# Combine Like Terms Worksheet Questions and Answers PDF

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## Part 1: Foundational Knowledge

### What are like terms in algebra?

*Hint: Think about the characteristics that define like terms.*

- ◯ A) Terms with the same coefficients
- ◯ **B) Terms with the same variables and exponents ✓**
- ◯ C) Terms with different variables
- ◯ D) Terms with no variables

> Like terms are terms that have the same variables raised to the same powers.

### What are like terms in algebra?

*Hint: Think about the characteristics of the terms.*

- ◯ A) Terms with the same coefficients
- ◯ **B) Terms with the same variables and exponents ✓**
- ◯ C) Terms with different variables
- ◯ D) Terms with no variables

> Like terms are terms that have the same variables raised to the same powers.

### Which of the following are like terms? (Select all that apply)

*Hint: Look for terms that share the same variable and exponent.*

- ☐ **A) 3x and 5x ✓**
- ☐ B) 4y^2 and 4y
- ☐ **C) 7a^2 b and 2a^2 b ✓**
- ☐ D) 9z and 9z^2

Like terms must have the same variable and exponent.

**Which of the following are like terms? (Select all that apply)**

*Hint: Look for terms with the same variable and exponent.*

- [x] **A) 3x and 5x ✓**
- [ ] B) 4y^2 and 4y
- [x] **C) 7a^2 b and 2a^2 b ✓**
- [ ] D) 9z and 9z^2

Like terms include those with the same variable and exponent.

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

*Hint: Consider the variables and their exponents.*

**2x and 3x^2 are not like terms because they have different exponents.**

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*Hint: Consider the variables and their exponents.*

**2x and 3x^2 are not like terms because they have different exponents.**

**List the steps to combine like terms in an algebraic expression.**

*Hint: Think about the process of grouping and simplifying.*

1. Step 1

> Identify like terms.

2. Step 2

> Group the like terms together.

3. Step 3

> Add or subtract the coefficients.

> The steps include identifying like terms, grouping them, and then adding or subtract them.

## Part 2: Understanding and Interpretation

**Which expression correctly combines the like terms in 4m + 5m - 2m?**

*Hint: Add and subtract the coefficients of m.*

- ◯ **A) 7m ✓**
- ◯ B) 9m
- ◯ C) 11m
- ◯ D) 6m

> The correct expression is 7m.

**Which expression correctly combines the like terms in 4m + 5m - 2m?**

*Hint: Combine the coefficients of the m terms.*

- ◯ **A) 7m ✓**
- ◯ B) 9m
- ◯ C) 11m
- ◯ D) 6m

> The correct combination of like terms results in 7m.

**Identify the errors in the following combination of like terms: 3x + 2y - x = 5x + 2y. (Select all that apply)**

*Hint: Look closely at the x and y terms.*

- ☐ **A) Incorrect addition of x terms ✓**
- ☐ B) Incorrect addition of y terms
- ☐ C) Incorrect subtraction of x terms
- ☐ D) No errors

> The error lies in the incorrect addition of x terms.

**Identify the errors in the following combination of like terms: 3x + 2y - x = 5x + 2y. (Select all that apply)**

*Hint: Check the addition and subtraction of the x and y terms.*

- ☐ **A) Incorrect addition of x terms ✓**
- ☐ B) Incorrect addition of y terms
- ☐ C) Incorrect subtraction of x terms
- ☐ D) No errors

> The errors include incorrect addition of x terms.

**Describe how you would simplify the expression 6a + 3 b - 2a + b.**

*Hint: Think about grouping like terms together.*

**To simplify, group the a terms and the b terms, then combine them.**

**Describe how you would simplify the expression 6a + 3 b - 2a + b.**

*Hint: Consider grouping like terms together.*

**You would group 6a and -2a, and then combine 3 b and b.**

## Part 3: Applying Knowledge and Analyzing Relationships

**Simplify the expression 8x^2 + 3x - 5x^2 + 2x.**

*Hint: Combine the x^2 terms and the x terms separately.*

- ◯ **A) 3x^2 + 5x ✓**
- ◯ B) 13x^2 + 5x
- ◯ C) 3x^2 + x
- ◯ D) 3x^2 + 7x

The simplified expression is 3x^2 + 5x.

**Simplify the expression 8x^2 + 3x - 5x^2 + 2x.**

*Hint: Combine the x^2 terms and the x terms separately.*

- ◯ **A) 3x^2 + 5x ✓**
- ◯ B) 13x^2 + 5x
- ◯ C) 3x^2 + x
- ◯ D) 3x^2 + 7x

The simplified expression is 3x^2 + 5x.

**Which of the following expressions can be simplified by combining like terms? (Select all that apply)**

*Hint: Look for expressions with similar variables and exponents.*

- [ ] **A) 4x + 3y + 2x ✓**
- [ ] **B) 5a^2 + 3a - 2a^2 ✓**
- [ ] **C) 7 b + 2 c + 3 b ✓**
- [ ] **D) 9m^2 + 4n + 3m^2 ✓**

> Expressions with like terms can be simplified.

**Which of the following expressions can be simplified by combining like terms? (Select all that apply)**

*Hint: Look for terms with the same variable and exponent.*

- [ ] **A) 4x + 3y + 2x ✓**
- [ ] **B) 5a^2 + 3a - 2a^2 ✓**
- [ ] **C) 7 b + 2c + 3 b ✓**
- [ ] **D) 9m^2 + 4n + 3m^2 ✓**

> Expressions with like terms can be simplified.

**Simplify the expression 10 p - 3 q + 2 p + 4 q and explain each step.**

*Hint: Group like terms and combine them.*

> **The expression simplifies to 12 p + q after combining like terms.**

**Simplify the expression 10 p - 3 q + 2 p + 4 q and explain each step.**

*Hint: Group like terms and simplify.*

**Combine 10 p and 2 p, and -3 q and 4 q.**

**If you have the expression x^2 + 2x + 3x^2 - 4x, what is the correct simplified form?**

*Hint: Combine the x^2 terms and the x terms.*

- ◯ **A) 4x^2 - 2x ✓**
- ◯ B) x^2 - 2x
- ◯ C) 3x^2 + 2x
- ◯ D) 4x^2 + 2x

The correct simplified form is 4x^2 - 2x.

**Break down the process of simplifying 7x + 4y - 3x + 2y and discuss any potential errors to avoid.**

*Hint: Consider how you group and combine terms.*

**The process involves grouping x terms and y terms, leading to 4x + 6y.**

## Part 4: Synthesis and Reflection

**If you have the expression x^2 + 2x + 3x^2 - 4x, what is the correct simplified form?**

*Hint: Combine the x^2 terms and the x terms.*

- ◯ **A) 4x^2 - 2x ✓**
- ◯ B) x^2 - 2x
- ◯ C) 3x^2 + 2x
- ◯ D) 4x^2 + 2x

The correct simplified form is 4x^2 - 2x.

**Break down the process of simplifying 7x + 4y - 3x + 2y and discuss any potential errors to avoid.**

*Hint: Consider grouping like terms together.*

**Group 7x and -3x, and 4y and 2y, then combine.**

**Evaluate the correctness of the following simplification: 9a - 4 b + 2a + b = 11a - 3 b.**

*Hint: Check the addition and subtraction of coefficients.*

- ◯ A) Correct
- ◯ **B) Incorrect ✓**
- ◯ C) Not enough information
- ◯ D) Needs clarification

The simplification is incorrect; it should be 11a - 3 b.

**Which of the following statements about combining like terms are true? (Select all that apply)**

*Hint: Consider the rules of combining like terms.*

- ☐ **A) Only coefficients of like terms are added or subtracted. ✓**
- ☐ B) Variables with different exponents can be combined.
- ☐ **C) Combining like terms simplifies expressions. ✓**
- ☐ **D) Like terms must have the same variable and exponent. ✓**

Only statements about adding coefficients and the requirement for like terms are true.

**Which of the following statements about combining like terms are true? (Select all that apply)**

*Hint: Consider the properties of like terms.*

- [x] **A) Only coefficients of like terms are added or subtracted. ✓**
- [ ] B) Variables with different exponents can be combined.
- [x] **C) Combining like terms simplifies expressions. ✓**
- [x] **D) Like terms must have the same variable and exponent. ✓**

> Only coefficients of like terms are added or subtracted.

**Create an algebraic expression with at least three different sets of like terms and simplify it. Explain your process.**

*Hint: Think about how to group and combine terms.*

> **An example expression could be 2x + 3x + 4y - y + 5z - 2z, which simplifies to 5x + 3y + 3z.**

**Create an algebraic expression with at least three different sets of like terms and simplify it. Explain your process.**

*Hint: Think about how to group and combine terms.*

> **Create an expression and demonstrate the simplification process.**