

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** × **7** = **21** Add this to the numerator. **21** + **4** = **25**

Write this answer as the new numerator, keeping the same denominator. $3\frac{4}{7} = \frac{25}{7}$

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Your Turn

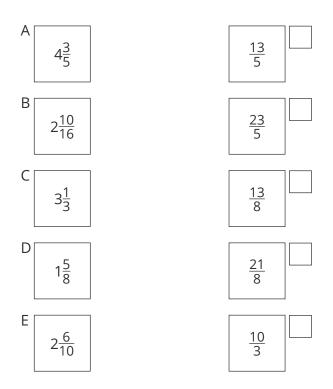
1. Write each fraction as a mixed number fraction, in its simplest form.

a. $\frac{12}{5}$ e. $\frac{20}{9}$ i. $\frac{41}{12}$ b. $\frac{8}{3}$ f. $\frac{31}{17}$ j. <u>65</u> c. $\frac{15}{6}$ g. <u>77</u> 8 k. <u>212</u> 10 h. <u>104</u> 15 I. $\frac{502}{4}$ d. $\frac{4}{3}$ 2. Write each fraction as an improper fraction. e. 9<u>2</u> a. $1\frac{1}{2}$ i. 12<u>1</u> f. 1<u>9</u> b. $6\frac{1}{3}$ j. 1<u>4</u>25 c. $5\frac{2}{7}$ g. 4<u>7</u> k. $7\frac{2}{13}$ d. 2⁵/₈ h. 3<u>5</u> I. 4<u>5</u>

ВЕТОИВ МАТНЯ



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



Challenge

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