# **Mixed Problems on Addition and Subtraction**

### **Understanding the Topic**

- Mixed problems involve both addition and subtraction of fractions.
- The fractions may be like or unlike.
- For like fractions, simply add or subtract the numerators.
- For unlike fractions, find the LCM of the denominators and convert them into like fractions before performing the operation.
- Always simplify the final answer and convert improper fractions to mixed numbers if needed.

#### **Examples with Solutions**

#### **Example:**

Add  $\frac{3}{5}$  and  $\frac{2}{5}$ , then subtract  $\frac{1}{5}$   $\frac{3}{5} + \frac{2}{5} = \frac{5}{5} = 1$   $1 - \frac{1}{5} = \frac{4}{5}$ Answer:  $\frac{4}{5}$ Example: Add  $\frac{1}{2}$  and  $\frac{2}{3}$ LCM of 2 and 3 = 6  $\frac{1}{2} = \frac{3}{6}, \frac{2}{3} = \frac{4}{6}$   $\frac{3}{6} + \frac{4}{6} = \frac{7}{6} = 1\frac{1}{6}$ Answer:  $1\frac{1}{6}$ Example: Subtract  $\frac{3}{4}$  from 1 and add  $\frac{1}{2}$   $1 = \frac{4}{4}, so \frac{4}{4} - \frac{3}{4} = \frac{1}{4}$  $\frac{1}{4} + \frac{1}{2} = LCM of 4 and 2 = 4$   $\frac{1}{4} + \frac{2}{4} = \frac{3}{4}$ Answer:  $\frac{3}{4}$ Example:

# Add $\frac{5}{6}$ and $\frac{1}{3}$ , then subtract $\frac{1}{2}$ LCM of 6, 3, and 2 = 6 $\frac{5}{6} = \frac{5}{6}, \frac{1}{3} = \frac{2}{6}, \frac{1}{2} = \frac{3}{6}$ $\frac{5}{6} + \frac{2}{6} = \frac{7}{6}$ $\frac{7}{6} - \frac{3}{6} = \frac{4}{6} = \frac{2}{3}$ Answer: $\frac{2}{3}$

# Example:

Subtract  $\frac{2}{5}$  from 2, then add  $\frac{3}{10}$   $2 = \frac{10}{5} = \frac{20}{10}, \frac{2}{5} = \frac{4}{10}$   $\frac{20}{10} - \frac{4}{10} = \frac{16}{10}$   $\frac{16}{10} + \frac{3}{10} = \frac{19}{10} = 1\frac{9}{10}$ Answer:  $1\frac{9}{10}$ 

## **Summary Points**

- Use LCM to make unlike fractions into like fractions before adding or subtracting.
- Add or subtract the numerators and keep the denominator the same.
- Simplify your answer when possible.
- Convert improper fractions into mixed numbers for final answers.
- Mixed problems help in applying both operations in real-life situations.