

Lecture Notes

Notes

- A **mixed number** is a **whole number** and a **fraction** combined into one “mixed” number.
- Ex: $6\frac{5}{7}$ is pronounced as “six *and* five-sevenths.”
- This is not multiplication. We are not multiplying 6 times $\frac{5}{7}$. If we did, it would be $6 \cdot \frac{5}{7}$

Convert a Mixed Number to an Improper Fraction

Example: $15\frac{3}{8}$ then $\frac{120 + 3}{8}$ then $\frac{123}{8}$

- **Step 1:** Multiply the denominator (8) with the whole number (15) to get a temporary result (**120**).
- **Step 2:** Add temporary result (**120**) to numerator (3) to obtain a new numerator (**123**).
- **Step 3:** Keep denominator (8) the same.

Write the mixed number as an improper fraction.

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

$$7\frac{2}{7} = \frac{51}{7}$$

Write the mixed number as an improper fraction.

$$1\frac{1}{10}$$

$$1\frac{1}{10} = \frac{11}{10}$$

Convert to fractional notation.

$$10\frac{1}{2}$$

$$10\frac{1}{2} = \frac{21}{2}$$

Write the mixed number as an improper fraction.

$$8\frac{1}{9}$$

$$8\frac{1}{9} = \frac{73}{9}$$

(Simplify your answer. Type an integer or an improper fraction.)

Convert an Improper Fraction to a Mixed Number

Example: $\frac{123}{8}$ then $8 \overline{) \begin{array}{r} 123 \\ -120 \\ \hline 3 \end{array}}$ then $15\frac{3}{8}$

- **Step 1:** Convert from fraction format into long division format.
 - The numerator is the dividend, and it goes *inside* the “box” (division symbol).
 - The denominator is the divisor, and it goes to the *left side* of the “box.”
- **Step 2:** Perform long division.
 - Quotient is 15.
 - **R**emainder is 3.
 - **D**ivisor is 8.
- **Step 3:** Create a mixed number format using the letters “**Q R D**”, or same as **Q** and **R**÷**D**.

$$\text{Quotient (15)} \frac{\text{Remainder (3)}}{\text{Divisor (8)}} = 15\frac{3}{8}$$

Convert to a mixed number.

$$\frac{19}{5}$$

$$\frac{19}{5} = 3\frac{4}{5}$$

Write the following improper fraction as a whole or mixed number.

$$\frac{168}{6}$$

$$\frac{168}{6} = 28 \text{ (Type a whole number, proper fraction, or mixed number.)}$$

- Sometimes the denominator divides evenly into the numerator.
- If that happens, then there will be no remainder so the answer will be a whole number.

Write the improper fraction as a mixed number in simplest form.

$$\frac{46}{7}$$

$$\frac{46}{7} = 6\frac{4}{7}$$

(Simplify your answer. Type a mixed number.)

Write the improper fraction as a mixed number in simplest form.

$$\frac{25}{9}$$

$$\frac{25}{9} = 2\frac{7}{9}$$

(Simplify your answer. Type a mixed number.)