UNIT 6 · STANDARD 6.EE.3

Simplify Algebraic Expressions

Lesson 6-7

Name: _____ Date: _____ Class: _____

Key Vocabulary

Level 1 support

Picture first, then the word, then a plain-language meaning. Say each word out loud.

5x and 3x are like terms (both x); 5x and 5y are NOT (different variables); 2x and 2x² are NOT (different powers)

Like Terms

Terms with the same letter, like 2x and 5x.

8m + 3m = 11m — add the coefficients (8 + 3 = 11) and keep the variable (m)

Combine

To add or subtract terms with the same letter into one.

2a + 5a + 3 simplifies to 7a + 3 — the two a-terms combine, the constant stays

Simplify

To write an expression in its shortest form.

In 9x, the coefficient is 9 — it tells you 'nine groups of x'; if x = 2, then 9x = 18

Coefficient

The number in front of a letter, like the 3 in 3x.

Key Ideas & Notes

- The music studio is placing supply orders for three rehearsal rooms.
- Room A needs 4 microphones and 3 stands.
- Room B needs 2 microphones and 5 stands.
- Room C needs 6 microphones and 1 stand.
- Identify the like terms in each expression. Group the terms that can be combined.

Think About It

- Why can you add the microphones together but not mix microphones with stands?
- What makes microphones and stands 'different types' of items?
- How is this like combining like terms in algebra?

My Notes

Guided Examples

Example 1

Simplify 7x + 3x.

Solution: 7x + 3x = 10x. Add the coefficients: 7 + 3 = 10.

Answer: A. 10x

Example 2

Simplify 9n + 4 + 2n.

Solution: 9n + 2n = 11n. The constant 4 has no like term, so it stays. Result: 11n + 4.

Answer: A. 11n + 4

Example 3

Which pair are like terms?

Solution: 6x and 2x are like terms because they both have the same variable (x) raised to the same power (1).

Answer: A. 6x and 2x

Write About the Math

The Writing Revolution

I can explain my steps using the words like terms, combine, simplify, and coefficient.

1. Kernel Sentence

subject + verb

Model: Simplify is to write an expression in its shortest form.
Simplificar es escribir una expresión en su forma más corta.

Write a kernel sentence about simplify. Use a subject and a verb.
Escribe una oración base sobre simplificar. Usa un sujeto y un verbo.

_____

_____

2. Sentence Expansion

because · but · so

Kernel: Simplify matters in math
Simplificar importa en matemáticas

Expand the kernel three ways. Add a reason, a contrast, and a result.

because ***porque***	**Simplify matters in math because ____.** *Simplificar importa en matemáticas porque ____.*
	_____
but ***pero***	**Simplify matters in math, but ____.** *Simplificar importa en matemáticas, pero ____.*
	_____
so ***entonces***	**Simplify matters in math, so ____.** *Simplificar importa en matemáticas, entonces ____.*
	_____

3. Sentence Types

4 ways to write a math idea

Statement
Afirmación

Tell one true fact about simplify.
Di un hecho verdadero sobre simplify.

Simplify ____.

Question
Pregunta

Ask a question about simplify.
Haz una pregunta sobre simplify.

How does ____ ?
¿Cómo ____ ?

Exclamation
Exclamación

Show excitement about simplify.
Muestra entusiasmo sobre simplify.

Wow, ____ !
¡Guau, ____ !

Command
Mandato

Tell a partner what to do with simplify.
Dile a un compañero qué hacer con simplify.

First, ____ .
Primero, ____ .

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4. Explain Your Reasoning

use a sentence starter

The like terms are ____.
Los términos semejantes son ____.

I combined them to get ____.
Los combiné para obtener ____.

This makes it clearer when ____.
Esto lo aclara cuando ____.

Try It

Solve on your own. Check the answer key when you are done.

1. Which pair are like terms?

A. 6x and 2x

B. 6x and 6y

C. 6x and 6

D. 6x and $2x^2$

Show your work:

2. Simplify 5a + 3 + 2a.

A. 7a + 3

B. 10a

C. $7a^2 + 3$

D. 52a + 3

Show your work:

Stretch Your Thinking

Level 2 enrichment

Challenge task — explain your reasoning in full sentences.

Three students simplified 4x + 3 + 2x + 5 + x differently. Student A got 7x + 8. Student B got 7x² + 8. Student C got 6x + 9. Who is correct? Explain the mistakes the other two students made.

Sentence starter: Student ____ is correct because 4x + 2x + x = ____x and 3 + 5 = ____. Student ____'s error was ____. Student ____'s error was ____.

Show your work:

Reflect — Exit Ticket

Simplify 6x + 3 + 2x + 5.

A. 8x + 8

B. 8x² + 8

C. 62x + 35

D. 16x

Your answer:

Answer Key & Teacher Guide

1. **Try It 1:** A. 6x and 2x — *6x and 2x are like terms because they both have the same variable (x) raised to the same power (1).*
2. **Try It 2:** A. 7a + 3 — *5a + 2a = 7a. The constant 3 stays. Result: 7a + 3.*
3. **Exit Ticket:** A. 8x + 8 — *6x + 2x = 8x and 3 + 5 = 8, so the simplified expression is 8x + 8.*

Writing (TWR) — what to look for

- **Kernel sentence:** A complete sentence needs a subject and a verb. Example: Simplify is to write an expression in its shortest form.
- **Expansion:** *because* gives a reason, *but* shows a contrast or exception, *so* shows a result. Answers vary; each must keep the kernel idea and add the correct kind of detail.
- **Sentence types:** Statement ends with a period, question with "?", exclamation with "!", and a command starts with an action verb (a "bossy" verb).