + 1) + (6x - 8)$	**$10x - 7$**
2	Simplify: $(9x^2 - 4x + 6) - (x^2 + 8x - 1)$	**$8x^2 - 12x + 7$**
3	Simplify: $3x(4x - 3)$	**$12x^2 - 9x$**
4	Simplify: $(x - 6)(x + 4)$	**$x^2 - 2x - 24$**
5	Simplify: $(2x + 9)(3x - 1)$	**$6x^2 + 25x - 9$**
6	Simplify: $(5x^2 - 2x + 7) + (3x^2 + 6x - 4) - (x^2 + x + 8)$	**$7x^2 + 3x - 5$**

PART 2 · APPLY IT

1. **$3x^2 + 7x - 20$ square inches** Multiply the length by the width: $(x + 4)(3x - 5)$. Distribute and combine like terms.
2. **$5x^2 + 13x - 20$ dollars** Profit equals revenue minus expenses. Subtract the entire expense polynomial, then combine like terms.

CHALLENGE

$2x^3 + 4x^2 - 22x + 26$

Accept equivalent polynomial forms with terms in a different order. For the word problems, accept the simplified expression with or without the stated units.