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Adding And Subtracting Radicals Worksheet Answer Key PDF

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Part 1: Foundational Knowledge

What is the simplest form of the radical expression √50?

undefined. 5√2 ✓

undefined. 10√5

undefined. 25√2

undefined. 2√5

The simplest form of √50 is 5√2.

Which of the following are like radicals?

undefined. 3√7 and 5√7 ✓

undefined. √3 and √5

undefined. 2√2 and 3√3

undefined. 4√x and 6√x ✓

The like radicals are 3√7 and 5√7, and 4√x and 6√x.

Explain why only like radicals can be added or subtracted directly.

Only like radicals can be added or subtracted directly because they have the same radicand, allowing for the coefficients to be combined.

List the steps to simplify the radical expression √72.

1. Step 1

Find the prime factorization of 72.

2. Step 2

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Identify the perfect square factors.

3. Step 3
Simplify the radical expression.

The steps include finding the prime factorization of 72, identifying perfect squares, and simplifying the radical.

Part 2: comprehension

Which expression represents the sum of 2√3 and 3√3?

undefined. 5√3 ✓
undefined. 6√3
undefined. 5√6
undefined. 2√6

The sum of 2√3 and 3√3 is 5√3.

Which of the following expressions are equivalent to 4√18?

undefined. 12√2 ✓
undefined. 6√3
undefined. 2√9
undefined. 12√3 ✓

The equivalent expressions to 4√18 include 12√2 and 12√3.

Describe the process of rationalizing the denominator of the fraction 5/√2.

To rationalize the denominator, multiply the numerator and denominator by √2 to eliminate the radical in the denominator.

Part 3: Application

If √x = 3, what is the value of x?

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undefined. 6

undefined. 9 ✓

undefined. 12

undefined. 15

The value of x is 9.

Simplify the expression 3√8 + 2√18 and select the correct form.

undefined. 9√2 ✓

undefined. 5√2 + 6√3

undefined. 3√2 + 6√3

undefined. 9√3

The simplified form of 3√8 + 2√18 is 9√2.

Solve the equation √(x + 3) = 5 and provide the value of x.

The value of x is 22 after squaring both sides and isolating x.

Part 4: Analysis

Which of the following is the correct simplification of √(48) - √(12)?

undefined. 2√3 ✓

undefined. 3√3

undefined. 4√3

undefined. 5√3

The correct simplification is 2√3.

Analyze the expression 2√5 + √20 and identify the correct simplification.

undefined. 4√5

undefined. 5√5 ✓

undefined. 3√5

undefined. 6√5

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The correct simplification is 5√5.

Explain how you would simplify the expression √(x^2y) when x and y are positive integers.

To simplify √(x^2y), take the square root of x^2 and leave y under the radical, resulting in x√y.

Part 5: Evaluation and Creation

Which method would be most effective for simplifying the expression √(75) + √(27)?

undefined. Direct addition

undefined. Factoring out common factors ✓

undefined. Rationalizing the denominator

undefined. Using the distributative property

The most effective method is factoring out common factors.

Evaluate the expression √(50) - 2√(2) and select the correct simplification.

undefined. 3√2

undefined. 5√2

undefined. 4√2 ✓

undefined. 6√2

The correct simplification is 4√2.

Create a real-world problem that involves adding or subtracti ng radicals, and solve it. Provide a detailed explanation of your solution.

An example could involve calculating the total length of two pieces of wood represented by radicals.

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