

## Simplifying Expressions Worksheet Questions and Answers PDF

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### Part 1: Building a Foundation

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

*Hint: Look for the symbol that represents an unknown value.*

- 3
- x** ✓
- 5
- +

■ The variable in the expression is 'x'.

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

*Hint: Like terms have the same variable raised to the same power.*

- 4y and 3x
- 4y and -2y** ✓
- 3x and 7
- 2y and 7

■ The like terms are '4y' and '-2y'.

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

*Hint: Consider what number is multiplied by the variable.*

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

**List the components of the expression  $5a^2 + 3a - 7$ .**

*Hint: Identify variables, coefficients, and constants.*

1. Variable(s):

**a**

2. Coefficient(s):

**5, 3**

3. Constant(s):

**-7**

**The components include variables, coefficients, and constants.**

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

*Hint: Think about how the terms are distributed.*

- Commutative Property
- Associative Property

- Distributive Property ✓  
 Identity Property

■ The Distributive Property is used in this expression.

## Part 2: comprehension and Application

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

*Hint: Combine the like terms.*

- 10m ✓  
 2m  
 24m  
 12m

■ The simplified form is '10m'.

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

*Hint: Distribute the 3 across the terms in the parentheses.*

- $3x + 12$  ✓  
  $3x + 4$   
  $x + 12$   
  $12x + 3$

■ The equivalent expression is ' $3x + 12$ '.

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

*Hint: Consider distributing first and then combining like terms.*

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

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

*Hint: Substitute the value of 'a' into the expression.*

- 15  
 19 ✓  
 23  
 27

**The value of the expression is '19'.**

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

*Hint: Look for expressions in the form  $a^2 - b^2$ .*

- $x^2 - 9$  ✓  
  $x^2 + 9$   
  $4x^2 - 16$  ✓  
  $x^2 - 4x + 4$

**The expressions that can be factored are ' $x^2 - 9$ ' and ' $4x^2 - 16$ '.**

**Apply the distributive property to simplify the expression  $7(3x - 2) - 5x$ .**

*Hint: Distribute 7 to both terms in the parentheses first.*

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

### Part 3: Analysis, Evaluation, and Creation

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

Hint: Look for terms that have the same variable.

- $x + 7y$  ✓
- $3x + 7y$
- $x + y$
- $3x + y$

✓ 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?

Hint: Consider distributing and combining like terms.

- $4a + 4y - 2a + 2y$
- $2a + 6y$
- $4a - 2a + 4y - 2y$  ✓
- $2a + 2y$

✓ Correct steps include distributing and combining like terms.

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

Hint: Look for common factors in the terms.

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

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

Hint: Substitute the value of 'x' and simplify.

- 12
- 16 ✓
- 20

24

The evaluated expression equals '16'.

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

*Hint: Expand the expression to find equivalent forms.*

$x^2 + 4$

$x^2 + 4x + 4$  ✓

$x^2 + 2x + 4$

$x^2 + 2x + 4$

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.**

*Hint: Use the formula for perimeter and combine like terms.*

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

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

*Hint: Create an expression that can be simplified using both techniques.*

1. Original Expression:

$3(2x + 4) + 5x$

2. Simplified Expression:

**|**  $11x + 12$

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