

1 4 skills practice the distributive property answer key

1 4 Skills Practice the Distributive Property Answer Key is a crucial tool for educators and students alike, designed to reinforce the understanding and application of the distributive property in mathematics. This property is a foundational concept in algebra that allows for the simplification of expressions and the solving of equations. In this article, we will explore the distributive property in detail, provide practice problems, and present a comprehensive answer key for the 1 4 skills practice. By the end, readers will have a better grasp of the distributive property and how to effectively use it in various mathematical scenarios.

Understanding the Distributive Property

The distributive property states that for any numbers a , b , and c :

$$a(b + c) = ab + ac$$

This means that when you multiply a number by a sum, you can distribute the multiplication to each addend within the parentheses. This property is not only applicable to addition but also to subtraction:

$$a(b - c) = ab - ac$$

Importance of the Distributive Property

The distributive property is essential for several reasons:

1. Simplification: It helps simplify complex expressions, making them easier to work with.
2. Solving Equations: It is vital in solving algebraic equations by allowing the expansion of terms.
3. Real-World Applications: It applies to various real-world situations, such as calculating areas and dealing with proportions.

1 4 Skills Practice Problems

To strengthen your understanding of the distributive property, here are some practice problems that utilize this concept. Each problem requires applying the distributive property to simplify or solve the expressions.

Practice Problems

1. Simplify: $3(2 + 4)$
2. Simplify: $5(3x + 2)$
3. Expand: $7(a - 3)$
4. Solve for x : $2(x + 5) = 28$
5. Simplify: $4(2y + 3) - 2(5y - 4)$
6. Expand: $8(m + 2n) - 3(2m + n)$
7. Solve for y : $3(y - 1) + 4 = 19$
8. Simplify: $6(a + 2) + 3(2a - 5)$

Completing these problems will provide a solid practice session on the distributive property.

Answer Key for 1 4 Skills Practice

In this section, we will provide the answers to the practice problems listed above. Each solution will include a brief explanation to help clarify the steps involved.

Solutions

1. Simplify: $3(2 + 4)$
- Solution: $3(2 + 4) = 3 \times 2 + 3 \times 4 = 6 + 12 = 18$
2. Simplify: $5(3x + 2)$
- Solution: $5(3x + 2) = 5 \times 3x + 5 \times 2 = 15x + 10$
3. Expand: $7(a - 3)$
- Solution: $7(a - 3) = 7 \times a - 7 \times 3 = 7a - 21$
4. Solve for x : $2(x + 5) = 28$
- Solution:
- Step 1: $2(x + 5) = 28$
- Step 2: Distribute: $2x + 10 = 28$
- Step 3: Subtract 10 from both sides: $2x = 18$
- Step 4: Divide by 2: $x = 9$

5. Simplify: $\backslash(4(2y + 3) - 2(5y - 4)\backslash$
 - Solution:
 - Step 1: $\backslash(4(2y + 3) = 8y + 12\backslash$
 - Step 2: $\backslash(-2(5y - 4) = -10y + 8\backslash$
 - Step 3: Combine: $\backslash(8y + 12 - 10y + 8 = -2y + 20\backslash$
6. Expand: $\backslash(8(m + 2n) - 3(2m + n)\backslash$
 - Solution:
 - Step 1: $\backslash(8(m + 2n) = 8m + 16n\backslash$
 - Step 2: $\backslash(-3(2m + n) = -6m - 3n\backslash$
 - Step 3: Combine: $\backslash(8m + 16n - 6m - 3n = 2m + 13n\backslash$
7. Solve for $\backslash(y\backslash$: $\backslash(3(y - 1) + 4 = 19\backslash$
 - Solution:
 - Step 1: $\backslash(3(y - 1) + 4 = 19\backslash$
 - Step 2: Distribute: $\backslash(3y - 3 + 4 = 19\backslash$
 - Step 3: Combine: $\backslash(3y + 1 = 19\backslash$
 - Step 4: Subtract 1: $\backslash(3y = 18\backslash$
 - Step 5: Divide by 3: $\backslash(y = 6\backslash$
8. Simplify: $\backslash(6(a + 2) + 3(2a - 5)\backslash$
 - Solution:
 - Step 1: $\backslash(6(a + 2) = 6a + 12\backslash$
 - Step 2: $\backslash(3(2a - 5) = 6a - 15\backslash$
 - Step 3: Combine: $\backslash(6a + 12 + 6a - 15 = 12a - 3\backslash$

Conclusion

The 14 skills practice the distributive property answer key serves as an invaluable resource for students seeking to master the distributive property of multiplication over addition and subtraction. By practicing the provided problems and reviewing the solutions, students can enhance their mathematical skills and build a strong foundation for more advanced algebraic concepts.

Understanding the distributive property not only aids in simplifying expressions but also prepares students for solving equations and tackling real-world mathematical problems. Regular practice, along with the insights from the answer key, will undoubtedly lead to greater confidence and proficiency in mathematics.

Frequently Asked Questions

What is the distributive property in mathematics?

The distributive property states that $a(b + c) = ab + ac$, meaning you can distribute a multiplier across a sum.

How do you apply the distributive property to solve $3(2 + 4)$?

Using the distributive property, you calculate $3 \times 2 + 3 \times 4$, which equals $6 + 12$, resulting in 18.

What is an example of using the distributive property with variables?

For example, for $5(x + 3)$, you distribute to get $5x + 15$.

How can the distributive property help simplify expressions?

It allows you to break down complex expressions into simpler parts, making calculations easier.

What is the answer for the expression $2(3 + 5)$ using the distributive property?

The answer is $2 \times 3 + 2 \times 5$, which equals $6 + 10$, resulting in 16.

Can the distributive property be used with subtraction?

Yes, the distributive property also applies, for example, $a(b - c) = ab - ac$.

How does the distributive property relate to combining like terms?

It helps to combine like terms by expanding expressions before grouping similar terms together.

What is the answer to the expression $4(x + 2) - 3$ using the distributive property?

First distribute to get $4x + 8$, then subtract 3, resulting in $4x + 5$.

How would you explain the distributive property to a beginner?

You can explain it as a way to multiply a number by a group of numbers added together, making it easier to calculate.

Are there any common mistakes when applying the distributive property?

Yes, common mistakes include forgetting to distribute to all terms or incorrectly combining terms after distribution.

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