

Converting Between Mixed Numeral Form and Improper Fraction Form

Mixed Numeral \longrightarrow Improper Fraction

$$6 \frac{2}{3}$$

Method 1

1. Solving for the **Numerator** : Multiply the **whole number** by the number in the **denominator**.
Then, add the number in the **numerator**.

$$(6 \cdot 3) + 2 = 20$$

2. Solving for the **Denominator** : Keep the same **denominator** as the mixed numeral.

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3. Simplify the improper fraction if possible.

$$\frac{20}{3}$$

Improper Fraction

Converting Between Mixed Numeral Form and Improper Fraction Form

Mixed Numeral \rightarrow Improper Fraction

$$7 \frac{2}{5}$$

Method 2

1. Form a corresponding number of **complete fractions** according to the **whole number** of the mixed numeral. The **complete fractions** will use the value of the **denominator** of the mixed numeral for the values of the numerator and denominator.

$$\underbrace{\frac{5}{5} + \frac{5}{5} + \frac{5}{5} + \frac{5}{5} + \frac{5}{5} + \frac{5}{5} + \frac{5}{5}}_7 + \frac{2}{5}$$

2. Add the **complete fraction(s)** and the remaining normal fraction.

$$\frac{5}{5} + \frac{5}{5} + \frac{5}{5} + \frac{5}{5} + \frac{5}{5} + \frac{5}{5} + \frac{5}{5} + \frac{2}{5} = \frac{37}{5}$$

3. Simplify the improper fraction if possible.

$$\frac{37}{5}$$

Improper Fraction

Converting Between Mixed Numeral Form and Improper Fraction Form

Improper Fraction \longrightarrow Mixed Numeral

$$\frac{122}{8}$$

Method 1

1. Divide the **numerator** by the **denominator**, and solve for a **remainder**.

Quotient \longrightarrow 015

Divisor \longrightarrow 8

$$\begin{array}{r} \overline{)122} \\ \underline{-8} \\ 42 \\ \underline{-40} \\ 2 \end{array}$$

Remainder \longrightarrow 2

2. The **quotient** corresponds to the **whole number**, the **remainder** corresponds to the **numerator**, and the **divisor** corresponds to the **denominator**.

$$15 \frac{2}{8}$$

3. Simplify the mixed numeral if possible.

$$15 \frac{1}{4}$$

Mixed Numeral

Converting Between Mixed Numeral Form and Improper Fraction Form

Improper Fraction \longrightarrow Mixed Numeral

$$\frac{13}{5}$$

Method 2

1. Break the improper fraction down into **complete fraction(s)** and a normal fraction.

$$\frac{5}{5} + \frac{5}{5} + \frac{3}{5}$$

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2. The number of **complete fractions** corresponds to the **whole number**, and the normal fraction produced is the fraction of the mixed numeral.

$$2 \frac{3}{5}$$

3. Simplify the mixed numeral if possible.

$$2 \frac{3}{5}$$

Mixed Numeral

Converting Between Mixed Numeral Form and Improper Fraction Form

Negative Numbers

All conversion methods are valid for negative numbers; however, the negative sign should be ignored during the conversion process and reapplied to the final result.

Mixed Numeral \rightarrow Improper Fraction

$$-6 \frac{2}{3}$$

Method 1

$$(6 \cdot 3) + 2 = 20 \rightarrow \frac{20}{3} \rightarrow -\frac{20}{3}$$

Ignore Negative Sign

Reapply Negative Sign

Method 2

$$\frac{3}{3} + \frac{3}{3} + \frac{3}{3} + \frac{3}{3} + \frac{3}{3} + \frac{3}{3} + \frac{2}{3} = \frac{20}{3} \rightarrow -\frac{20}{3}$$

Ignore Negative Sign

Reapply Negative Sign

Improper Fraction \rightarrow Mixed Numeral

$$-\frac{20}{3}$$

Method 1

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

Ignore Negative Sign

Reapply Negative Sign

Method 2

$$\underbrace{\frac{3}{3} + \frac{3}{3} + \frac{3}{3} + \frac{3}{3} + \frac{3}{3} + \frac{3}{3}}_6 + \frac{2}{3} = 6 \frac{2}{3} \rightarrow -6 \frac{2}{3}$$

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Ignore Negative Sign

Reapply Negative Sign