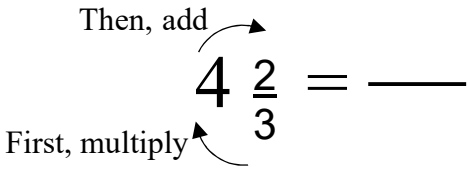
Change Mixed Numbers into Improper Fractions

To change a mixed number into an improper fraction:

1. Multiply the whole number times the denominator,
2. Add the numerator. The answer you get goes on top.
3. The denominator stays the same.

We call this "Circle Around" because it makes a circle.



Practice:

$3\frac{1}{5}$

$7\frac{1}{3}$

$6\frac{3}{4}$

$8\frac{2}{5}$

$9\frac{2}{3}$

$12\frac{3}{4}$

Change Improper Fractions into Mixed Numbers

To change an improper fraction to a mixed number, just divide.

The number on top of the division sign is the whole number.
The remainder is the numerator of your fraction.
The number you divided by is the denominator.

$\frac{14}{3}$ $\qquad$ $3\overline{)14}$

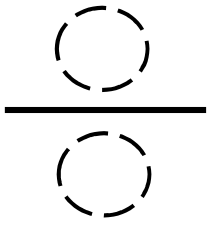
Practice:

$\frac{15}{2}$

$\frac{19}{4}$

$\frac{38}{5}$

Have you ever noticed that a fraction looks like a dividing sign? They did that to show you that fractions mean "divide".



There are 3 ways to add and subtract fractions.

Easy Peasy

If the denominators match, do this.

Make'm Match

If you can multiply the small denominator to make it equal the large denominator, do this.

Zip-Zip-Zup

If you can't use the other methods, do this.

Always look at the denominators first to determine which way to add or subtract the fractions.

Adding and Subtracting Fractions: that have common denominators

It's easy to add and subtract fractions that have the same denominator. Just add or subtract the numerators and keep the denominators the same.

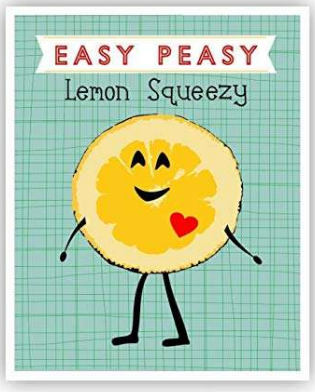
$$\frac{1}{5} + \frac{2}{5} = \frac{3}{5} \qquad \frac{9}{10} - \frac{6}{10} = \frac{3}{10}$$

Practice.

$$\frac{4}{7} + \frac{1}{7} = \qquad \frac{9}{10} - \frac{2}{10} =$$

$$\frac{9}{15} + \frac{2}{15} = \qquad \frac{8}{11} - \frac{6}{11} =$$

$$\frac{50}{97} + \frac{21}{97} = \qquad \frac{57}{125} - \frac{4}{125} =$$



Adding and Subtracting Fractions: by making common denominators

If the denominators are different, but have common factors, change the fraction with the smaller denominator into a fraction whose denominator matches the big one.

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

smaller

$$\frac{3}{8} + \frac{1 \times 2}{4 \times 2}$$

$$\frac{3}{8} + \frac{2}{8} = \frac{5}{8}$$

Practice.

$\frac{3}{10} + \frac{2}{5} =$

$\frac{12}{20} - \frac{1}{4} =$

$\frac{2}{3} + \frac{3}{12} =$

$\frac{2}{3} - \frac{1}{9} =$

$\frac{3}{16} + \frac{1}{4} =$

$\frac{15}{24} - \frac{3}{8} =$

Adding and Subtracting Fractions: using Zip-Zap-Zup

If the denominators are different and they don't have common factors, use Zip-Zip-Zup.

To Zip-Zap-Zup, you multiply three times.

$$\frac{1}{3}+\frac{1}{4}=\frac{1}{3}\overset{1\times4=4}{\underset{\text{multiply}}{\overset{\nearrow}{\times}}}\frac{1}{4}\overset{1\times3=3}{\overset{\nwarrow}{}}=\frac{4+3}{12}=\frac{7}{12}$$

3 x 4 = 12

Don't forget to reduce!

$$\frac{1}{2}-\frac{3}{8}=\frac{1}{2}\overset{1\times8=8}{\underset{\text{multiply}}{\overset{\nearrow}{\times}}}\frac{3}{8}\overset{2\times3=6}{\overset{\nwarrow}{}}=\frac{8-6}{16}=\frac{2}{16}=\frac{1}{8}$$

2 x 8 = 16

Practice.

$\frac{1}{2}+\frac{2}{5}=$

$\frac{9}{10}-\frac{1}{3}=$

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

$\frac{5}{9}-\frac{1}{2}=$

$\frac{2}{7}+\frac{2}{3}=$

$\frac{9}{11}-\frac{2}{3}=$

Practice Adding and Subtraction Fractions

$\frac{2}{11} + \frac{5}{11} =$

$\frac{9}{10} - \frac{8}{10} =$

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

$\frac{7}{9} - \frac{1}{3} =$

$\frac{3}{7} + \frac{1}{2} =$

$\frac{2}{3} - \frac{1}{4} =$

On Monday you walked $^3/_8$ of a mile and on Tuesday you walked $^1/_2$ of a mile.
How far did you walk all together?

A recipe calls for ¾ cup of flour, but you only have $^1/_3$ cup.
Subtract to find out how much more flour you need?

Adding Mixed Numbers

To add mixed numbers, add the fractions, then add the whole numbers.

$$\begin{array}{rr} 5 & \frac{1}{4} \\ + \; 2 & \frac{1}{3} \\ \hline 7 & \frac{1}{12} \end{array}$$

$$\frac{1}{4} + \frac{1}{3} = \frac{7}{12}$$

Practice.

$$\begin{array}{r} 3\frac{1}{5} \\ +\,4\frac{2}{3} \\ \hline \end{array}$$

$$\begin{array}{r} 6\frac{2}{5} \\ +\,7\frac{1}{4} \\ \hline \end{array}$$

$$\begin{array}{r} 24\frac{1}{8} \\ +\,11\frac{1}{4} \\ \hline \end{array}$$

Subtracting a Fraction from a Whole Number

When you subtract a fraction from a whole number:

1. Take one away from the whole number.
2. Take the one and divide it into a number equal to the denominator.
3. Subtract the fraction, and you're done!

$$\begin{array}{r} 6 \\ -\ \frac{1}{7} \\ \hline \end{array} \qquad \begin{array}{r} 5\ \frac{7}{7} \\ -\ \frac{1}{7} \\ \hline 5\ \frac{6}{7} \end{array}$$

Practice.

$$\begin{array}{r} 9 \\ -\ \frac{3}{5} \\ \hline \end{array}$$

$$\begin{array}{r} 12 \\ -\ \frac{4}{7} \\ \hline \end{array}$$

$$\begin{array}{r} 25 \\ -\ \frac{1}{8} \\ \hline \end{array}$$

Subtracting Mixed Numbers

Subtract the fractions first, then subtract the whole numbers.

No borrowing:

$$\begin{array}{r} 8\frac{3}{5} \\ -\,2\frac{1}{2} \\ \hline 6\frac{1}{10} \end{array} \qquad \frac{3}{5} - \frac{1}{2} = \frac{1}{10}$$

Practice.

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

$$\begin{array}{r} 10\ \frac{4}{5} \\ -\,3\ \frac{1}{5} \\ \hline \end{array}$$

$$\begin{array}{r} 14\ \frac{3}{4} \\ -\,8\ \frac{1}{2} \\ \hline \end{array}$$