

Writing Algebraic Expressions Worksheet

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Part 1: Building a Foundation

What is a variable in algebra?

Hint: (Select the correct answer)

- A) A fixed numerical value
- B) A symbol representing an unknown number
- C) A mathematical operation
- D) A specific equation

Which of the following are considered constants? (Select all that apply)

Hint: (Select all correct answers)

- A) 5
- B) x
- C) 3.14
- D) y

Explain the difference between a variable and a constant in your own words.

Hint: (Write your answer below)

List two examples of variables and two examples of constants.

Hint: (Provide your answers below)

1. Variables:

2. Constants:

Which operation is indicated by the word "product"?

Hint: (Select the correct answer)

- A) Addition
- B) Subtraction
- C) Multiplication
- D) Division

Part 2: Comprehension and Application

Which of the following expressions correctly translates the phrase "five more than a number x"?

Hint: (Select the correct answer)

- A) $x - 5$
- B) $5x$
- C) $x + 5$
- D) $5 - x$

Translate the phrase "the difference between a number y and seven" into an algebraic expression.

Hint: (Write your expression below)

Identify the operation and write the expression for "twice the sum of a number z and three."

Hint: (Provide your answers below)

1. Operation:

2. Expression:

Simplify the expression: $3(x + 4) - 2x$.

Hint: (Select the correct answer)

- A) $x + 12$
 B) $x + 4$
 C) $3x + 4$
 D) $5x + 12$

Simplify the expression $2(a + 5) + 3(a - 2)$ and explain each step.

Hint: (Write your explanation and simplified expression below)

Part 3: Analysis, Evaluation, and Creation

Which of the following expressions is the simplified form of $2x + 3x - x$?

Hint: (Select the correct answer)

- A) $4x$
 B) $5x$
 C) $6x$

D) $3x$

Analyze the expression $5y - 3 + 2y + 8$ and identify the like terms. Then, simplify the expression.

Hint: (Write your analysis and simplified expression below)

Which of the following expressions are equivalent to $3(a + b) + 2a$? (Select all that apply)

Hint: (Select all correct answers)

- A) $3a + 3b + 2a$
- B) $5a + 3b$
- C) $3a + b + 2a$
- D) $3a + 3b + a$

Evaluate the expression $4n + 7$ for $n = 3$ and explain the steps involved in your calculation.

Hint: (Write your evaluation and explanation below)

Create an algebraic expression for the scenario: "The total cost is the sum of twice the price of item A and three times the price of item B."

Hint: (Provide your expression below)

1. Expression:

If the expression $5x + 2$ represents the perimeter of a rectangle, which of the following could represent one of its sides?

Hint: (Select the correct answer)

- A) $2.5x + 1$
- B) $5x$
- C) $x + 1$
- D) $5x + 1$