

Lesson Summary

Terms that contain exactly the same variable symbol can be combined by addition or subtraction because the variable represents the same number. Any order, any grouping can be used where terms are added (or subtracted) in order to group together like terms. Changing the orders of the terms in a sum does not affect the value of the expression for given values of the variable(s).

Problem Set

For Problems 1–9, write equivalent expressions by combining like terms. Verify the equivalence of your expression and the given expression by evaluating each for the given values: $a = 2$, $b = 5$, and $c = -3$.

1. $3a + 5a$

2. $8b - 4b$

3. $5c + 4c + c$

4. $3a + 6 + 5a$

5. $8b + 8 - 4b$

6. $5c - 4c + c$

7. $3a + 6 + 5a - 2$

8. $8b + 8 - 4b - 3$

9. $5c - 4c + c - 3c$

Use any order, any grouping to write equivalent expressions by combining like terms. Then, verify the equivalence of your expression to the given expression by evaluating for the value(s) given in each problem.

10. $3(6a)$; for $a = 3$

11. $5d(4)$; for $d = -2$

12. $(5r)(-2)$; for $r = -3$

13. $3b(8) + (-2)(7c)$; for $b = 2$, $c = 3$

14. $-4(3s) + 2(-t)$; for $s = \frac{1}{2}$, $t = -3$

15. $9(4p) - 2(3q) + p$; for $p = -1$, $q = 4$

16. $7(4g) + 3(5h) + 2(-3g)$; for $g = \frac{1}{2}$, $h = \frac{1}{3}$

The problems below are follow-up questions to Example 1, part (b) from Classwork: Find the sum of $2x + 1$ and $5x$.

17. Jack got the expression $7x + 1$ and then wrote his answer as $1 + 7x$. Is his answer an equivalent expression? How do you know?
18. Jill also got the expression $7x + 1$, and then wrote her answer as $1x + 7$. Is her expression an equivalent expression? How do you know?