FRACTIONS (ADDITION AND SUBTRACTION)

1. If a MIXED FRACTION (whole number and a fraction) is involved, convert it into an IMPROPER FRACTION (the numerator is larger than the denominator),
   If no mixed fraction is involved, skip to Step 2.
2. Find the COMMON DENOMINATOR of all fractions involved in the equation.
   The common denominator is always the LEAST (lowest) COMMON MULTIPLE of all the denominators.
3. MULTIPLY the denominator by a NUMBER that helps you obtain the LEAST COMMON MULTIPLE. Use this NUMBER to multiply the numerator as well.
4. ADD or SUBTRACT the NUMERATORS depending on if there is a plus or minus sign present and LEAVE THE DENOMINATOR THE SAME.
5. If the result is an IMPROPER FRACTION, do LONG DIVISION to find the WHOLE NUMBER, DENOMINATOR and the REMAINDER in order to convert it into a MIXED FRACTION.
   If the result is a proper fraction, ignore this step.
6. SIMPLIFY YOUR ANSWER by dividing both the numerator and denominator by a common whole number IF POSSIBLE.

*Please also refer to “FRACTIONS: SOME KEY TERMS” tip sheet.
Tip Sheet: Step-by-step
Fraction Series

EXAMPLE

Solve the expression: \( \frac{5}{8} + 4 \frac{5}{6} - \frac{1}{12} \)

1. \(4 \frac{5}{6}\) is a **MIXED FRACTION**,
   Convert it to \( \frac{4 \times 6 + 5}{6} = \frac{29}{6} \), which is an **IMPROPER FRACTION**.

2. Now, we have an equation: \( \frac{5}{8} + \frac{29}{6} - \frac{1}{12} \). We have to look at **8, 6 and 12**
   Multiples of 8: 8, 16, 24, 32....
   Multiples of 6: 6, 12, 18, 24, 30....
   Multiples of 12: 12, 24, 36, 48....
   We can see 24 is the **FIRST COMMON ELEMENT** of the lists. Then we know 24 is the **COMMON DENOMINATOR**.

3. \( \frac{5}{8} + \frac{29}{6} - \frac{1}{12} \)
   \( = \frac{5 \times (24 + 8)}{8 \times (24 + 8)} + \frac{29 \times (24 + 6)}{6 \times (24 + 6)} - \frac{1 \times (24 + 12)}{12 \times (24 + 12)} \)
   \( = \frac{5 \times 3 + 29 \times 4 + 1 \times 2}{24} \)
   \( = \frac{15 + 116 - 2}{24} \)
   \( = \frac{129}{24} \)

4. \( \frac{129}{24} \)
   We want to convert \( \frac{129}{24} \) to a mixed fraction. By dividing 129 by 24, we know the whole number is 5, the remainder is 9 and the denominator is 24. Then the answer would be \( 5 \frac{9}{24} \).

5. \( 5 \frac{9}{24} = 5 \frac{9 + 3}{24 + 3} = 5 \frac{3}{8} \)