

Algebra - Algebraic Expressions

Name: _____

Date: _____

Concepts

- Adding Algebraic Expressions
 - Algebra - Algebraic Expressions
 - Multiplying Algebraic Expressions - Secondary 1 and 2
 - Operations on Algebraic Expressions (theory)
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Adding Algebraic Expressions

1. Simplify each expression by grouping the like terms.

a) $5x + 3 + 2x + 8$

b) $9a + 4b - 3a + b$

c) Add the two expressions $6m + 5$ and $2m - 9$.

Algebra - Algebraic Expressions

2. Consider the algebraic expression $9a + 4 + 3ab - a$.

- a) How many terms does it have?
- b) What is the coefficient of the term $3ab$?
- c) Which term is the constant term?
- d) Name two terms that are like terms.
- e) Evaluate the expression when $a = 2$ and $b = 5$.

Multiplying Algebraic Expressions - Secondary 1 and 2

3. Remove the parentheses and simplify.

- a) $4(2x + 5)$
- b) $3(a + 6) + 2(a - 1)$
- c) $6(2m + 3) - 5$

Operations on Algebraic Expressions

4. For each pair, state whether the two expressions are equivalent. Justify each answer either by naming the property you used or by giving a value of the variable for which the two expressions disagree.

a) $3(x + 4)$ and $3x + 4$

b) $5y + 2y$ and $7y$

c) $8 + n$ and $n + 8$

d) $2(k + 3)$ and $2k + 6$

Synthesis — drawing on several sheets in this topic

5. A hockey tournament gives every player a kit: one jersey costing j dollars and one pair of socks costing \$8. A team has 12 players, and each team's coach also receives 2 jerseys (no socks).

a) Write a simplified expression for the cost of one team's kits.

b) The organizers order kits for 5 teams. Write and simplify an expression for the total cost.

c) Emma writes the total for the 5 teams as $70j + 96$. Which step did she miss? Explain, then check your own answer using $j = 40$.

Want the harder problems and the worked solutions?

The *Challenge Problems* set and the *Answer Keys* for Algebra - Algebraic Expressions — with the reasoning written out in full — are available at tutorinmontreal.ca.