Distributive Property Worksheet Questions and Answers PDF

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Part 1: Foundational Knowledge

What is the distributative 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

> The distributative property states that a(b + c) = ab + ac.

What is the distributative property?

Hint: Recall the definition of the distributative property.

- ◯ **A) a(b + c) = ab + ac ✓**
- ◯ B) a + b = b + a
- ◯ C) a(bc) = (ab)c
- ◯ D) a + (b + c) = (a + b) + c

> The distributative property states that a(b + c) = ab + ac.

Which of the following expressions demonstrate the distributative 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

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

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

Hint: Look for expressions that show distribution.

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

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

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

Hint: Consider how it helps in simplifying expressions.

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

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

Hint: Think about how distribution simplifies expressions.

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

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

Hint: Think about the operations that are combined in this 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 distributative 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

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

Which of the following best describes the purpose of using the distributative 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

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)

Hint: Think about how to expand the expression using the distributative 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 ✓**

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

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 ✓**

True statements will correctly reflect the expansion of the expression.

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

Hint: Think about situations involving grouping and multiplication.

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

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

Hint: Think about everyday situations involving multiplication.

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 distributative 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

The result is 5a + 15.

If you have the expression 5(a + 3) and you apply the distributative 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

The result will be 5a + 15.

Apply the distributative 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

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

Apply the distributative 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

Correct simplifications will show the combined terms after distribution.

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

Hint: Break down the expression step by step.

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

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

Hint: Break down the expression step by 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)

Hint: Distribute and combine like terms carefully.

- [ ] **A) 12 + 18x - 4x - 4 ✓**
- [ ] **B) 12 + 18x - 4x - 4 ✓**
- [ ] **C) 8 + 14x ✓**
- [ ] 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)

Hint: Distribute and combine like terms.

- [ ] **A) 12 + 18x - 4x - 4 ✓**
- [ ] **B) 12 + 18x - 4x - 4 ✓**
- [ ] **C) 8 + 14x ✓**
- [ ] 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 distributative property is applied to simplify it.

Hint: Explain each step of the simplification process.

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 distributative property is applied to simplify it.

Hint: Explain each step of the simplification process.

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)?

Hint: Simplify the expression step by step.

- ◯ A) x + 22
- ◯ **B) x + 26 ✓**
- ◯ C) x + 14
- ◯ D) x + 18

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

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

The correct expression will match the simplified form after distribution.

Create an expression using the distributative 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)

> The correct expressions will show the distributative property leading to 10x + 20.

Create an expression using the distributative 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)

> Correct expressions will simplify to the given form using distribution.

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

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

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

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

Hint: Think about practical applications of distribution.

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