

Section 2.1 Simplifying Algebraic Expressions

Before Class:

- Read the objectives on page 77.
- Read the **Helpful Hint** boxes on pages 77, 78, and 80.
- Complete the exercises:
 1. To combine like terms, add the _____ and multiply the result by the common variable factors.
 2. An algebraic expression containing the sum or difference of like terms can be simplified by applying the _____ property.
 3. Like terms have the same _____ raised to exactly the same _____.

During Class:

- Write your class notes.** Neatly write down **all** examples shown as well as key terms or phrases with definitions. If not applicable or if you were absent, watch the Lecture Series (DVD) for this section and do the same (write down the examples shown as well as key terms or phrases). Insert more paper as needed.

Class Notes/Examples

Your Notes

Answers: 1) numerical coefficients 2) distributive 3) variables, powers

Section 2.1 Simplifying Algebraic Expressions

Class Notes (continued)

Your Notes

(Insert additional paper as needed.)

Section 2.1 Simplifying Algebraic Expressions

Practice:

- Complete the Vocabulary, Readiness & Video Check on page 82.
- Next, complete any incomplete exercises below. Check and correct your work using the answers and references at the end of this section.

Review this example:

1. Simplify each expression by combining like terms.

a. $7x - 3x$ b. $10y^2 + y^2$ c. $8x^2 + 2x - 3x$

a. $7x - 3x = (7 - 3)x = 4x$

b. $10y^2 + y^2 = 10y^2 + 1y^2 = (10 + 1)y^2 = 11y^2$

c. $8x^2 + 2x - 3x = 8x^2 + (2 - 3)x = 8x^2 - x$

Your turn:

2. Simplify the expression by combining any like terms.

$3x + 2x$

Review this example:

3. Simplify by combining like terms.

$-5a - 3 + a + 2$

$$\begin{aligned} -5a - 3 + a + 2 &= -5a + 1a + (-3 + 2) \\ &= (-5 + 1)a + (-3 + 2) \\ &= -4a - 1 \end{aligned}$$

Your turn:

4. Simplify the expression by combining any like terms.

$8x^3 + x^3 - 11x^3$

Review this example:

5. Simplify the following expression.

$-2(4x + 7) - (3x - 1)$

$$\begin{aligned} -2(4x + 7) - (3x - 1) &= -8x - 14 - 3x + 1 \\ &= -11x - 13 \end{aligned}$$

Your turn:

6. Simplify the expression. First use the distributive property to remove any parentheses.

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

Section 2.1 Simplifying Algebraic Expressions

Review this example:

7. Write the following phrase as an algebraic expression. Then simplify if possible.

“Subtract $4x - 2$ from $2x - 3$.”

“Subtract $4x - 2$ from $2x - 3$ ” translates to $(2x - 3) - (4x - 2)$. Next, simplify the algebraic expression.

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

$$= \textcircled{-2x - 1}$$

Your turn:

8. Write the following as an algebraic expression. Simplify if possible.

“Subtract $5m - 6$ from $m - 9$.”

Review this example:

9. Write the following phrase as an algebraic expression and simplify if possible. Let x represent the unknown number.

“The sum of twice a number, 3 times the number, and 5 times the number”

The phrase “the sum of” means to add.

twice a number	added to	3 times the number	added to	5 times the number
↓	↓	↓	↓	↓
$2x$	+	$3x$	+	$5x$

Now simplify: $2x + 3x + 5x = \textcircled{10x}$

Your turn:

10. Write the following phrase as an algebraic expression and simplify if possible. Let x represent the unknown number.

“The sum of 5 times a number and -2 , added to 7 times a number”

	Answer	Text Ref	Video Ref		Answer	Text Ref	Video Ref
1	a. $4x$ b. $11y^2$ c. $8x^2 - x$	Ex 3a–c, p. 78		6	$2x + 14$		Sec 2.1, 11/14
2	$5x$		Sec 2.1, 8/14	7	$-2x - 1$	Ex 7, p. 80	
3	$-4a - 1$	Ex 4b, p. 79		8	$-4m - 3$		Sec 2.1, 12/14
4	$-2x^3$		Sec 2.1, 9/14	9	$10x$	Ex 8d, p. 81	
5	$-11x - 13$	Ex 6b, p. 80		10	$12x - 2$		Sec 2.1, 14/14

Next, insert your homework. Make sure you attempt all exercises asked of you and show all work, as in the exercises above. Check your answers if possible. Clearly mark any exercises you were unable to correctly complete so that you may ask questions later. **DO NOT ERASE YOUR INCORRECT WORK. THIS IS HOW WE UNDERSTAND AND EXPLAIN TO YOU YOUR ERRORS.**