

## Section Overview

## Estimating with Fractions

## Lesson 4-1

**Why?** Estimation can be used to determine whether answers are reasonable.

Round each fraction in a sum or difference to a benchmark, and then add or subtract. To round, compare the numerator to the denominator.

$$\frac{9}{50} \text{ rounds to } 0.$$

The numerator is much smaller than the denominator.

$$\frac{9}{20} \text{ rounds to } \frac{1}{2}.$$

The numerator is about one half the denominator.

$$\frac{9}{11} \text{ rounds to } 1.$$

The numerator is close to the denominator.

Benchmarks are  $0$ ,  $\frac{1}{2}$ ,  $1$ , and so on.

## Adding and Subtracting Fractions

## Lesson 4-2

**Why?** Numerous problem-solving situations require the addition and subtraction of fractions, including some problems involving weights and distances.

To add or subtract fractions, first write equivalent fractions with common denominators, and then add or subtract the numerators.

$$\begin{aligned} \frac{1}{3} + \frac{2}{5} &= \frac{5}{15} + \frac{6}{15} \\ &= \frac{5+6}{15} \\ &= \frac{11}{15} \end{aligned}$$

Equivalent fractions with a **common denominator**

$$\begin{aligned} \frac{7}{8} - \frac{1}{10} &= \frac{35}{40} - \frac{4}{40} \\ &= \frac{35-4}{40} \\ &= \frac{31}{40} \end{aligned}$$

## Adding and Subtracting Mixed Numbers

## Lesson 4-3

**Why?** Students must know how to add and subtract mixed numbers in order to solve problems involving recipes and other measurement applications.

To add or subtract mixed numbers, first add the integers, and then add the fractions.

$$\begin{aligned} 1\frac{1}{4} + 4\frac{4}{5} &= 1\frac{5}{20} + 4\frac{16}{20} \\ &= 5 + \frac{21}{20} \\ &= 5 + 1\frac{1}{20} \\ &= 6\frac{1}{20} \end{aligned}$$

Equivalent fractions with a **common denominator**

$$\begin{aligned} 5 - \frac{2}{3} &= 4\frac{3}{3} - \frac{2}{3} \\ &= 4\frac{1}{3} \end{aligned}$$

Rewrite 5 as  $4\frac{3}{3}$