Fraction Operations: Adding, Subtracting, and Multiplying Fractions

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◼ Concept Explanation

In grade 4, you learned about fractions and how to compare them. Now, let's dive deeper into fraction operations. A fraction is a way to show part of a whole. When we add or subtract fractions, we need to have the same denominator, which is the number at the bottom of the fraction. The denominator tells us how many equal parts the whole is divided into. For example, in the fraction 1/4, the denominator is 4, which means the whole is divided into 4 equal parts.

✏◼ Worked Examples

Example 1

Problem: Add 1/6 + 2/6

Solution:
To add these fractions, we need to have the same denominator, which is 6. So, we add the numerators: 1 + 2 = 3. The denominator stays the same, so the answer is 3/6. We can simplify this fraction by dividing both the numerator and the denominator by their greatest common divisor, which is 3. So, 3/6 = 1/2.

Example 2

Problem: Subtract 3/8 - 1/8

Solution:
To subtract these fractions, we need to have the same denominator, which is 8. So, we subtract the numerators: 3 - 1 = 2. The denominator stays the same, so the answer is 2/8. We can simplify this fraction by dividing both the numerator and the denominator by their greatest common divisor, which is 2. So, 2/8 = 1/4.

Example 3

Problem: Multiply 2/3 by 4

Solution:

To multiply a fraction by a whole number, we multiply the numerator by the whole number. So, 2 * 4 = 8. The denominator stays the same, so the answer is 8/3. This is an improper fraction, which means the numerator is greater than the denominator. We can convert this to a mixed number by dividing the numerator by the denominator: 8 ÷ 3 = 2 with a remainder of 2. So, the mixed number is 2 2/3.

■ Practice Questions

1. Add 1/4 + 1/4 [EASY]

2. Subtract 5/6 - 2/6 [EASY]

3. Multiply 1/2 by 6 [MEDIUM]

4. Add 2/8 + 1/8 [EASY]

5. Subtract 3/4 - 1/4 [EASY]

6. Multiply 3/4 by 3 [MEDIUM]

7. Add 1/3 + 2/3 [EASY]

8. Subtract 2/3 - 1/3 [EASY]

■ Answer Key

1. 2/4 = 1/2

2. 3/6 = 1/2

3. 6/2 = 3

4. 3/8

5. 2/4 = 1/2

6. 9/4 = 2 1/4

7. 3/3 = 1

8. 1/3