

NAME _____

DATE _____

Module 11 Simplifying Algebraic Expressions
with Polynomials**Lesson 3** Adding and Subtracting Polynomials**independent
practice****Find each sum or difference either horizontally or vertically. Write answers in simplest form.**

1. $(2y - 4) + (6y - 2)$

2. $(5x + 3) - (4x + 2)$

3. $(x^2 - 3x + 4) + (x^2 + 5x - 3)$

4. $(x^5 - 6) - (x^3 + 3)$

5. $(2r^2 + 7r - 3) - (-5r^2 + 3r + 4)$

6. $(12b^2 + 7b + 6) + (9b^2 + 5b - 2)$

7. $(2k - 1) - (4k^2 + 3k - 7)$

8. $(9q^2 + 6q + 3) - (5q^2 - q + 5)$

9. $(8k^2 + 4k - 9) + (5k^2 + 4k + 9)$

10. $(5c^2 - 9c + 7) - (-2c^2 + 3)$

11.
$$\begin{array}{r} 3r^2 - 5r + 19 \\ + 7r^2 + 10r + 12 \\ \hline \end{array}$$

12.
$$\begin{array}{r} -10x^2 - 5x + 6 \\ - (-5x^2 + 12x + 2) \\ \hline \end{array}$$

13. $(21q^2r + 15qr^2 - 6) + (13q^2r - 3qr^2 + 5)$ _____

14. $(9c^2d^2 - 6cd^3 + 4cd) - (-3c^2d^2 + 10cd^3 - 9cd)$ _____

15. $(14x^2 - 9xy + 20y^2) + (12x^2 + 15xy - 17y^2)$ _____

16. $(5y^2z^3 + 7y^3z + 8) - (-2y^2z - 6yz)$ _____

17. $(a^2b^2 + 7ab - 9) - (a^2b^2 - 7ab + 9)$ _____

18. $(4m^2n - 3mn + 8) + (6m^2n + 14mn - 7)$ _____

19. $\left(\frac{4}{5}r^2 - \frac{9}{10}s^2 - \frac{1}{4}rs\right) - \left(-\frac{2}{3}r^2 + \frac{1}{4}s^2 - \frac{1}{3}rs\right)$ _____

20. $(-0.02a^2 - 4.3b^2 + 0.13ab) + (0.01a^2 + 5.2b^2 - 1.4ab)$

Journal

1. Find two trinomials whose sum is zero and find two trinomials whose difference is zero. Compare and contrast the pairs of trinomials.
2. Stephanie does not like to subtract. Explain to her how she can use addition to subtract polynomials.
3. Add $(2x^2 + 5x + 6)$ and $(-3x^2 - 2x + 7)$ vertically and horizontally. Is the answer the same? Why?
4. Explain how to check the answers when adding and subtracting polynomials.
5. Explain the importance of using like terms when adding and subtracting polynomials.

Cumulative Review

Simplify.

1. $2a(b^6c^4)^3$ _____
2. $\frac{4^5}{4^8}$ _____
3. $\frac{6x^5y^2}{4x^2y^3}$ _____
4. $\left(\frac{5^{-3}a^3b^4}{b^5}\right)^0$ _____

Write in scientific notation.

5. 2,670,000,000 _____
6. 0.00000000365 _____

Multiply or divide as indicated. Write answers in scientific notation.

7. $(4.3 \times 10^6)(5 \times 10^{-2})$ _____
8. $(4.32 \times 10^{-2})(2.6 \times 10^{10})$ _____
9. $\frac{4.5 \times 10^2}{1.5 \times 10^{-5}}$ _____
10. $\frac{2.5 \times 10^6}{5.0 \times 10^{-3}}$ _____

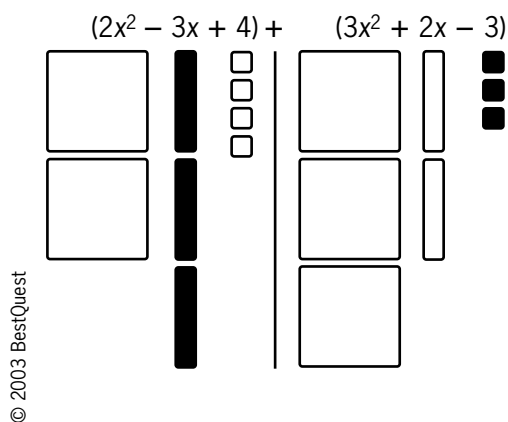
Manipulatives

Manipulatives can be used to add and subtract polynomials.

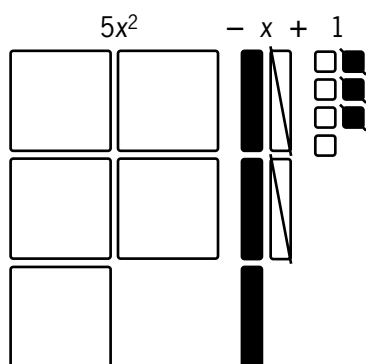
Add:

$$(2x^2 - 3x + 4) + (3x^2 + 2x - 3)$$

Begin by modeling each polynomial. Here, the shaded tiles represent negative values, and the unshaded tiles represent positive values.



Then, rearrange and count the tiles. Finish by canceling zero pairs.



$$(2x^2 - 3x + 4) + (3x^2 + 2x - 3) = 5x^2 - x + 1.$$

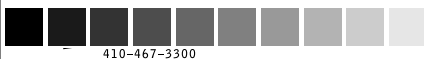
Use manipulatives to find each sum or difference.

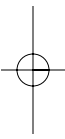
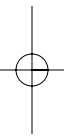
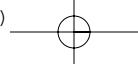
1. $(3x - 4) + (2x + 2)$

2. $(4x^2 - 8) + (2x^2 - 3x + 2)$

3. $(4x^2 + x - 3) - (2x^2 + 2x - 1)$

4. $(x^2 + 4x - 3) - (3x^2 - x + 2)$





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