

Fractions in Plain English

To “change an improper fraction into a mixed number:”

Divide the bottom into the top. Put the remainder over the bottom.

Example: $\frac{12}{7} = 1\frac{5}{7}$ (7 goes into 12 one time with 5 left over.)

To “change a mixed number into an improper fraction:”

Multiply the bottom times the whole number, then add the top. Place this answer over the bottom.

Example: $2\frac{3}{8} = \frac{19}{8}$ (8 time 2 is 16, 16 plus 3 is 19)

To “Simplify:”

Find a common factor (a number that goes into the top and bottom) and divide it into the top and bottom. Repeat this as long as there is a common factor.

Example: $\frac{24}{36} = \frac{12}{18} = \frac{6}{9} = \frac{2}{3}$

 divide divide divide
 by 2 by 2 by 3

To add (or subtract) fractions:

If the bottoms are the same, just add the tops and keep the bottom.

If the bottoms are different, find the LCD (or any common number they will both go into). Convert both fractions to this denominator, then add the tops and keep the bottom.

In all cases, reduce the final answer if possible.

Example(s):

$$\begin{array}{r} \frac{1}{5} \\ + \frac{3}{5} \\ \hline \frac{4}{5} \end{array} \qquad \begin{array}{r} \frac{3}{8} \cdot \frac{3}{3} = \frac{9}{24} \\ \frac{1}{6} \cdot \frac{4}{4} = \frac{4}{24} \\ + \frac{6}{24} \\ \hline \frac{13}{24} \end{array}$$

To Multiply fractions:

Easy! Top times top. Bottom times bottom. Reduce if necessary.

$$\frac{a}{b} \times \frac{c}{d} = \frac{ac}{bd}$$

To Divide fractions:

Keep! Change! Flip!

Keep the first fraction. Change the division sign to multiplication. Flip the last fraction.

Then multiply (see above).

$$\frac{a}{b} \div \frac{c}{d} \quad \text{Keep the } \frac{a}{b}, \text{ change the } \div, \text{ and flip the } \frac{c}{d} \longrightarrow \frac{a}{b} \times \frac{d}{c} = \frac{ad}{bc}$$