Fractions

A <u>proper fraction </u>is less than 1. The numerator (top number) is smaller than the denominator (bottom number). Ex. $\dfrac{1}{2}$

An <u>improper fraction </u>equals one or more than one. Either the numerator and denominator are the same number or the numerator is larger than the denominator.

Examples: $\dfrac{7}{7}$ $\dfrac{9}{6}$ $\dfrac{20}{12}$

Any fraction with the same numerator and denominator equals 1.

$$\dfrac{8}{8} \ = \ 1$$

A <u>mixed number</u> is a number and a fraction together.

Example 5 $\dfrac{1}{6}$

Changing improper fractions to mixed numbers:

Divide the denominator into the numerator.

Ex. $\dfrac{20}{3}$

$$3 \overline{)20} \quad \begin{array}{r} 6\ 2/3 \\ \hline 20 \\ -18 \\ \hline 2 \end{array}$$

Changing Mixed Numbers into Fractions

Multiply the whole number by the denominator

Ex. $6 \dfrac{3}{4} =$

6 x 4 = 24
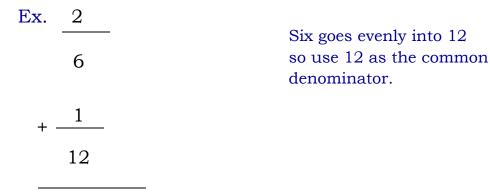
Then add that to the numerator

24 + 3 = 27

Answer $\dfrac{27}{4}$

Adding Fractions, Same Denominators

If the denominators are the same, you just add the numerators. Always reduce the answer to simplest terms.

Ex. $\dfrac{1}{3}$ + $\dfrac{1}{3}$ = $\dfrac{2}{3}$

Adding Fractions, Different Denominators

If the denominators are different, you must first find a common denominator.

First check to see if the smaller denominator goes into the larger denominator evenly.

Ex. $\dfrac{2}{6}$

$+ \dfrac{1}{12}$

Six goes evenly into 12 so use 12 as the common denominator.

$$\frac{2}{6} \times \frac{2}{2} = \frac{4}{12}$$

To convert 2/6 into 12ths, multiply numerator and denominator by 2.

Now you can add 4/12 and 1/12 easily because they have the same denominator. Just add the numerators.

Answer: $\frac{5}{12}$