

Mixed Numbers and Improper Fractions

A **mixed number** is the sum of a whole number and a fraction. An **improper fraction** is a fraction with a numerator that is greater than or equal to the denominator.

mixed number: $8\frac{1}{2}$

improper fraction: $\frac{17}{2}$

To write a mixed number as an improper fraction, use the following steps.

- Multiply the whole number by the denominator.
- Add the numerator.
- Write the sum as the numerator of the improper fraction.

EXAMPLES

Write Mixed Numbers as Improper Fractions

Write each mixed number as an improper fraction.

1

$6\frac{1}{2}$

$$6\frac{1}{2} = \frac{(6 \cdot 2) + 1}{2} \quad \leftarrow \begin{array}{l} \text{Multiply 6 by 2. Add 1.} \\ \text{The denominator is 2.} \end{array}$$

$$= \frac{12 + 1}{2} \text{ or } \frac{13}{2} \quad \text{Simplify.}$$

2

$3\frac{4}{5}$

$$3\frac{4}{5} = \frac{(3 \cdot 5) + 4}{5} \quad \leftarrow \begin{array}{l} \text{Multiply 3 by 5. Add 4.} \\ \text{The denominator is 5.} \end{array}$$

$$= \frac{15 + 4}{5} \text{ or } \frac{19}{5} \quad \text{Simplify.}$$

To write an improper fraction as a mixed number, divide the numerator by the denominator. Write the remainder as the numerator of the fraction.

EXAMPLE

Write Improper Fractions as Mixed Numbers

3

Write $\frac{7}{4}$ as a mixed number.

$$7 \div 4 = 1 \text{ R } 3 \quad \text{Divide the numerator by the denominator.}$$

$$= 1\frac{3}{4}$$

Write the remainder as the numerator of the fraction.

$$\text{So, } \frac{7}{4} = 1\frac{3}{4}.$$