Combining Like Terms Worksheet Questions and Answers PDF

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Part 1: Building a Foundation

What is a coefficient in an algebraic term?

Hint: Think about the part of the term that is a number.

- ◯ A) The variable part of a term
- ◯ **B) The numerical part of a term ✓**
- ◯ C) The exponent of a term
- ◯ D) The entire term

> A coefficient is the numerical part of a term.

Identify the like terms in the expression 3x + 4y + 5x.

Hint: Look for terms that have the same variable part.

- ☐ A) 3x and 4y
- ☐ **B) 3x and 5x ✓**
- ☐ C) 4y and 5x
- ☐ D) All terms are like terms

> The like terms are 3x and 5x.

Explain why 2x^2 and 3x are not like terms.

Hint: Consider the variables and their exponents.

They are not like terms because they have different variable parts.

List the components of the term 7xy^2.

Hint: Think about the parts that make up the term.

1. Answer 1

Coefficient

2. Answer 2

Variable(s)

3. Answer 3

Exponent(s)

The components are the coefficient, variables, and exponents.

Part 2: Understanding and Interpretation

Which of the following expressions is correctly simplified by combining like terms?

Hint: Look for expressions that combine terms with the same variable.

- ◯ A) 2a + 3 b = 5ab
- ◯ **B) 4m + 5m = 9m ✓**
- ◯ C) x^2 + x = 2x^2
- ◯ D) 6y - 2y^2 = 4y^2

> The correct expression is 4m + 5m = 9m.

Describe the process of combining like terms in the expression 6x + 3x - 2x.

Hint: Think about how you would group and add the terms.

> **You group the like terms and add their coefficients.**

Select all expressions that are simplified correctly.

Hint: Look for expressions that combine like terms accurately.

- ☐ **A) 5x + 2x = 7x ✓**
- ☐ **B) 3a^2 + 4a^2 = 7a^2 ✓**
- ☐ C) 2y + 3z = 5yz
- ☐ **D) x^2 + 2x^2 = 3x^2 ✓**

> The correct expressions are 5x + 2x = 7x, 3a^2 + 4a^2 = 7a^2, and x^2 + 2x^2 = 3x^2.

Part 3: Application and Analysis

Simplify the expression 4x + 7 - 2x + 3.

Hint: Combine like terms and simplify the expression.

The simplified expression is 2x + 10.

Given the expression 5a + 3 b - 2a + 4 b, combine like terms to simplify it.

Hint: Group the terms with the same variable together.

1. Simplified expression for a terms

3a

2. Simplified expression for b terms

7 b

The simplified expression for a terms is 3a, and for b terms is 7 b.

If x = 2, evaluate the expression after combining like terms: 3x + 4x - x.

Hint: First, combine the like terms, then substitute x with 2.

- ◯ A) 12
- ◯ **B) 14 ✓**
- ◯ C) 16
- ◯ D) 18

The evaluated expression equals 14.

Analyze the expression 2x^2 + 3x - x^2 + 4 and explain the steps to simplify it.

Hint: Identify like terms and combine them.

You combine 2x^2 and -x^2, and then combine 3x and 4.

Part 4: Evaluation and Creation

Evaluate the correctness of the simplification 8a + 4 b - 3a + 2 b = 5a + 6 b. Provide reasoning for your answer.

Hint: Check if the terms were combined correctly.

The simplification is correct; 8a - 3a = 5a and 4 b + 2 b = 6 b.

Create an expression involving at least three different variables and simplify it by combining like terms.

Hint: Make sure to include terms with the same variable.

An example expression could be 2x + 3y - x + 4y, which simplifies to x + 7y.

Propose a real-world scenario where combining like terms would be necessary, and describe how you would simplify the expression involved.

Hint: Think about situations involving quantities that can be combined.

An example could be calculating total costs where similar items are grouped together.