

Distributive Property Worksheet Answer Key PDF

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Part 1: Foundational Knowledge

What is the distributive property?

undefined. **A) $a(b + c) = ab + ac$ ✓**

undefined. B) $a + b = b + a$

undefined. C) $a(bc) = (ab)c$

undefined. D) $a + (b + c) = (a + b) + c$

The distributive property states that $a(b + c) = ab + ac$.

What is the distributive property?

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undefined. D) $a + (b + c) = (a + b) + c$

The distributive property states that $a(b + c) = ab + ac$.

Which of the following expressions demonstrate the distributive property? (Select all that apply)

undefined. **A) $3(x + 4) = 3x + 12$ ✓**

undefined. **B) $5(2 + y) = 10 + 5y$ ✓**

undefined. C) $7 + (2 + 3) = (7 + 2) + 3$

undefined. D) $6(xy) = (6x)y$

The correct expressions are those that show multiplication distributing over addition.

Which of the following expressions demonstrate the distributive property? (Select all that apply)

undefined. A) $3(x + 4) = 3x + 12$ ✓

undefined. B) $5(2 + y) = 10 + 5y$ ✓

undefined. C) $7 + (2 + 3) = (7 + 2) + 3$

undefined. D) $6(xy) = (6x)y$

Expressions that correctly apply the distributive property will show multiplication over addition.

Explain in your own words how the distributive property works and why it is useful in algebra.

The distributive property allows us to multiply a single term by each term inside parentheses, simplifying calculations.

Explain in your own words how the distributive property works and why it is useful in algebra.

The distributive property allows for the multiplication of a single term across terms inside parentheses, simplifying calculations.

List two mathematical operations that are involved in the distributive property.

1. First operation

Multiplication

2. Second operation

Addition

The operations involved are multiplication and addition.

Part 2: comprehension

Which of the following best describes the purpose of using the distributive property in algebra?

undefined. A) To simplify expressions by combining like terms

undefined. B) To factor expressions into simpler components

undefined. C) **To multiply a single term across terms inside parentheses** ✓

undefined. D) To solve equations by isolating variables

The purpose is to multiply a single term across terms inside parentheses.

Which of the following best describes the purpose of using the distributive property in algebra?

undefined. A) To simplify expressions by combining like terms

undefined. B) To factor expressions into simpler components

undefined. C) To multiply a single term across terms inside parentheses ✓

undefined. D) To solve equations by isolating variables

The purpose is to multiply a single term across terms inside parentheses.

Consider the expression $4(2 + x)$. Which of the following statements are true? (Select all that apply)

undefined. A) The expression can be expanded to $8 + 4x$ ✓

undefined. B) The expression can be factored into $2(4 + 2x)$

undefined. C) The expression is equivalent to $4x + 8$ ✓

undefined. D) The expression can be rewritten as $4 * 2 + 4 * x$ ✓

The true statements will show the correct application of the distributive property.

Consider the expression $4(2 + x)$. Which of the following statements are true? (Select all that apply)

undefined. A) The expression can be expanded to $8 + 4x$

undefined. B) The expression can be factored into $2(4 + 2x)$

undefined. C) The expression is equivalent to $4x + 8$ ✓

undefined. D) The expression can be rewritten as $4 * 2 + 4 * x$ ✓

True statements will correctly reflect the expansion of the expression.

Describe a real-world scenario where the distributive property might be used to simplify a calculation.

A real-world scenario could involve calculating total costs for multiple items.

Describe a real-world scenario where the distributive property might be used to simplify a calculation.

Real-world scenarios may include budgeting or calculating total costs.

Part 3: Application and Analysis

If you have the expression $5(a + 3)$ and you apply the distributive property, what is the result?

undefined. A) $5a + 3$

undefined. B) $5a + 15$ ✓

undefined. C) $5a + 3a$

undefined. D) $15a + 5$

The result is $5a + 15$.

If you have the expression $5(a + 3)$ and you apply the distributive property, what is the result?

undefined. A) $5a + 3$

undefined. B) $5a + 15$ ✓

undefined. C) $5a + 3a$

undefined. D) $15a + 5$

The result will be $5a + 15$.

Apply the distributive property to simplify the expression $2(3x + 4y) + 5(x + 2y)$. Which of the following is correct? (Select all that apply)

undefined. A) $6x + 8y + 5x + 10y$ ✓

undefined. B) $11x + 18y$ ✓

undefined. C) $6x + 5x + 8y + 10y$ ✓

undefined. D) $11x + 8y + 10y$

The correct simplifications will show the application of the distributive property.

Apply the distributive property to simplify the expression $2(3x + 4y) + 5(x + 2y)$. Which of the following is correct? (Select all that apply)

undefined. A) $6x + 8y + 5x + 10y$ ✓

undefined. B) $11x + 18y$ ✓

undefined. C) $6x + 5x + 8y + 10y$ ✓

undefined. D) $11x + 8y + 10y$

Correct simplifications will show the combined terms after distribution.

Use the distributive property to simplify the expression $7(2m - 3)$ and explain each step.

The expression simplifies to $14m - 21$ by distributing 7 to both terms.

Use the distributive property to simplify the expression $7(2m - 3)$ and explain each step.

The simplification will involve distributing 7 to both terms.

Analyze the expression $6(2 + 3x) - 4(x + 1)$. Which of the following are correct simplifications? (Select all that apply)

undefined. A) $12 + 18x - 4x - 4$ ✓

undefined. B) $12 + 18x - 4x - 4$ ✓

undefined. C) $8 + 14x$ ✓

undefined. D) $12 + 14x - 4$

The correct simplifications will show proper distribution and combination of like terms.

Analyze the expression $6(2 + 3x) - 4(x + 1)$. Which of the following are correct simplifications? (Select all that apply)

undefined. A) $12 + 18x - 4x - 4$ ✓

undefined. B) $12 + 18x - 4x - 4$ ✓

undefined. C) $8 + 14x$ ✓

undefined. D) $12 + 14x - 4$

Correct simplifications will show the combined terms after distribution.

Break down the expression $4(3x + 5) - 2(2x - 3)$ and explain how the distributive property is applied to simplify it.

The expression simplifies to $12x + 20 - 4x + 6$, resulting in $8x + 26$.

Break down the expression $4(3x + 5) - 2(2x - 3)$ and explain how the distributive property is applied to simplify it.

The simplification will involve distributing to both terms and combining like terms.

Part 4: Evaluation and Creation

Which of the following expressions is equivalent to the simplified form of $3(2x + 4) - 5(x - 2)$?

undefined. A) $x + 22$

undefined. B) $x + 26$ ✓

undefined. C) $x + 14$

undefined. D) $x + 18$

The simplified expression will show the correct application of the distributive property.

Which of the following expressions is equivalent to the simplified form of $3(2x + 4) - 5(x - 2)$?

undefined. A) $x + 22$

undefined. B) $x + 26$

undefined. C) $x + 14$ ✓

undefined. D) $x + 18$

The correct expression will match the simplified form after distribution.

Create an expression using the distributive property that simplifies to $10x + 20$. Which of the following could be your original expression? (Select all that apply)

undefined. A) $5(2x + 4)$ ✓

undefined. B) $2(5x + 10)$ ✓

undefined. C) $10(x + 2)$ ✓

undefined. D) $10(2x + 2)$

The correct expressions will show the distributive property leading to $10x + 20$.

Create an expression using the distributive property that simplifies to $10x + 20$. Which of the following could be your original expression? (Select all that apply)

undefined. A) $5(2x + 4)$ ✓

undefined. B) $2(5x + 10)$ ✓

undefined. C) $10(x + 2)$ ✓

undefined. D) $10(2x + 2)$

Correct expressions will simplify to the given form using distribution.

Design a real-world problem that involves using the distributive property to find a solution. Describe the problem and demonstrate how the distributive property helps solve it.

A real-world problem could involve calculating total costs for multiple items, showing how the distributive property simplifies the calculation.

Design a real-world problem that involves using the distributive property to find a solution. Describe the problem and demonstrate how the distributive property helps solve it.

Real-world problems may include budgeting or calculating total costs.