SIMPLIFYING COMPLEX FRACTIONS WITH MIXED NUMBERS IN THE DENOMINATOR

Simplifying Complex Fractions with Mixed Numbers in the Denominator and where Solve Exponents are Fractions

Abstract:

Complex fractions with mixed numbers in the denominator and where solve exponents are fractions can be challenging to simplify, but the process can be broken down into simple steps. This paper presents a step-by-step guide on how to simplify such complex fractions and provides examples to illustrate the process. The paper uses APA style for formatting and referencing.

Simplifying Complex Fractions with Mixed Numbers in the Denominator and where Solve Exponents are Fractions

Complex fractions with mixed numbers in the denominator and where solve exponents are fractions can seem daunting at first, but they can be simplified using a few simple steps. The following guide outlines the steps involved in simplifying complex fractions and provides examples to illustrate the process.

Step 1: Convert Mixed Numbers to Improper Fractions

The first step in simplifying complex fractions with mixed numbers in the denominator is to convert the mixed numbers to improper fractions. To do this, multiply the whole number by the denominator of the fraction and add the numerator. The result is the numerator of the improper fraction, while the denominator remains the same. For example, to convert the mixed number 2 1/3 to an improper fraction, we multiply 2 by 3 and add 1 to get 7. The resulting improper fraction is 7/3.

Step 2: Simplify Fractions in the Numerator and Denominator

The next step is to simplify any fractions in the numerator and denominator of the complex fraction. To do this, find the greatest common factor (GCF) of the numerator and denominator of each fraction and divide both by the GCF. For example, to simplify the fraction 6/12, we first find the GCF of 6 and 12, which is 6. We then divide both the numerator and denominator by 6 to get 1/2.

Step 3: Invert the Denominator of the Fraction after the Division Sign

The third step is to invert the denominator of the fraction after the division sign. This is because dividing by a fraction is the same as multiplying by its reciprocal. For example, to simplify the fraction 3/4 ÷ 1 1/2, we first convert the mixed number to an improper fraction to get 3/2. We then invert the denominator of 3/2 to get 2/3 and multiply by 3/4 to get (3/4) x (2/3) = 6/12 or 1/2.

Step 4: Simplify the Resulting Fraction

The final step is to simplify the resulting fraction, if possible. To do this, find the GCF of the numerator and denominator and divide both by the GCF. For example, to simplify the fraction 6/12, we first find the GCF of 6 and 12, which is 6. We then divide both the numerator and denominator by 6 to get 1/2.

Example:

Simplify the complex fraction (3 1/4)^(2/3) ÷ 2 3/8.

Step 1: Convert 3 1/4 to an improper fraction.

3 1/4 = (3 x 4 + 1)/4 = 13/4

Step 2: Simplify 2 3/8 to an improper fraction.

2 3/8 = (2 x 8 + 3)/8 = 19/8

Step 3: Invert the denominator of 19/8 and multiply by 13/4.

(13/4)^(2/3) x (8/19) = (169/64)^(1/3) x (8/19)

Step 4: Simplify the resulting fraction.

(169/64)^(1/3) x (8/19) = (5/2) x (8/19) = 40/19

Conclusion

Simplifying complex fractions with mixed numbers in the denominator and where solve exponents are fractions may seem intimidating at first, but the process can be broken down into simple steps. By following the steps outlined in this paper, one can simplify complex fractions with ease. The key is to remember to convert mixed numbers to improper fractions, simplify all fractions in the numerator and denominator, invert the denominator of the second fraction, and simplify the resulting fraction if possible.