

## Distributive Property Worksheet

### Distributive Property Worksheet

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### Part 1: Foundational Knowledge

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#### What is the distributive property?

*Hint: Think about how multiplication interacts with addition.*

- A)  $a(b + c) = ab + ac$
- B)  $a + b = b + a$
- C)  $a(bc) = (ab)c$
- D)  $a + (b + c) = (a + b) + c$

#### What is the distributive property?

*Hint: Recall the definition of the distributive property.*

- A)  $a(b + c) = ab + ac$
- B)  $a + b = b + a$
- C)  $a(bc) = (ab)c$
- D)  $a + (b + c) = (a + b) + c$

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

*Hint: Look for expressions that involve multiplication distributing over addition.*

- A)  $3(x + 4) = 3x + 12$
- B)  $5(2 + y) = 10 + 5y$
- C)  $7 + (2 + 3) = (7 + 2) + 3$
- D)  $6(xy) = (6x)y$

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

*Hint: Look for expressions that show distribution.*

- A)  $3(x + 4) = 3x + 12$

- B)  $5(2 + y) = 10 + 5y$
- C)  $7 + (2 + 3) = (7 + 2) + 3$
- D)  $6(xy) = (6x)y$

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

*Hint: Consider how it helps in simplifying expressions.*

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

*Hint: Think about how distribution simplifies expressions.*

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

*Hint: Think about the operations that are combined in this property.*

1. First operation

2. Second operation

## Part 2: comprehension

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

*Hint: Consider how this property helps in manipulating expressions.*

- A) To simplify expressions by combining like terms
- B) To factor expressions into simpler components
- C) To multiply a single term across terms inside parentheses
- D) To solve equations by isolating variables

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

*Hint: Think about the main goal of distribution.*

- A) To simplify expressions by combining like terms
- B) To factor expressions into simpler components
- C) To multiply a single term across terms inside parentheses
- D) To solve equations by isolating variables

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

*Hint: Think about how to expand the expression using the distributive property.*

- A) The expression can be expanded to  $8 + 4x$
- B) The expression can be factored into  $2(4 + 2x)$
- C) The expression is equivalent to  $4x + 8$
- D) The expression can be rewritten as  $4 * 2 + 4 * x$

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

*Hint: Evaluate the expression and its possible forms.*

- A) The expression can be expanded to  $8 + 4x$
- B) The expression can be factored into  $2(4 + 2x)$
- C) The expression is equivalent to  $4x + 8$
- D) The expression can be rewritten as  $4 * 2 + 4 * x$

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

*Hint: Think about situations involving grouping and multiplication.*

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

*Hint: Think about everyday situations involving multiplication.*

### Part 3: Application and Analysis

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

*Hint: Distribute 5 to both terms inside the parentheses.*

- A)  $5a + 3$
- B)  $5a + 15$
- C)  $5a + 3a$
- D)  $15a + 5$

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

*Hint: Distribute 5 across both terms in the parentheses.*

- A)  $5a + 3$
- B)  $5a + 15$
- C)  $5a + 3a$
- D)  $15a + 5$

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

*Hint: Distribute each term and combine like terms.*

- A)  $6x + 8y + 5x + 10y$
- B)  $11x + 18y$
- C)  $6x + 5x + 8y + 10y$
- D)  $11x + 8y + 10y$

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

*Hint: Distribute and combine like terms.*

- A)  $6x + 8y + 5x + 10y$
- B)  $11x + 18y$
- C)  $6x + 5x + 8y + 10y$
- D)  $11x + 8y + 10y$

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

*Hint: Break down the expression step by step.*

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

*Hint: Break down the expression step by step.*

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

*Hint: Distribute and combine like terms carefully.*

- A)  $12 + 18x - 4x - 4$
- B)  $12 + 18x - 4x - 4$
- C)  $8 + 14x$
- D)  $12 + 14x - 4$

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

*Hint: Distribute and combine like terms.*

- A)  $12 + 18x - 4x - 4$
- B)  $12 + 18x - 4x - 4$
- C)  $8 + 14x$
- D)  $12 + 14x - 4$

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

*Hint: Explain each step of the simplification process.*

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

*Hint: Explain each step of the simplification process.*

## Part 4: Evaluation and Creation

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

Hint: Simplify the expression step by step.

- A)  $x + 22$
- B)  $x + 26$
- C)  $x + 14$
- D)  $x + 18$

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

Hint: Simplify the expression to find the equivalent form.

- A)  $x + 22$
- B)  $x + 26$
- C)  $x + 14$
- D)  $x + 18$

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)

Hint: Think about how to set up the expression to achieve the desired result.

- A)  $5(2x + 4)$
- B)  $2(5x + 10)$
- C)  $10(x + 2)$
- D)  $10(2x + 2)$

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)

Hint: Think about how to create expressions that simplify correctly.

- A)  $5(2x + 4)$
- B)  $2(5x + 10)$
- C)  $10(x + 2)$
- D)  $10(2x + 2)$

**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.**

*Hint: Think about a scenario where grouping and multiplication are involved.*

**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.**

*Hint: Think about practical applications of distribution.*