

Student Name: _____

Class: _____

Due Date: _____

Introduction

Welcome to the Algebra Basics homework sheet! This worksheet is designed to support your learning objectives in understanding the concept of variables and constants in algebraic expressions. Please read the instructions carefully and complete the activities to the best of your ability.

Section 1: Understanding Variables and Constants

Definition Match

Match the following terms with their definitions:

- Variable
- Constant
- Algebraic Expression

Definitions:

- A letter or symbol that represents a value that can change.
- A number that does not change in value.
- A collection of variables, constants, and algebraic operations.

Identify Variables and Constants

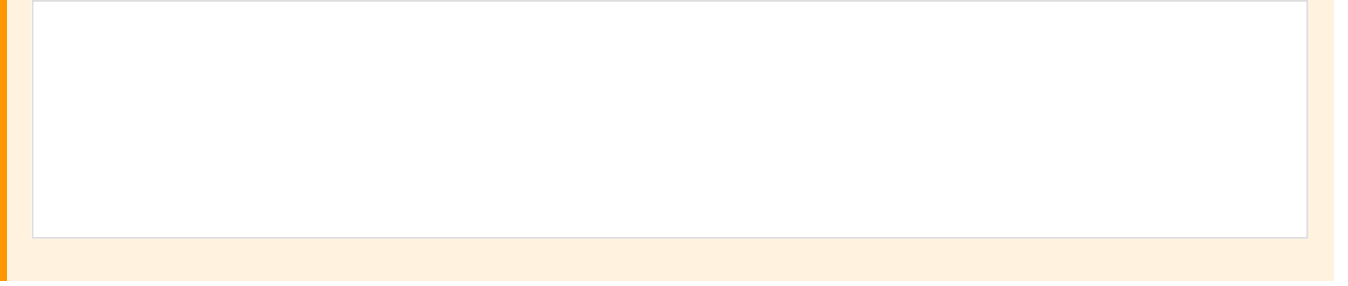
Identify whether each part of the following expressions is a variable or a constant:

- $2x + 5$
- $7 - y$
- $4z / 2$

Simplifying Expressions

Simplify the following algebraic expressions by combining like terms:

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



Section 2: Applying Concepts

Real-World Application

Describe a real-world scenario where variables and constants are used. Explain how they are applied in the scenario.

Creating Expressions

Create your own algebraic expressions using variables and constants. Ensure you include at least one variable and one constant in each expression.

Problem Solving

Solve the following problems:

- If a book costs \$10 and you have a \$5 coupon, how much will you pay for the book? Represent your answer as an algebraic expression where the cost of the book is the variable.
- A bakery sells 250 loaves of bread per day. If they make a profit of \$0.50 per loaf, how much profit do they make in a day? Represent the number of loaves sold as a variable.

Research Project

Research and write a short essay on the history of algebra and its importance in modern mathematics and real-world applications.

Advanced Problems

Solve more complex algebraic expressions and equations, such as:

- $2x + 5 = 11$
- $x - 3 = 7$
- $4x = 28$

Create a Quiz

Design a short quiz with 5 questions on variables and constants for your peers. Include a mix of multiple-choice and short-answer questions.

Success Criteria

To successfully complete this assignment, ensure that:

- You have accurately identified variables and constants in given expressions.
- Your simplifications of algebraic expressions are correct.
- Your real-world scenario clearly explains the use of variables and constants.
- Your created expressions correctly use variables and constants.
- You have correctly solved the given problems.

Parent/Guardian Notes

To support your child's learning:

- Encourage them to ask questions if they are unsure about any part of the assignment.
- Provide a quiet and comfortable workspace.
- Check their work for neatness and completeness, but avoid giving them the answers.
- Discuss their real-world scenario with them to deepen their understanding of how algebra applies to everyday life.
- If your child finishes the assignment quickly, consider providing additional challenges from the extension activities to keep them engaged.

Additional Resources

For additional support, you can use the following resources:

- Online algebra tutorials and videos
- Algebra textbooks and workbooks
- Online algebra games and quizzes

Conclusion

Congratulations on completing the Algebra Basics homework sheet! We hope you have enjoyed learning about variables and constants in algebraic expressions. Remember to practice regularly to reinforce your understanding of these concepts. Good luck with your future math endeavors!