

Simplification of Algebraic Expressions

A. To test understanding of key vocabulary.

1. In the expression $8a - 15$, the term -15 is called the _____.
2. Terms that have the same variable part, like $7x$ and $-2x$, are called _____ terms.
3. In the term $9y$, the number 9 is the _____.
4. The simplified form of $5(x - 3)$ is _____.
5. When simplifying $10 - (2x + 3)$, you must _____ the negative sign to both terms inside the parentheses.

B. Draw a line to match the expression in Column A with its simplified form in Column B.

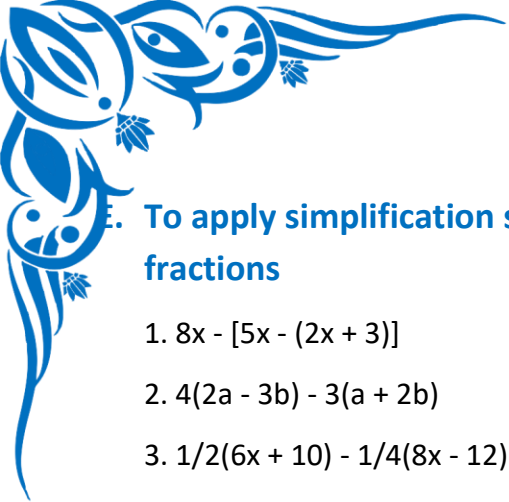
Column A	Column B
1. $5x + 3 - 2x$	A. $2x + 6$
2. $-(x - 4)$	B. $3x + 3$
3. $2(x + 3)$	C. $x + 2y$
4. $4x + 2y - 3x$	D. $4x$
5. $9x - 5x$	E. $-x + 4$

C. To practice more complex simplifications involving multiple variables, constants, and the distributive property.

1. $7x + 5y - 3x + 2y$
2. $-5a + 8b + 11a - 3b$
3. $4(m + 3)$
4. $3(2p - 5) + 8$
5. $6y + 2(y + 4)$

D. Goal: To review the basics of combining like terms.

1. $3x + 8x$
2. $10y - 4y$
3. $5a + 7 + 2a$
4. $9p + 2q - 5p$
5. $8m + m - 4m$



E. To apply simplification skills to more difficult problems, including nested parentheses and fractions

1. $8x - [5x - (2x + 3)]$
2. $4(2a - 3b) - 3(a + 2b)$
3. $\frac{1}{2}(6x + 10) - \frac{1}{4}(8x - 12)$
4. $3m(m - 2) - (m^2 - 7m)$
5. $5p - 2[p + 3(p - 4)]$

F. To translate real-world scenarios into algebraic expressions and simplify them.

1. Perimeter of a Rectangle: A rectangle has a length of $(3x + 2)$ units and a width of $(x - 1)$ units. Write and simplify an expression for its perimeter. (Hint: Perimeter = $2L + 2W$)
2. Total Cost: You buy p pens for 2 each and n notebooks for 4 each. Your friend buys $3p$ pens and $2n$ notebooks at the same prices. Write and simplify an expression for the total cost for you and your friend combined.
3. Sum of Ages: Anjali is y years old. Her brother is 5 years older than her, and her mother is three times Anjali's age. Write and simplify an expression for the sum of their three ages.
4. Consecutive Integers: The sum of three consecutive integers can be represented by $n + (n + 1) + (n + 2)$, where n is the smallest integer. Simplify this expression.
5. Phone Plan: A monthly phone plan costs 20 plus 0.10 for every text message, t . Your friend's plan costs 30 plus 0.05 for every text message, t . Write and simplify an expression for the total monthly cost of both plans combined.

G. True or False

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|---|-------|
| 1. $4x + 5y = 9xy$ | _____ |
| 2. $8(a - 3) = 8a - 3$ | _____ |
| 3. $y + y + y = y^3$ | _____ |
| 4. The coefficient of x in the expression $5 - x$ is 1. | _____ |
| 5. $7p - (p - 2) = 6p - 2$ | _____ |