

Subtracting Fractions

with regrouping

Woo hoo!



First.....let's
remember this
from last year.....

How to change a mixed number to an improper fraction

- Multiply the whole number by the denominator and add the numerator. **REMEMBER POPCORN.....**
- Add the new number to the numerator.
- Put your new number over the denominator.

$$4\frac{1}{2} = \frac{9}{2}$$

Change this mixed number to an improper fraction

- Multiply the whole number times the denominator.
- Add your answer to the numerator.
- Put your new number over the denominator.

$$\begin{array}{r} \text{+}2 \\ \underline{6} \\ \text{---} \\ \text{x}3 \\ \underline{\quad} \\ \text{---} \\ 20 \\ \underline{\quad} \\ \text{---} \\ 3 \end{array}$$

Change this mixed number to an improper fraction

- Multiply the whole number times the denominator.
- Add your answer to the numerator.
- Put your new number over the denominator.

$$\begin{array}{r} 3 \\ \hline \end{array} + \frac{2}{5} = \frac{17}{5}$$

Change this mixed number to an improper fraction

- Multiply the whole number times the denominator.
- Add your answer to the numerator.
- Put your new number over the denominator.

$$\begin{array}{r} 4 \\ \hline \end{array} + \frac{3}{4} = \frac{19}{4}$$

The diagram illustrates the conversion of the mixed number 4 and 3/4 to the improper fraction 19/4. It shows the whole number 4 being multiplied by the denominator 4 (indicated by a red 'x' and a red underline under the 4), resulting in 16. This 16 is then added to the numerator 3 (indicated by a red '+' sign), resulting in the new numerator 19. The denominator remains 4. The final result is 19/4.

Change this mixed number to an improper fraction

- Multiply the whole number times the denominator.
- Add your answer to the numerator.
- Put your new number over the denominator.

$$\begin{array}{r} 8 \\ \hline \end{array} + \begin{array}{r} 3 \\ \hline \end{array} = \begin{array}{r} 43 \\ \hline \end{array}$$
$$\begin{array}{r} \cancel{8} \\ \hline \end{array} \times \begin{array}{r} 5 \\ \hline \end{array} = \begin{array}{r} 5 \\ \hline \end{array}$$

Excellent!!!!



Let's keep
moving.....

What if I'm supposed to subtract a larger fraction from a smaller fraction? Regroup just like you would with whole numbers.

$$\begin{array}{r} \underline{6} \\ \underline{7} \frac{1}{8} \\ - \underline{3} \frac{3}{8} \\ \hline \end{array} \rightarrow \begin{array}{r} \underline{9} \\ \underline{8} \end{array}$$

$$\underline{3} \frac{6}{8} = \underline{3} \frac{3}{4}$$

$$\begin{array}{r} \underline{9} \\ \underline{10} \frac{4}{9} \\ - \underline{4} \frac{7}{9} \\ \hline \end{array} \rightarrow \begin{array}{r} \underline{13} \\ \underline{9} \end{array}$$

$$\underline{5} \frac{6}{9} = \underline{5} \frac{2}{3}$$

Can you regroup with unlike denominators?

Sure, but first
find the LCD
and equivalent
fractions.

Watch this!

$$\begin{array}{r} \underline{8} \\ \underline{9} \\ \underline{5} \\ \hline \end{array} \begin{array}{r} \underline{2} \\ \underline{3} \\ \underline{5} \\ \underline{7} \\ \hline \end{array} \begin{array}{r} \overset{\times 7}{1} \\ \overset{\times 7}{21} \\ \overset{\times 3}{15} \\ \overset{\times 3}{21} \\ \hline \end{array} \begin{array}{r} \underline{14} \\ \underline{21} \\ \underline{15} \\ \underline{21} \\ \hline \end{array} \begin{array}{r} \underline{35} \\ \underline{21} \\ \hline \end{array}$$

$$\begin{array}{r} \underline{3} \\ \underline{20} \\ \underline{21} \end{array}$$

Let's see that again!

Remember, first
find the LCD
and equivalent
fractions.

Watch this!

$$\begin{array}{r} \underline{5} \\ \underline{6} \\ \underline{3} \\ \underline{4} \end{array} \begin{array}{r} \underline{2} \\ \underline{5} \\ \underline{3} \\ \underline{4} \end{array} \begin{array}{r} \times 4 \\ \underline{1} \\ \times 4 \\ \underline{3} \\ \times 5 \\ \underline{15} \\ \times 5 \\ \underline{20} \end{array} \begin{array}{r} \underline{8} \\ \underline{20} \\ \underline{15} \\ \underline{20} \end{array} \begin{array}{r} \underline{28} \\ \underline{20} \end{array}$$

$$\underline{2} \quad \frac{13}{20}$$

How about these!

If you have a whole number, **make a fraction with 0 in the numerator and the same denominator the mixed number has.**

$$\begin{array}{r} \underline{5} \\ \underline{6} \frac{1}{8} \end{array} \rightarrow \frac{\underline{8}}{\underline{8}}$$
$$= \underline{3} \frac{\underline{2}}{\underline{8}}$$

$$\underline{2} \frac{\underline{6}}{\underline{8}} = \boxed{\underline{2} \frac{\underline{3}}{\underline{4}}}$$

$$\begin{array}{r} \underline{8} \\ \underline{9} \frac{1}{7} \end{array} \rightarrow \frac{\underline{7}}{\underline{7}}$$
$$= \underline{5} \frac{\underline{4}}{\underline{7}}$$

$$\boxed{\underline{3} \frac{\underline{3}}{\underline{7}}}$$

Then regroup as we have before!

Remember to simplify if you need to.

Now, you try!!!!

$$\begin{array}{r} \underline{6} \\ \underline{7} \\ \underline{4} \\ \underline{3} \\ \hline \end{array} \frac{1}{4} = \underline{1} \frac{2}{8} = \underline{\underline{\frac{10}{8}}} \\ \underline{3} \\ \underline{8} \\ \underline{3} \\ \underline{8} \\ \hline \end{array} \frac{3}{8} = \underline{\underline{\frac{7}{8}}}$$

$$\begin{array}{r} \underline{9} \\ \underline{10} \\ \underline{6} \\ \underline{4} \\ \hline \end{array} \frac{4}{6} = \underline{1} \frac{12}{18} = \underline{\underline{\frac{30}{18}}} \\ \underline{4} \\ \underline{9} \\ \underline{14} \\ \underline{18} \\ \hline \end{array} \frac{5}{9} = \underline{\underline{\frac{16}{18}}} \\ \underline{5} \\ \underline{16} \\ \underline{18} \\ \underline{5} \\ \underline{8} \\ \underline{9} \\ \hline \end{array}$$

Your turn!!!!

$$\begin{array}{r}
 \underline{8} \\
 \underline{9} \quad \underline{1} \quad \underline{0} \\
 \underline{\quad} \quad \underline{\quad} \quad \underline{\quad} \\
 \rightarrow \quad \underline{6} \\
 \underline{\quad} \quad \underline{6} \\
 \\
 = \quad \underline{1} \quad \underline{2} \\
 \underline{\quad} \quad \underline{\quad} \quad \underline{6} \\
 \hline
 \underline{7} \quad \underline{4} \\
 \underline{\quad} \quad \underline{6} \\
 = \quad \boxed{\underline{7} \quad \underline{2}} \\
 \underline{\quad} \quad \underline{3}
 \end{array}$$

$$\begin{array}{r}
 \underline{14} \\
 \underline{15} \quad \underline{1} \quad \underline{0} \\
 \underline{\quad} \quad \underline{\quad} \quad \underline{\quad} \\
 \rightarrow \quad \underline{9} \\
 \underline{\quad} \quad \underline{9} \\
 \\
 = \quad \underline{6} \quad \underline{4} \\
 \underline{\quad} \quad \underline{\quad} \quad \underline{9} \\
 \hline
 \boxed{\underline{8} \quad \underline{5}} \\
 \underline{\quad} \quad \underline{9}
 \end{array}$$

****Assignment****

WS C-48

Do your best! 😊 😊 😊

