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Simplifying Expressions Worksheet Answer Key PDF

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Part 1: Building a Foundation

Which of the following is a variable in the expression 3x + 5?

undefined. 3

undefined. x ✓

undefined. 5

undefined. +

The variable in the expression is 'x'.

Identify the like terms in the expression 4y + 3x - 2y + 7.

undefined. 4y and 3x

undefined. 4y and -2y ✓

undefined. 3x and 7

undefined. -2y and 7

The like terms are '4y' and '-2y'.

Explain what is meant by the term 'coefficient' in an algebraic expression.

A coefficient is a numerical factor in a term of an algebraic expression.

List the components of the expression 5a² + 3a - 7.

1. Variable(s):

a

2. Coefficient(s):

5, 3

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3. Constant(s):

-7

The components include variables, coefficients, and constants.

Which property is used in the expression 2(x + 3) = 2x + 6?

undefined. Communtative Property

undefined. Associative Property

undefined. Distributative Property ✓

undefined. Identity Property

The Distributative Property is used in this expression.

Part 2: comprehension and Application

What is the simplified form of the expression 6m + 4m?

undefined. 10m ✓

undefined. 2m

undefined. 24m

undefined. 12m

The simplified form is '10m'.

Which of the following expressions are equivalent to 3(x + 4)?

undefined. 3x + 12 ✓

undefined. 3x + 4

undefined. x + 12

undefined. 12x + 3

The equivalent expression is '3x + 12'.

Describe how you would simplify the expression 5(2y - 3) + 4y.

You would distribute 5 to both terms in the parentheses and then combine like terms.

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If a = 2, what is the value of the expression 3a² + 4a - 5?

undefined. 15

undefined. 19 ✓

undefined. 23

undefined. 27

The value of the expression is '19'.

Which of the following expressions can be factored using the difference of squares?

undefined. x² - 9 ✓

undefined. x² + 9

undefined. 4x² - 16 ✓

undefined. x² - 4x + 4

The expressions that can be factored are 'x² - 9' and '4x² - 16'.

Apply the distributative property to simplify the expression 7(3x - 2) - 5x.

You would distribute 7 and then combine like terms to simplify.

Part 3: Analysis, Evaluation, and Creation

Which expression is the result of combining like terms in 2x + 3y - x + 4y?

undefined. x + 7y ✓

undefined. 3x + 7y

undefined. x + y

undefined. 3x + y

The result of combining like terms is 'x + 7y'.

Analyze the expression 4(a + b) - 2(a - b). Which of the following are correct steps in simplifying it?

undefined. 4a + 4y - 2a + 2y

undefined. 2a + 6y

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undefined. 4a - 2a + 4y - 2y ✓

undefined. 2a + 2y

Correct steps include distributing and combining like terms.

Break down the expression $3x^2 + 6x + 9$ into its simplest form by factoring.

You would factor out the common factor to simplify the expression.

Evaluate the expression $2(x - 3)^2 + 4$ when x = 5.

undefined. 12

undefined. 16 ✓

undefined. 20

undefined. 24

The evaluated expression equals '16'.

Which of the following expressions are equivalent to $(x + 2)^2$?

undefined. $x^2 + 4$

undefined. $x^2 + 4x + 4$ ✓

undefined. $x^2 + 2x + 4$

undefined. $x^2 + 2x + 4$

The equivalent expression is '$x^2 + 4x + 4$'.

Create an algebraic expression that represents the perimeter of a rectangle with length (2x + 3) and width (x - 1). Simplify your expression.

The perimeter expression is '2(2x + 3) + 2(x - 1)'.

Design an expression that involves both the distributative property and combining like terms. Then, simplify your expression.

1. Original Expression:

3(2x + 4) + 5x

2. Simplified Expression:

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11x + 12

You can create an expression like '3(2x + 4) + 5x' and simplify it.

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