

Lesson 5-1

Example 1 Estimate with Mixed Numbers

Estimate $4\frac{7}{8} + 2\frac{1}{3}$.

$$4\frac{7}{8} + 2\frac{1}{3} \rightarrow 5 + 2 = 7$$

The sum is *about* 7.

Example 2 Estimate with Mixed Numbers

Estimate $4\frac{1}{4} \times 2\frac{5}{6}$.

$$4\frac{1}{4} \times 2\frac{5}{6} \rightarrow 4 \times 3 = 12$$

The product is *about* 12.

Example 3 Estimate with Fractions

Estimate $\frac{3}{8} + \frac{9}{10}$.

$\frac{3}{8}$ is about $\frac{1}{2}$, and $\frac{9}{10}$ is about 1.

$$\text{So, } \frac{3}{8} + \frac{9}{10} \rightarrow \frac{1}{2} + 1 = 1\frac{1}{2}$$

The sum is *about* $1\frac{1}{2}$.

Example 4 Estimate with Fractions

Estimate $\frac{11}{12} - \frac{1}{8}$.

$\frac{11}{12}$ is about 1, and $\frac{1}{8}$ is about 0.

So, $\frac{11}{12} - \frac{1}{8} \rightarrow 1 - 0 = 1$

The difference is *about* 1.

Example 5 Estimate with Fractions

Estimate $\frac{7}{9} \div \frac{5}{6}$.

$\frac{7}{9}$ is about 1, and $\frac{5}{6}$ is about 1.

So, $\frac{7}{9} \div \frac{5}{6} \rightarrow 1 \div 1 = 1$

The quotient is *about* 1.

Example 6 Use Compatible Numbers

Estimate $\frac{1}{6} \cdot 19$.

$$\frac{1}{6} \cdot 19 \rightarrow \frac{1}{6} \cdot 18 = 3 \quad \text{Round 19 to 18, since 18 is divisible by 6.}$$

The product is *about* 3.

Example 7 Use Compatible Numbers

Estimate $11\frac{7}{8} \div 3\frac{1}{7}$.

$$11\frac{7}{8} \div 3\frac{1}{7} \rightarrow 12 \div 3\frac{1}{7} \quad \text{Round } 11\frac{7}{8} \text{ to 12.}$$

$$\rightarrow 12 \div 3 = 4 \quad \text{Round } 3\frac{1}{7} \text{ to 3, since 12 is divisible by 3.}$$

The quotient is *about* 4.

Example 8 Estimate to Solve a Problem

GARDENING Amanda is designing a new garden that will have an area of $24\frac{7}{9}$ square feet. She wants $\frac{2}{5}$ to be used for planting roses. Estimate the area of the garden that will be planted with roses.

Words The area for roses is $\frac{2}{5}$ of the garden area.

Variable Let x represent the area for roses.

Equation $x = \frac{2}{5} \cdot 24\frac{7}{9}$

$x \approx \frac{2}{5} \cdot 25$ Round $24\frac{7}{9}$ to 25 since 25 is divisible by 5.

$x \approx 10$ $\frac{1}{5}$ of 25 is 5, so $\frac{2}{5}$ of 25 is $2 \cdot 5$ or 10.

The roses will cover an area of about 10 square feet.