Evaluate Expressions Worksheet

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Part 1: Building a Foundation

What is an algebraic expression?

Hint: Think about the definition of mathematical phrases.

- ◯ A) A sentence with words and numbers
- ◯ B) A mathematical phrase that includes numbers, variables, and operation symbols
- ◯ C) A paragraph describing a math problem
- ◯ D) A graph showing data trends

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Which of the following are components of an algebraic expression? (Select all that apply)

Hint: Consider the elements that make up an algebraic expression.

- ☐ A) Variables
- ☐ B) Coefficients
- ☐ C) Paragraphs
- ☐ D) Constants

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Explain the importance of the order of operations in evaluating expressions.

Hint: Consider how operations are prioritized.

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Hint: Think about how different orders can lead to different results.

List the steps involved in evaluating an algebraic expression.

Hint: Think about the sequence of actions taken.

1. What is the first step?

2. What is the second step?

3. What is the final step?

Part 2: Comprehension and Interpretation

What is the result of substituting x = 3 into the expression 2x + 5?

Hint: Calculate the expression step by step.

- ◯ A) 8
- ◯ B) 11
- ◯ C) 15
- ◯ D) 10

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Hint: Substitute and calculate the value.

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Which expressions are linear? (Select all that apply)

Hint: Identify expressions that graph as straight lines.

- ☐ A) 3x + 2
- ☐ B) x^2 + 4x + 4
- ☐ C) 5x - 7
- ☐ D) 2x^3 + x

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Hint: Identify expressions that form a straight line when graphed.

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- ☐ B) x^2 + 4x + 4
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Describe how substituting a negative value for a variable might affect the outcome of an expression.

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Part 3: Application and Analysis

If y = 4, what is the value of the expression 3y^2 - 2y + 1?

Hint: Substitute y = 4 and calculate.

- ◯ A) 45
- ◯ B) 49
- ◯ C) 50
- ◯ D) 53

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Evaluate the expression 2a + 3 b when a = 2 and b = -1. Which of the following are correct steps? (Select all that apply)

Hint: Think about the substitution and simplification process.

- [ ] A) Substitute a = 2 and b = -1 into the expression
- [ ] B) Calculate 2(2) + 3(-1)
- [ ] C) Simplify to get 4 + 3
- [ ] D) Simplify to get 4 - 3

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Create a real-world scenario where evaluating an expression is necessary, and solve it.

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Analyze the expression 5(x - 2) + 3x. Which steps are necessary to simplify it? (Select all that apply)

Hint: Consider the operations involved in simplification.

- [ ] A) Distribute the 5
- [ ] B) Combine like terms
- [ ] C) Add 2 to each term
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Explain how you would check your work after evaluating an expression to ensure accuracy.

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Part 4: Evaluation and Creation

Which of the following expressions represents a quadratic expression?

Hint: Identify the degree of the expression.

- ◯ A) 2x + 3
- ◯ B) x^2 + 5x + 6
- ◯ C) 3x^3 - 4
- ◯ D) 7x - 1

Which of the following expressions represents a quadratic expression?

Hint: Identify expressions with a variable raised to the second power.

- ◯ A) 2x + 3
- ◯ B) x^2 + 5x + 6
- ◯ C) 3x^3 - 4
- ◯ D) 7x - 1

Evaluate the expression 2(x^2 - 3x + 4) for x = -2. Which of the following steps are correct? (Select all that apply)

Hint: Follow the evaluation process step by step.

- ☐ A) Substitute x = -2 into the expression
- ☐ B) Calculate 2((-2)^2 - 3(-2) + 4)
- ☐ C) Simplify to get 2(4 + 6 + 4)
- ☐ D) Simplify to get 2(14)

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Design your own algebraic expression that involves at least two variables and two operations. Describe a scenario where this expression could be used, and solve it for specific values of the variables.

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