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# Worksheet Evaluating Expressions Answer Key PDF

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## Part 1: Building a Foundation

**What is an algebraic expression?**

undefined.  A) A combination of numbers and operations

**undefined.  B) A combination of numbers, variables, and operations ✓**

undefined.  C) A sentence with numbers and words

undefined.  D) A graph of a function

An algebraic expression is a combination of numbers, variables, and operations.

**What is an algebraic expression?**

undefined.  A) A combination of numbers and operations

**undefined.  A) A combination of numbers, variables, and operations ✓**

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An algebraic expression is a combination of numbers, variables, and operations.

**What is an algebraic expression?**

undefined.  A) A combination of numbers and operations

**undefined.  B) A combination of numbers, variables, and operations ✓**

undefined.  C) A sentence with numbers and words

undefined.  D) A graph of a function

An algebraic expression is a combination of numbers, variables, and operations.

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

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**undefined. A) Variables ✓**

**undefined. B) Coefficients ✓**

**undefined. C) Exponents ✓**

undefined. D) Sentences

Components of an expression include variables, coefficients, and exponents.

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

**undefined. A) Variables ✓**

**undefined. A) Coefficients ✓**

**undefined. A) Exponents ✓**

undefined. A) Sentences

Components of an expression include variables, coefficients, and exponents.

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

**undefined. A) Variables ✓**

**undefined. B) Coefficients ✓**

**undefined. C) Exponents ✓**

undefined. D) Sentences

Components of an expression include variables, coefficients, and exponents.

**Explain the role of a variable in an algebraic expression.**

**A variable represents an unknown value that can change within an expression.**

**Explain the role of a variable in an algebraic expression.**

**A variable represents an unknown value that can change, allowing expressions to generalize mathematical relationships.**

**Explain the role of a variable in an algebraic expression.**

**A variable represents an unknown value that can change within an expression.**

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**Which of the following expressions is a numerical expression?**

undefined. A) 3x + 5

**undefined. B) 7 + 4 ✓**

undefined. C) 2y - 3z

undefined. D) x^2 + 6

A numerical expression consists only of numbers and operations, without any variables.

**Which of the following expressions is a numerical expression?**

undefined. A) 3x + 5

**undefined. A) 7 + 4 ✓**

undefined. A) 2y - 3z

undefined. A) x^2 + 6

A numerical expression consists only of numbers and operations.

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undefined. D) x^2 + 6

A numerical expression consists only of numbers and operations.

## Part 2: Comprehension and Application

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

undefined. A) 6

**undefined. B) 8 ✓**

undefined. C) 10

undefined. D) 12

By substituting x = 3 into the expression, you can calculate the value.

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

undefined. A) 6
undefined. A) 8
**undefined. A) 10 ✓**
undefined. A) 12

The value of the expression is 10 when x = 3.

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

undefined. A) 6
undefined. B) 8
**undefined. C) 10 ✓**
undefined. D) 12

Substituting x = 3 gives 2(3) + 4 = 10.

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

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

The expression contains two variables and has a coefficient of 4 for a.

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

undefined. A) It is a numerical expression.
**undefined. A) It contains two variables. ✓**
**undefined. A) The coefficient of a is 4. ✓**
undefined. A) The constant term is 3.

The expression contains two variables and has a coefficient of 4 for a.

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

undefined. A) It is a numerical expression.

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undefined.  **B) It contains two variables. ✓**

undefined.  **C) The coefficient of a is 4. ✓**

undefined.  D) The constant term is 3.

The expression contains two variables and has a coefficient of 4 for a.

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

**The distributative property allows you to multiply each term inside the parentheses by 3.**

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

**The distributative property allows you to multiply each term inside the parentheses by 3, resulting in 3x + 6.**

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

**The distributative property allows you to multiply each term inside the parentheses by 3.**

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

undefined.  A) 18

**undefined.  B) 20 ✓**

undefined.  C) 22

undefined.  D) 24

By substituting y = 4 into the expression, you can find the value.

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

**undefined.  A) 18 ✓**

undefined.  A) 20

undefined.  A) 22

undefined.  A) 24

The value of the expression is 18 when y = 4.

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

**undefined. A) 18 ✓**

undefined. B) 20

undefined. C) 22

undefined. D) 24

Substituting y = 4 gives 5(4) - 2 = 18.

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

**undefined. A) 2x + 6 ✓**

undefined. B) 2x + 3

undefined. C) x + 6

undefined. D) 2x + 3x

The equivalent expressions will result from distributing the 2 to both terms inside the parentheses.

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

**undefined. A) 2x + 6 ✓**

undefined. A) 2x + 3

undefined. A) x + 6

undefined. A) 2x + 3x

The equivalent expressions are those that simplify to the same result as 2(x + 3).

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

**undefined. A) 2x + 6 ✓**

undefined. B) 2x + 3

undefined. C) x + 6

undefined. D) 2x + 3x

Equivalent expressions include those that simplify to the same result.

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

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**To solve for z, subtract 7 from both sides and then divide by 3.**

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

**To solve for z, subtract 7 from both sides and then divide by 3.**

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

**To solve for z, subtract 7 from both sides and then divide by 3.**

## Part 3: Analysis, Evaluation, and Creation

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

undefined. A) 14

**undefined. B) 11 ✓**

undefined. C) 16

undefined. D) 10

The correct application of the order of operations results in 11.

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

undefined. A) 14

**undefined. A) 11 ✓**

undefined. A) 16

undefined. A) 10

The correct answer is 11, as multiplication is performed before addition.

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

undefined. A) 14

**undefined. B) 11 ✓**

undefined. C) 16

undefined. D) 10

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The correct application of the order of operations gives 3 + 8 = 11.

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

**undefined. A) The expression can be simplified to 9a - 12. ✓**

**undefined. B) The expression can be simplified to 6a - 12 + 3a. ✓**

**undefined. C) The expression contains a distributative property. ✓**

**undefined. D) The expression has a constant term of -12. ✓**

The expression can be simplified using the distributative property and contains a constant term.

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

**undefined. A) The expression can be simplified to 9a - 12. ✓**

**undefined. A) The expression can be simplified to 6a - 12 + 3a. ✓**

**undefined. A) The expression contains a distributative property. ✓**

undefined. A) The expression has a constant term of -12.

The expression can be simplified and contains a distributative property.

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

**undefined. A) The expression can be simplified to 9a - 12. ✓**

**undefined. B) The expression can be simplified to 6a - 12 + 3a. ✓**

**undefined. C) The expression contains a distributative property. ✓**

undefined. D) The expression has a constant term of -12.

The expression can be simplified and contains a distributative property.

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

**Distribute 4 to both terms in the parentheses, then combine like terms with -2x.**

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

**To simplify, distribute 4 and then combine like terms.**

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

**Distributing gives 4x + 20 - 2x, which simplifies to 2x + 20.**

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

undefined. A) 10

**undefined. B) 11 ✓**

undefined. C) 12

undefined. D) 13

By substituting x = 5, you can find the equivalent expression.

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

undefined. A) 10

undefined. A) 11

**undefined. A) 12 ✓**

undefined. A) 13

The expression evaluates to 12 when x = 5.

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

undefined. A) 10

**undefined. B) 11 ✓**

undefined. C) 12

undefined. D) 13

Substituting x = 5 gives 2(5 + 3) - 5 = 11.

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

undefined. A) x + 12

**undefined. B) 3x + 12 - 2x ✓**

undefined. C) x + 12

undefined. D) 3x + 4 - 2x

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The equivalent expression will result from distributing and combining like terms.

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

undefined. A) x + 12

**undefined. A) 3x + 12 - 2x ✓**

undefined. A) x + 12

**undefined. A) 3x + 4 - 2x ✓**

The equivalent expressions will simplify to the same result.

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

undefined. A) x + 12

**undefined. B) 3x + 12 - 2x ✓**

undefined. C) x + 12

undefined. D) 3x + 4 - 2x

Equivalent expressions can be formed by distributing and combining like terms.

**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.**

**The expression would be 2x + 1.5y, representing the total cost based on the quantity of apples and bananas.**

**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.**

**The expression is 2x + 1.5y, representing the total cost.**

**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.**

**The expression is 2x + 1.5y, representing the total cost of apples and bananas.**

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

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

**Substitute x = 4 and y = 2 into the expression.**

2. What do you do after substituting the values?

**Simplify the expression step by step.**

3. What is the final result?

**The final result after simplification.**

Substituting the values and simplifying will yield the final result.

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