Guide to: Simplifying algebra

maths Links

Explanation:

To simplify by **collecting like terms**, group terms that have the exact same letter and power (note that x and x^2 are **not** like terms). Always keep the + or − sign immediately in front of each term attached to that term when grouping.

When multiplying algebraic terms, multiply the numbers in front (coefficients) first, then write the letters together in alphabetical order (remembering $m \times m = m^2$). When dividing, divide the coefficients and cancel common letters.

Example 1: Simplify:

(a) $\mathbf{5a + 3b - 2a + 4b}$ (b) $\mathbf{4x^2 - 3x + 2x^2 - 5x}$

Solution:

(a) Group the a terms and b terms with their signs:

• $(5a - 2a) + (3b + 4b) = \mathbf{3a + 7b}$

(b) Group x^2 terms and x terms separately:

• $(4x^2 + 2x^2) + (-3x - 5x) = \mathbf{6x^2 - 8x}$

Example 2: Simplify:

(a) $\mathbf{4p \times 3q}$ (b) $\mathbf{5m \times 3m}$ (c) $\mathbf{18y^2 \div 6y}$

Solution:

(a) $4 \times 3 = 12$, and $p \times q = pq \rightarrow \mathbf{12pq}$

(b) $5 \times 3 = 15$, and $m \times m = m^2 \rightarrow \mathbf{15m^2}$

(c) $\frac{18y^2}{6y}$: $18 \div 6 = 3$ and $y^2 \div y = y \rightarrow \mathbf{3y}$

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