

Math 9 Review – Part 2
Distributive Law and Like Terms

coefficient → $4x^3$ ← exponent
 ↑ variable

Like Terms

Like terms are terms that have the same variable(s) with the same exponent(s) of the variable(s). The only thing different are the coefficients.

Example 1:

$4a, -2a, \frac{4}{3}a, 1.6a$
 $-2x^5, 7x^5, -\frac{1}{6}x^5$

Combining Like Terms

When we combine like terms we are simplifying an algebraic expression.

- Identify like terms
- Group like terms together (be sure to include the correct sign in front of each term)
- Add/subtract the coefficients of each like term together
- Write your final answer

Example 2: Simplify the following expressions:

a) $2a + 3c - 6a + 4b - 5c + 3b$
 $= 2a - 6a + 4b + 3b + 3c - 5c$
 $= -4a + 7b - 2c$

b) $-4x + 5x^2 + 3x - 2x + 6x^2$
 $= 5x^2 + 6x^2 - 4x + 3x - 2x$
 $= 11x^2 - 3x$

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Distributive Law

The distributive law is an algebra property which is used to multiply a single term and two or more terms inside a set of parentheses.

We often use the expression "**expand**" when we need to use the distributive law.

Example 3: Simplify the following expressions:

a) $4(a+6)$

$$\begin{aligned} &= 4(a) + 4(6) \\ &= 4a + 24 \end{aligned}$$

b) $5+3(2b-1)$

$$\begin{aligned} &= 5 + 3(2b) - 3(1) \\ &= \underline{5} + 6b - \underline{3} \\ &= \boxed{6b + 2} \quad \text{or} \quad 2 + 6b \checkmark \end{aligned}$$

c) $-6(5+x) - (7x-11)$

$$\begin{aligned} &= -6(5+x) + (-1)(7x-11) \\ &= -6(5) + (-6)(x) + (-1)(7x) - (-1)(+11) \\ &= -30 - 6x + (-7x) + 11 \\ &= -30 - 6x - 7x + 11 \\ &= -6x - 7x - 30 + 11 \\ &= -13x - 19 \end{aligned}$$

b) $8(c+5) - 6c + 2(9c-3)$

$$\begin{aligned} &= 8(c) + 8(5) - 6c + 2(9c) - 2(3) \\ &= \underline{8c} + 40 - \underline{6c} + \underline{18c} - 6 \\ &= 8c - 6c + 18c + 40 - 6 \\ &= 20c + 34 \end{aligned}$$