

Mixed Numbers and Improper Fractions

There are two ways of expressing fractions representing numbers greater than one, mixed number and improper fractions.

Mixed numbers are expressed as a whole number part and a fractional part in the form

$$A\frac{B}{C} \text{ like } 3\frac{1}{2}$$

Improper Fractions are fractions whose numerator is larger than the denominator

$$\frac{A}{B} \text{ where } A > B$$

Mixed Numbers to Improper Fractions

To convert a mixed number to an improper fraction

Multiply denominator by whole number part

Add numerator

Place over the denominator

Ex.

Convert $3\frac{1}{2}$ to an improper fraction

Multiply denominator by whole number part – $3 * 2 = 6$

Add numerator – $6 + 1 = 7$

Place over the denominator - $\frac{7}{2}$

Ex.

Convert $5\frac{3}{4}$ to an improper fraction

$5 * 4 = 20$

$20 + 3 = 23$

so we get $\frac{23}{4}$

Improper Fractions to Mixed Numbers

To convert improper fractions to mixed numbers, we have to remember the long division that we learned in elementary school – division with remainders.

To convert from Improper Fractions to Mixed Numbers

Perform implied division with remainder

Write quotient as whole number part

Place remainder over divisor as fractional part

Ex.

Write $\frac{19}{9}$ as a mixed number

$$9 \overline{)19} R1 \text{ so we get } 2\frac{1}{9}$$

Ex.

Write $\frac{23}{4}$ as a mixed number

$$4 \overline{)23} R3 \text{ so we get } 5\frac{3}{4}$$