



Converting Between Mixed Number and Improper Fractions

Prior Knowledge:

- Writing fractions in their simplest form.
- Division with remainders.

In a fraction, the denominator (the bottom part) tells you how many equal parts there are in a whole and the numerator (top part) tells you how many parts you have.

A **proper** fraction contains a numerator which is **less than** the denominator. For example, $\frac{1}{5}$.

An **improper** fraction (also referred to as a top-heavy fraction) contains a numerator which is **larger** than or **equal to** the denominator. For example, $\frac{4}{4}$ or $\frac{5}{3}$.

A **mixed number** fraction contains a whole number and a proper fraction. For example, $5\frac{1}{6}$.

Converting an Improper Fraction to a Mixed Number Fraction

Step 1: Divide the numerator by the denominator.

Step 2: Write down the whole number.

Step 3: Write the remainder as the numerator of the new fraction. The denominator will usually stay the same; always check the question to see if you've been asked to write the answer in its simplest form.

Example

Write $\frac{9}{4}$ as a mixed number fraction.

Start by dividing the numerator by the denominator, writing down the whole number and its remainder.

$9 \div 4 = 2$ with a remainder of **1**.

Now, write as a fraction: $2\frac{1}{4}$

Converting a Mixed Number Fraction to an Improper Fraction

Step 1: Multiply the whole number by the denominator.

Step 2: Add this to the numerator.

Step 3: Write this answer as the new numerator. The denominator stays the same.

Example

Write $3\frac{4}{7}$ as an improper fraction.

Start by multiplying the whole number by the denominator. $3 \times 7 = 21$

Add this to the numerator. $21 + 4 = 25$

Write this answer as the new numerator, keeping the same denominator.

$$3\frac{4}{7} = \frac{25}{7}$$



Your Turn

1. Write each fraction as a mixed number fraction, in its simplest form.

a. $\frac{12}{5}$

e. $\frac{20}{9}$

i. $\frac{41}{12}$

b. $\frac{8}{3}$

f. $\frac{31}{17}$

j. $\frac{65}{4}$

c. $\frac{15}{6}$

g. $\frac{77}{8}$

k. $\frac{212}{10}$

d. $\frac{4}{3}$

h. $\frac{104}{15}$

l. $\frac{502}{4}$

2. Write each fraction as an improper fraction.

a. $1\frac{1}{2}$

e. $9\frac{2}{3}$

i. $12\frac{1}{4}$

b. $6\frac{1}{3}$

f. $1\frac{9}{14}$

j. $1\frac{4}{25}$

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

g. $4\frac{7}{9}$

k. $7\frac{2}{13}$

d. $2\frac{5}{8}$

h. $3\frac{5}{11}$

l. $4\frac{5}{17}$



Converting Between Mixed Number and Improper Fractions

3. Match the improper fraction to its equivalent mixed number fraction.

A	$4\frac{3}{5}$	$\frac{13}{5}$	<input type="checkbox"/>
B	$2\frac{10}{16}$	$\frac{23}{5}$	<input type="checkbox"/>
C	$3\frac{1}{3}$	$\frac{13}{8}$	<input type="checkbox"/>
D	$1\frac{5}{8}$	$\frac{21}{8}$	<input type="checkbox"/>
E	$2\frac{6}{10}$	$\frac{10}{3}$	<input type="checkbox"/>

Challenge

Write a mixed number fraction between $\frac{27}{5}$ and $5\frac{1}{5}$.
