

Student Name: _____

Class: _____

Due Date: _____

Introduction to Algebra Basics

Introduction

The objective of this homework assignment is to introduce students to the fundamental concepts of algebra, specifically the understanding of variables and constants in algebraic expressions.

Student Instructions

1. Read and understand the entire assignment.
2. Work independently, using class notes and textbook as references.
3. Use proper algebraic notation when writing expressions and equations.
4. Check your work carefully before submitting it.

Activity 1: Variables and Constants Identification

Identify whether each of the following is a variable or a constant:

- 5
- x
- $2x$
- $3y - 2$
- 10

Activity 2: Simplifying Algebraic Expressions

Simplify the following expressions by combining like terms:

- $2x + 3x$
- $4y - 2y + y$
- $2x + 5 - 3$

Activity 3: Real-World Application

Read the scenario and write an algebraic expression to represent it:

"Tom has been saving money for a new bike and has \$120 in his savings account. He wants to buy a bike that costs \$180. Tom's parents have agreed to give him an allowance of \$5 per week for doing chores. How much more money does Tom need to save to buy the bike, if he has already been saving for 4 weeks?"

Activity 4: Creating Algebraic Expressions

Create your own algebraic expression using variables and constants, and then simplify it.

Activity 5: Word Problem

Create a word problem that can be represented by an algebraic expression, and then solve it.

Success Criteria

To successfully complete this assignment, you should be able to:

- Correctly identify variables and constants in algebraic expressions
- Simplify algebraic expressions by combining like terms
- Apply algebraic concepts to real-world scenarios
- Create and simplify your own algebraic expressions

Time Management Guidelines

To complete this assignment within the estimated time, please allocate your time as follows:

- Reading and understanding the assignment: 5 minutes
- Completing Activity 1: 10 minutes
- Completing Activity 2: 10 minutes
- Completing Activity 3: 10 minutes
- Completing extension activities (if chosen): 10-15 minutes

Self-Assessment Opportunities

As you complete this assignment, ask yourself:

- Do I understand the difference between variables and constants?
- Can I simplify algebraic expressions correctly?
- Can I apply algebraic concepts to real-world scenarios?
- Am I using proper algebraic notation?

Additional Practice Questions

Complete the following practice questions:

1. Identify the variables and constants in the expression: $2x + 5$
2. Simplify the expression: $3x + 2x - 2$
3. Write an algebraic expression to represent the scenario: "A book costs \$15. If you buy 2 books, how much will you pay in total?"
4. Create your own word problem and solve it using algebraic expressions.
5. Simplify the expression: $4y - 2y + 3y$

Answer Key

Note: The answer key is provided for teacher reference only.

1. Variables: x , Constants: 5
2. $5x - 2$
3. $2 * \$15 = \30
4. Answers will vary
5. $5y$

To support your child in completing this assignment, please:

- Encourage them to read through the entire assignment before starting
- Help them understand the concept of variables and constants
- Assist them in checking their work for accuracy
- Encourage them to ask questions if they are unsure about any part of the assignment