

## Adding and Subtracting Fractions with Unlike Denominators

- Follow the same guidelines used for adding and subtracting fractions with **like** denominators **BUT FIRST**, find the lowest common denominator and make equivalent fractions using this new denominator.

Eg.

$$\frac{1}{4} + \frac{2}{3}$$

← can't add right now because you have unlike denominators.

**Step 1.** Find the lowest common denominator

$$\begin{array}{l} 4: 4, 8, 12, 16 \\ 3: 3, 6, 9, 12 \end{array}$$

**Step 2.** Make equivalent fractions using the LCD.

$$\frac{1}{4} \xrightarrow{\times 3} \frac{3}{12}$$

$$\frac{2}{3} \xrightarrow{\times 4} \frac{8}{12}$$

**Step 3.** Re-write the addition/subtraction statements using the equivalent fractions.

$$\frac{1}{4} + \frac{2}{3} = \frac{3}{12} + \frac{8}{12}$$

**Step 4.** Follow the adding/subtracting rules for fractions with like denominators and evaluate.

$$\frac{3}{12} + \frac{8}{12} = \frac{11}{12}$$

**Step 5.** Reduce if possible.

Not possible in this case.

Eg. 2)

$$\frac{5}{6} - \frac{1}{3}$$

① LCD  
3: 3, 6, 9  
6: 6, 12, 18

②

$$\frac{1}{3} \xrightarrow{\times 2} \frac{2}{6}$$

③ Re-write using equivalent fraction made with LCD.

$$\frac{5}{6} - \frac{1}{3} = \frac{5}{6} - \frac{2}{6} = \frac{3}{6} = \frac{1}{2}$$