

The Distributive Property

Lesson 6-5

Name: _____

Date: _____

Class: _____

Key Vocabulary

Level 1 support

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

$$3(4 + 5) = 3 \times 4 + 3 \times 5 = 12 + 15 = 27$$

— the 3 gets 'distributed' to both the 4 and the 5

Distributive Property

Multiplying a number by everything inside the parentheses: $a(b + c) = ab + ac$.

In $3(x + 2)$, the 3 is the factor outside the parentheses that multiplies each term inside

Factor

A number that gets multiplied by another number.

Expand $2(n + 6)$: multiply $2 \times n = 2n$ and $2 \times 6 = 12$, so $2(n + 6) = 2n + 12$

Expand

To multiply out the parentheses in an expression.

$3(x + 4)$ and $3x + 12$ always give the same answer: when $x = 2$, both = 18; when $x = 10$, both = 42

Equivalent

Expressions that always have the same value.

In $6x + 15$, the coefficient of x is 6 — it came from distributing in $3(2x + 5)$

Coefficient

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

$4x + 2x = 6x$ (combine coefficients); $4x + 2y$ cannot be combined (different variables)

Like terms

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

Key Ideas & Notes

- You're selling concert bundles at the music studio.
- Each bundle includes a ticket (\$15) and a snack (\$5).
- If 3 people each buy a bundle, you can calculate the total as $3(15 + 5)$ OR as $3 \times 15 + 3 \times 5$.
- Either way, the total is the same — \$60!
- Expand each expression using the distributive property. Then simplify to find the value.

Think About It

- Why do both methods give the same total?
- What does the 3 represent in $3(15 + 5)$?
- How is $3(15 + 5)$ related to $3 \times 15 + 3 \times 5$?

My Notes

Guided Examples

Example 1

Expand $6(n + 3)$ using the distributive property.

Solution: $6(n + 3) = 6 \times n + 6 \times 3 = 6n + 18.$

Answer: A. $6n + 18$

Example 2

Expand $4(5 - 2)$ using the distributive property.

Solution: $4(5 - 2) = 4 \times 5 - 4 \times 2 = 20 - 8 = 12.$

Answer: A. 12

Example 3

Expand $3(x + 4)$ using the distributive property.

Solution: $3(x + 4) = 3 \times x + 3 \times 4 = 3x + 12.$

Answer: A. $3x + 12$

Write About the Math

The Writing Revolution

I can explain my steps using the words distributive property, factor, expand, and equivalent.

1. Kernel Sentence subject + verb

Model: Distributive Property is multiplying a number by everything inside the parentheses: $a(b + c) = ab + ac$.

Propiedad distributiva es multiplicar un número por todo lo que está dentro del paréntesis: $a(b + c) = ab + ac$.

Write a kernel sentence about distributive property. Use a subject and a verb.

Escribe una oración base sobre propiedad distributiva. Usa un sujeto y un verbo.

2. Sentence Expansion because · but · so

Kernel: Distributive Property matters in math

Propiedad distributiva importa en matemáticas

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

because
porque

Distributive Property matters in math because ____.

Propiedad distributiva importa en matemáticas porque ____.

but
pero

Distributive Property matters in math, but ____.

Propiedad distributiva importa en matemáticas, pero ____.

so
entonces

Distributive Property matters in math, so ____.

Propiedad distributiva importa en matemáticas, entonces ____.

3. Sentence Types 4 ways to write a math idea

Statement
Afirmación

Tell one true fact about distributive property.
Di un hecho verdadero sobre distributive property.

Distributive property ____.

Question
Pregunta

Ask a question about distributive property.
Haz una pregunta sobre distributive property.

How does ____ ?
¿Cómo ____ ?

Exclamation
Exclamación

Show excitement about distributive property.
Muestra entusiasmo sobre distributive property.

Wow, ____ !
¡Guau, ____ !

Command
Mandato

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

First, ____ .
Primero, ____ .

4. Explain Your Reasoning use a sentence starter

I distributed the ____ **to** ____.

Distribuí el ____ a ____.

So ____ **equals** ____.

Entonces ____ es igual a ____.

This helps when ____.

Esto ayuda cuando ____.

Try It

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

1. Expand $3(x + 4)$ using the distributive property.

- A. $3x + 12$
- B. $3x + 4$
- C. $x + 12$
- D. $7x$

Show your work:

2. When using the distributive property with $a(b + c)$, you must multiply 'a' by:

- A. Both b and c
- B. Only b
- C. Only c
- D. b + c first, then multiply

Show your work:

Stretch Your Thinking

Level 2 enrichment

Challenge task — explain your reasoning in full sentences.

Use the distributive property to explain why 6×98 can be calculated as $6 \times 100 - 6 \times 2 = 588$. Then create your own example of using the distributive property to make multiplication easier.

Sentence starter: $6 \times 98 = 6(100 - 2) = 6 \times \underline{\quad} - 6 \times \underline{\quad} = \underline{\quad} - \underline{\quad} = \underline{\quad}$. *My example:* $\underline{\quad} \times \underline{\quad} = \underline{\quad}(\underline{\quad} \pm \underline{\quad}) = \underline{\quad}$.

Show your work:

Reflect — Exit Ticket

Which expression is equivalent to $7(x + 3)$?

- A. $7x + 21$
- B. $7x + 3$
- C. $x + 21$
- D. $7x + 10$

Your answer:

Answer Key & Teacher Guide

1. **Try It 1:** A. $3x + 12 - 3(x + 4) = 3 \times x + 3 \times 4 = 3x + 12$.
2. **Try It 2:** A. Both b and c — *The distributive property says $a(b + c) = ab + ac$. You multiply the outside factor by EACH term inside the parentheses.*
3. **Exit Ticket:** A. $7x + 21 - 7(x + 3) = 7 \times x + 7 \times 3 = 7x + 21$.

Writing (TWR) — what to look for

- **Kernel sentence:** A complete sentence needs a subject and a verb. Example: Distributive Property is multiplying a number by everything inside the parentheses: $a(b + c) = ab + ac$.
- **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).