

## Subtracting Mixed Fractions and Borrowing

(Different Denominator Work)

Example:

(A)  $5 \frac{2}{5}$       (B)  $5 \frac{2}{5} \times 2 = 4 \frac{4}{10}$

$$\begin{array}{r} 5 \frac{2}{5} \\ - 3 \frac{7}{10} \\ \hline \end{array}$$

$$\begin{array}{r} 5 \frac{2}{5} \times 2 \\ - 3 \frac{7}{10} \times 2 \\ \hline 4 \frac{4}{10} \end{array}$$

A) When the denominators of the fraction you are subtracting are different, you must find the lowest common denominator. Using the example, you must find the lowest common denominator of 5 and 10. The lowest common denominator or least common multiple is 10. We find the LCM by counting the multiples of both denominators.

5 - 5, 10, 15, 20  
10 - 10, 20, 30       $\swarrow$  The LCM of 5 and 10 is 10!

(C)  $5 \frac{4}{10} + \frac{10}{10}$       (D)  $4 \frac{14}{10}$

$$\begin{array}{r} 5 \frac{4}{10} + \frac{10}{10} \\ - 3 \frac{7}{10} \\ \hline \end{array}$$

$$\begin{array}{r} 4 \frac{14}{10} \\ - 3 \frac{7}{10} \\ \hline 1 \frac{7}{10} \end{array}$$

B) After you find your LCM, rewrite both fractions. Because one of the had the LCM for a denominator, you simply copy that fraction over. The denominator of five has to be turned into the LCM. Because you have to multiply the denominator of 5 by 2 to get 10, you also have to increase the denominator by the same factor. Two fifths turns into four tenths.

c) In the example, you can not take 7 away from 4 so you must borrow from the whole number. Because you are working with tenths, borrow one whole in the form of ten tenths.  $\frac{10}{10}$  Add to the fraction that is too small.

d) The top fraction is now large enough to be subtracted from!

1)  $16 \frac{1}{2}$

$$\begin{array}{r} 16 \frac{1}{2} \\ - 5 \frac{4}{7} \\ \hline \end{array}$$

2)  $12 \frac{1}{6}$

$$\begin{array}{r} 12 \frac{1}{6} \\ - 9 \frac{3}{4} \\ \hline \end{array}$$

3)  $14 \frac{4}{9}$

$$\begin{array}{r} 14 \frac{4}{9} \\ - 11 \frac{7}{18} \\ \hline \end{array}$$

4)  $4 \frac{4}{5}$

$$\begin{array}{r} 4 \frac{4}{5} \\ - 3 \frac{2}{10} \\ \hline \end{array}$$

5)  $19 \frac{1}{6}$

$$\begin{array}{r} 19 \frac{1}{6} \\ - 6 \frac{4}{9} \\ \hline \end{array}$$

6)  $32 \frac{1}{3}$

$$\begin{array}{r} 32 \frac{1}{3} \\ - 24 \frac{1}{5} \\ \hline \end{array}$$

7)  $24 \frac{3}{16}$

$$\begin{array}{r} 24 \frac{3}{16} \\ - 16 \frac{1}{4} \\ \hline \end{array}$$

8)  $9 \frac{3}{6}$

$$\begin{array}{r} 9 \frac{3}{6} \\ - 6 \frac{2}{3} \\ \hline \end{array}$$

9)  $64 \frac{1}{3}$

$$\begin{array}{r} 64 \frac{1}{3} \\ - 45 \frac{4}{9} \\ \hline \end{array}$$

10)  $32 \frac{1}{6}$

$$\begin{array}{r} 32 \frac{1}{6} \\ - 10 \frac{2}{12} \\ \hline \end{array}$$

11)  $86 \frac{3}{8}$

$$\begin{array}{r} 86 \frac{3}{8} \\ - 83 \frac{5}{16} \\ \hline \end{array}$$

12)  $4 \frac{1}{6}$

$$\begin{array}{r} 4 \frac{1}{6} \\ - 2 \frac{5}{24} \\ \hline \end{array}$$