



Name \_\_\_\_\_ Date \_\_\_\_\_

# Mixed Numbers and Improper Fractions

(pages 198–201)

A **mixed number** shows the sum of a whole number and a fraction. For example,  $2\frac{5}{6}$  is a mixed number that means  $2 + \frac{5}{6}$ . A fraction such as  $\frac{8}{7}$ , where the numerator is greater than or equal to the denominator, is known as an **improper fraction**. You can rewrite a mixed number as an improper fraction.

<p><b>Use Paper and Pencil to Express a Mixed Number as an Improper Fraction.</b></p>	<p>To write a mixed number as an improper fraction, first multiply the whole number by the denominator and add the numerator. Write this sum over the denominator. <math>2\frac{1}{8} = \frac{(2 \times 8) + 1}{8} = \frac{17}{8}</math></p>
<p><b>Divide to Express an Improper Fraction as a Mixed Number.</b></p>	<p>Express <math>\frac{5}{3}</math> as a mixed number. Divide the numerator by the denominator.</p> <p><math>\begin{array}{r} 1 \\ 3 \overline{)5} \\ \underline{-3} \\ 2 \end{array}</math> Write the remainder in the numerator of a fraction that has the divisor as the denominator. So <math>\frac{5}{3} = 1\frac{2}{3}</math>.</p>

## EXAMPLES

**A** Express  $3\frac{2}{3}$  as an improper fraction.

$$3\frac{2}{3} = \frac{(3 \times 3) + 2}{3} = \frac{11}{3}$$

*Multiply 3 by 3 and add 2. Write the result over 3.*

**B** Express  $\frac{8}{7}$  as a mixed number.

$$8 \div 7 = 1 \text{ R}1$$

*Write the remainder in the numerator of a fraction that has the divisor as the denominator.*

$$\frac{8}{7} = 1\frac{1}{7}$$

## PRACTICE

**Express each mixed number as an improper fraction.**

1.  $4\frac{1}{7}$

2.  $10\frac{2}{5}$

3.  $3\frac{1}{2}$

4.  $5\frac{5}{9}$

**Express each improper fraction as a mixed number.**

5.  $\frac{11}{2}$

6.  $\frac{16}{5}$

7.  $\frac{23}{8}$

8.  $\frac{25}{3}$



**9. Standardized Test Practice** Express two and two-ninths as an improper fraction.

**A**  $\frac{22}{9}$

**B**  $\frac{20}{9}$

**C**  $\frac{18}{9}$

**D**  $\frac{12}{9}$

Answers: 1.  $\frac{29}{7}$  2.  $\frac{52}{5}$  3.  $2\frac{2}{7}$  4.  $\frac{9}{50}$  5.  $5\frac{2}{9}$  6.  $3\frac{1}{5}$  7.  $2\frac{7}{8}$  8.  $8\frac{1}{8}$  9. B