

Adding and Subtracting of Fractions

When adding or subtracting, there must be a common denominator. If the denominators are different:

- (a) Write the problem vertically (top to bottom)
- (b) Find the LCD
- (c) Change to equivalent fractions (by building)
- (d) Add or subtract the numerators (leave the denominators the same)
- (e) Simplify and reduce, if possible

Ex. 1: $\frac{3}{5} + \frac{1}{5} = \frac{4}{5}$ The denominators are the same. Add the numerators, keep the denominator. This fraction cannot be simplified or reduced.

Ex. 2: $\frac{1}{2} + \frac{1}{4} = ?$ + $\frac{1}{4} = \frac{1}{4}$

$$\begin{array}{r} \frac{1}{2} = \frac{2}{4} \\ \frac{1}{4} = \frac{1}{4} \\ \hline \frac{3}{4} \end{array}$$

The denominators are different numbers. Therefore, change to **equivalent** fractions.

Ex. 3: $\frac{5}{8} - \frac{1}{3} = ?$ - $\frac{1}{3} = \frac{8}{24}$

$$\begin{array}{r} \frac{5}{8} = \frac{15}{24} \\ \frac{1}{3} = \frac{8}{24} \\ \hline \frac{7}{24} \end{array}$$

Ex. 4: $\frac{2}{3} + \frac{3}{4} = ?$ + $\frac{3}{4} = \frac{9}{12}$

$$\begin{array}{r} \frac{2}{3} = \frac{8}{12} \\ \frac{3}{4} = \frac{9}{12} \\ \hline \frac{17}{12} = 1\frac{5}{12} \end{array}$$

Simplifying and reducing completes addition and subtraction problems.

Ex. 5: $\frac{11}{15} - \frac{1}{3} = ?$ - $\frac{1}{3} = \frac{5}{15}$

$$\begin{array}{r} \frac{11}{15} = \frac{11}{15} \\ \frac{1}{3} = \frac{5}{15} \\ \hline \frac{6}{15} = \frac{2}{5} \end{array}$$