Converting Between Mixed Numeral Form and Improper Fraction Form

Mixed Numeral → 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.

$$3$$

3. Simplify the improper fraction if possible.

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

Improper Fraction

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Mixed Numeral → **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 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

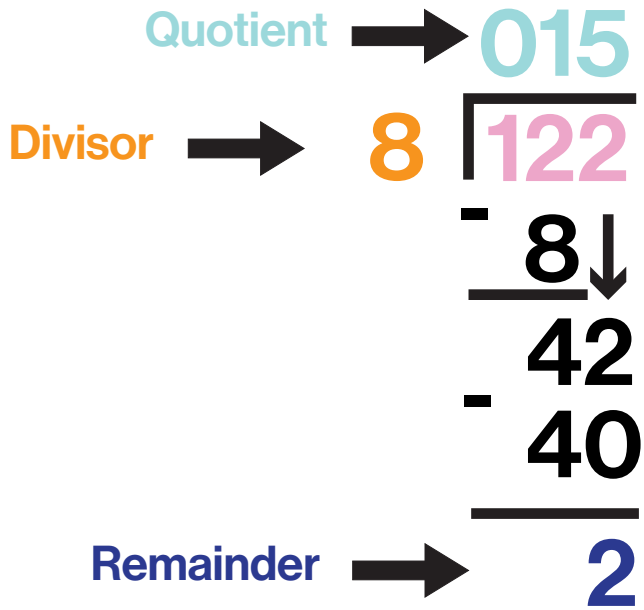
Converting Between Mixed Numeral Form and Improper Fraction Form

Improper Fraction → Mixed Numeral

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

Method 1

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



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

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Improper Fraction → Mixed Numeral

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

Method 2

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

$$\underbrace{\frac{5}{5} + \frac{5}{5}}_{2} + \frac{3}{5}$$

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

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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 → 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 → Mixed Numeral

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

Method 1

$$3\overline{)20} = 06 \text{ R } 2 \rightarrow 6\frac{2}{3} \rightarrow -6\frac{2}{3}$$

Ignore Negative Sign — Reapply Negative Sign

Method 2

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

Ignore Negative Sign — Reapply Negative Sign