Order Of Operations Worksheets Questions and Answers PDF

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Part 1: Building a Foundation

Which of the following correctly represents the order of operations?

Hint: Think about the acronym PEMDAS.

- ◯ A) Addition, Subtraction, Multiplication, Division, Parentheses, Exponents
- ◯ **B) Parentheses, Exponents, Multiplication and Division, Addition and Subtraction ✓**
- ◯ C) Multiplication, Division, Addition, Subtraction, Parentheses, Exponents
- ◯ D) Exponents, Parentheses, Addition, Subtraction, Multiplication, Division

> The correct order of operations is Parentheses, Exponents, Multiplication and Division, Addition and Subtraction.

Which of the following are true about the order of operations? (Select all that apply)

Hint: Consider the rules that govern mathematical calculations.

- ☐ **A) It ensures consistent results in calculations. ✓**
- ☐ B) Multiplication always comes before division.
- ☐ **C) Parentheses are solved first. ✓**
- ☐ D) Addition is always performed before subtraction.

> The order of operations ensures consistent results, and parentheses are solved first.

Explain why the order of operations is important in mathematics.

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

The order of operations is important because it provides a standard way to evaluate expressions, ensuring that everyone arrives at the same result.

List the steps in the PEMDAS order of operations.

Hint: Remember the acronym PEMDAS.

1. What is the first step?

Parentheses

2. What is the second step?

Exponents

3. What is the third step?

Multiplication and Division

4. What is the fourth step?

Addition and Subtraction

> The steps in the PEMDAS order of operations are: Parentheses, Exponents, Multiplication, Division, Addition, Subtraction.

Which operation should be performed first in the expression 8 + (3 × 2)^2?

Hint: Look for the parentheses in the expression.

- ◯ A) Addition
- ◯ B) Multiplication
- ◯ C) Exponentiation
- ◯ **D) Parentheses ✓**

> The first operation to be performed is the one inside the parentheses.

Part 2: Application and Analysis

What is the result of the expression 7 + 3 × (10 - 4)^2 ÷ 2?

Hint: Follow the order of operations carefully.

- ◯ A) 52
- ◯ **B) 61 ✓**
- ◯ C) 73
- ◯ D) 85

> The result of the expression is 61.

Which of the following expressions equal 50? (Select all that apply)

Hint: Evaluate each expression carefully.

- ☐ **A) 5 × (8 + 2) ✓**
- ☐ **B) (100 ÷ 2) + 5 ✓**
- ☐ **C) 10 × 5 ✓**
- ☐ D) 60 - (2 × 5)

> The expressions that equal 50 are A, B, and C.

Calculate the value of the expression 2 × (3 + 5) - 4^2 and explain each step.

Hint: Break down the expression step by step.

The value of the expression is 2, and each step involves following the order of operations.

In the expression 2 × [3 + (4 × 2) - 5]^2, which operation is performed last?

Hint: Identify the last operation according to the order of operations.

- ◯ A) Multiplication
- ◯ B) Addition
- ◯ **C) Exponentiation ✓**
- ◯ D) Subtraction

The last operation performed is exponentiation.

Identify the errors in the following solution: 3 + 6 × (5 + 4) ÷ 3 - 7 = 3 + 6 × 9 ÷ 3 - 7 = 3 + 54 ÷ 3 - 7 = 3 + 18 - 7 = 14. (Select all that apply)

Hint: Review the calculations step by step.

- ☐ **A) Incorrect multiplication ✓**
- ☐ B) Incorrect division
- ☐ C) Incorrect subtraction
- ☐ **D) Incorrect order of operations ✓**

The errors include incorrect multiplication and incorrect order of operations.

Part 3: Evaluation and Creation

Which expression will result in the highest value?

Hint: Evaluate each expression carefully.

- ◯ A) (2 + 3) × 4^2

- ◯ **B) 2 + (3 × 4)^2 ✓**
- ◯ C) (2 × 3 + 4)^2
- ◯ D) 2 × (3 + 4)^2

> The expression that results in the highest value is B.

Evaluate the following expressions and select those that are equivalent to 64. (Select all that apply)

Hint: Calculate each expression to find the equivalent ones.

- ☐ **A) 4 × (3 + 5)^2 ✓**
- ☐ **B) (8 × 2)^2 ÷ 4 ✓**
- ☐ **C) 2^6 ✓**
- ☐ **D) 16 × 4 ✓**

> The expressions that are equivalent to 64 are A, B, C, and D.

Create your own mathematical expression using the order of operations that results in 100. Explain the steps to solve it.

Hint: Think creatively about how to combine operations.

> **An example expression could be 10 × (5 + 5) and the steps involve following the order of operations.**

Reflect on a real-world scenario where the order of operations is crucial. Describe the scenario and explain how you would apply the order of operations to solve a problem within it.

Hint: Consider situations in finance, construction, or science.

In finance, calculating interest involves the order of operations to ensure accurate results.