Lesson 5

The Distributive Property and Combining Like Terms

Lesson

The Distributive Property lets us remove parentheses:

$$a(b + c) = ab + ac$$

Like terms are terms with the same variable raised to the same power. We simplify expressions by combining like terms:

$3x + 5x = 8x$ (add the coefficients)
$7y - 2y = 5y$

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

Step 1: Distribute the 3
$6x + 12 - 5x$

Step 2: Combine like terms (6x and -5x)
$x + 12$

Practice Problems

1) Simplify: $4(x + 3) + 2x$

2) Simplify: $5(2y - 1) + 3y$

3) Simplify: $2(3a + 4) - (a + 5)$

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

5) Solve: 2(x + 3) = 16

6) Solve: 4(2n - 1) + 3 = 19

7) Solve: 3(y + 5) - 2y = 20

8) Simplify: 6(x - 2) + 3(x + 1)

9) Simplify: -(3x - 4) + 5x

10) Simplify: 4(2m - 3) - 2(m + 1)

11) Simplify: 3(a + 2b) - 2(a - b)

12) Solve: 5(x - 4) = 0

13) Solve: 3(2x + 1) - 5 = 22

14) Solve: -2(x - 4) = 10

15) Solve: 4(3x + 2) = 2(5x + 8)

16) Simplify: 7a - 3(2a - 1) + 5

17) Simplify: 2(4x - 3) - (3x + 1) + 8

18) Solve: 6(x + 2) - 3(x - 1) = 27

19) A rectangle has length (3x + 4) and width 2.
Write and simplify an expression for its perimeter.

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