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Worksheet Evaluating Expressions

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Part 1: Building a Foundation

What is an algebraic expression?

Hint: Think about the components that make up an algebraic expression.

○ A) A combination of numbers and operations
○ B) A combination of numbers, variables, and operations
○ C) A sentence with numbers and words
○ D) A graph of a function

What is an algebraic expression?

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○ A) A combination of numbers, variables, and operations
○ A) A sentence with numbers and words
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○ A) A combination of numbers and operations
○ B) A combination of numbers, variables, and operations
○ C) A sentence with numbers and words
○ D) A graph of a function

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

Hint: Consider the elements that can be found in an expression.

☐ A) Variables

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☐ B) Coefficients
☐ C) Exponents
☐ D) Sentences

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

Hint: Consider the elements that can be part of an expression.

☐ A) Variables
☐ A) Coefficients
☐ A) Exponents
☐ A) Sentences

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Hint: Consider the elements that can be part of an expression.

☐ A) Variables
☐ B) Coefficients
☐ C) Exponents
☐ D) Sentences

Explain the role of a variable in an algebraic expression.

Hint: Think about how variables represent unknown values.

Explain the role of a variable in an algebraic expression.

Hint: Think about how variables are used to represent unknown values.

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Explain the role of a variable in an algebraic expression.

Hint: Think about how variables represent unknown values.

Which of the following expressions is a numerical expression?

Hint: Look for expressions that do not contain variables.

○ A) 3x + 5
○ B) 7 + 4
○ C) 2y - 3z
○ D) x^2 + 6

Which of the following expressions is a numerical expression?

Hint: Consider expressions that do not contain variables.

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○ A) 7 + 4
○ A) 2y - 3z
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○ C) 2y - 3z
○ D) x^2 + 6

Part 2: Comprehension and Application

If x = 3, what is the value of the expression 2x + 4?

Hint: Substitute the value of x into the expression.

○ A) 6
○ B) 8
○ C) 10
○ D) 12

If x = 3, what is the value of the expression 2x + 4?

Hint: Substitute x with 3 and calculate.

○ A) 6
○ A) 8
○ A) 10
○ A) 12

If x = 3, what is the value of the expression 2x + 4?

Hint: Substitute the value of x into the expression.

○ A) 6
○ B) 8
○ C) 10
○ D) 12

Which of the following statements are true about the expression 4a + 3 b? (Select all that apply)

Hint: Consider the properties of the expression.

☐ A) It is a numerical expression.
☐ B) It contains two variables.
☐ C) The coefficient of a is 4.
☐ D) The constant term is 3.

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Which of the following statements are true about the expression 4a + 3 b? (Select all that apply)

Hint: Analyze the components of the expression.

☐ A) It is a numerical expression.
☐ A) It contains two variables.
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Describe how the distributative property can be used to simplify the expression 3(x + 2).

Hint: Think about how to distribute the 3 across the terms in the parentheses.

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Describe how the distributative property can be used to simplify the expression 3(x + 2).

Hint: Think about how to distribute the 3 across the terms in the parentheses.

Evaluate the expression 5y - 2 when y = 4.

Hint: Substitute the value of y into the expression.

○ A) 18
○ B) 20
○ C) 22
○ D) 24

Evaluate the expression 5y - 2 when y = 4.

Hint: Substitute y with 4 and calculate.

○ A) 18
○ A) 20
○ A) 22
○ A) 24

Evaluate the expression 5y - 2 when y = 4.

Hint: Substitute the value of y into the expression.

○ A) 18
○ B) 20
○ C) 22
○ D) 24

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

Hint: Consider how to distribute the 2 across the terms in the parentheses.

☐ A) 2x + 6

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☐ B) 2x + 3
☐ C) x + 6
☐ D) 2x + 3x

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

Hint: Consider how to distribute the 2 across the terms in the parentheses.

☐ A) 2x + 6
☐ A) 2x + 3
☐ A) x + 6
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☐ A) 2x + 6
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☐ C) x + 6
☐ D) 2x + 3x

Solve for z in the expression 3z + 7 = 19.

Hint: Isolate z by performing inverse operations.

Solve for z in the expression 3z + 7 = 19.

Hint: Isolate z on one side of the equation.

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Solve for z in the expression 3z + 7 = 19.

Hint: Isolate z on one side of the equation.

Part 3: Analysis, Evaluation, and Creation

Which of the following expressions correctly applies the order of operations to 3 + 4 * 2?

Hint: Remember to perform multiplication before addition.

○ A) 14
○ B) 11
○ C) 16
○ D) 10

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Hint: Remember to perform multiplication before addition.

○ A) 14
○ A) 11
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Hint: Remember to perform multiplication before addition.

⚪ A) 14
⚪ B) 11
⚪ C) 16
⚪ D) 10

Analyze the expression 6(a - 2) + 3a. Which of the following are true? (Select all that apply)

Hint: Consider how to simplify the expression.

☐ A) The expression can be simplified to 9a - 12.
☐ B) The expression can be simplified to 6a - 12 + 3a.
☐ C) The expression contains a distributative property.
☐ D) The expression has a constant term of -12.

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Break down the expression 4(x + 5) - 2x and explain each step of simplification.

Hint: Think about distributing and combining like terms.

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Break down the expression 4(x + 5) - 2x and explain each step of simplification.

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Break down the expression 4(x + 5) - 2x and explain each step of simplification.

Hint: Think about how to distribute and combine like terms.

Which expression represents the same value as 2(x + 3) - x when x = 5?

Hint: Substitute the value of x into the expression.

○ A) 10
○ B) 11
○ C) 12
○ D) 13

Which expression represents the same value as 2(x + 3) - x when x = 5?

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Hint: Substitute x with 5 and evaluate.

○ A) 10
○ A) 11
○ A) 12
○ A) 13

Which expression represents the same value as 2(x + 3) - x when x = 5?

Hint: Substitute x = 5 into the expression.

○ A) 10
○ B) 11
○ C) 12
○ D) 13

Create an expression equivalent to 3(x + 4) - 2x and identify which of the following are correct transformations. (Select all that apply)

Hint: Consider how to distribute and combine like terms.

☐ A) x + 12
☐ B) 3x + 12 - 2x
☐ C) x + 12
☐ D) 3x + 4 - 2x

Create an expression equivalent to 3(x + 4) - 2x and identify which of the following are correct transformations. (Select all that apply)

Hint: Consider how to distribute and combine like terms.

☐ A) x + 12
☐ A) 3x + 12 - 2x
☐ A) x + 12
☐ A) 3x + 4 - 2x

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Hint: Consider how to distribute and combine like terms.

☐ A) x + 12
☐ B) 3x + 12 - 2x
☐ C) x + 12

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☐ D) 3x + 4 - 2x

Design an expression that represents the total cost of buying x apples at $2 each and y bananas at $1.50 each. Explain your reasoning.

Hint: Think about how to represent costs in an expression.

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Hint: Think about how to represent costs in an expression.

Evaluate the expression 5(x - 2) + 3y for x = 4 and y = 2. Show your work and explain each step.

Hint: Substitute the values of x and y into the expression.

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1. What is the first step in evaluating the expression?

2. What do you do after substituting the values?

3. What is the final result?

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