To divide both numerator and denominator of a fraction by the same number does not change the value of the fraction, since it first divides the fraction by the given number and then multiplies the result by the same number.

The numerator and denominator are called the terms of a fraction. When the terms of a fraction have no common factor the fraction is said to be in its lowest terms.

When the terms of a fraction have one or more common factors, other fractions may be found which have the same value as the original fractions, since the numerator and denominator of the original fraction may be divided by any of their common factors.

A fraction may be reduced to its lowest terms by dividing both numerator and denominator by their highest common factor.

Two or more fractions not having the same denominator may be changed to equivalent fractions having a common denominator in the following concrete manner: Take for example $\frac{3}{4}$ and $\frac{4}{5}$. If each quarter in any object be cut into two equal parts there will be 8 equal parts in the object and the parts will be called eighths. If each quarter be cut into three equal parts there will be 12 equal parts in the object and the parts will be called twelfths. By cutting each quarter in 4, 5, 6 equal parts you will obtain sixteenths, twentieths, twenty-fourths, etc.

In like manner by cutting each of the fifths into two, three, four, five, etc., equal parts we obtain tenths, fifteenths, twentieths, twenty-fifths, etc.

It will be seen that both fourths and fifths may be made into twentieths.

Since each fourth makes 5 twentieths, the 3 fourths makes 3 times 5 twentieths, that is makes, $\frac{15}{20}$ therefore $\frac{3}{4} = \frac{15}{20}$.

And since each fifth makes 4 twentieths the 4 fifths makes 4 times 4 twentieths, that is makes $\frac{16}{20}$ therefore $\frac{4}{5} = \frac{16}{20}$.

Many examples like the above should be solved with actual objects actually divided or cut up, and with imaginary objects divided in imagination before attempting addition and subtraction of fractions.

To reduce mixed numbers to improper fractions,—

Take for example $7\frac{3}{4}$.