

6-1 Study Guide and Intervention**Ratios**

Any ratio can be written as a fraction. To write a ratio comparing measurements, such as units of length or units of time, both quantities must have the same unit of measure. Two ratios that have the same value are **equivalent ratios**.

Example 1 Write the ratio 15 to 9 as a fraction in simplest form.

$$\begin{aligned} 15 \text{ to } 9 &= \frac{15}{9} && \text{Write the ratio as a fraction.} \\ &= \frac{5}{3} && \text{Simplify.} \end{aligned}$$

Written as a fraction in simplest form, the ratio 15 to 9 is $\frac{5}{3}$.

Example 2 Determine whether the ratios *10 cups of flour in 4 batches of cookies* and *15 cups of flour in 6 batches of cookies* are equivalent ratios.

Compare ratios written in simplest form.

$$10 \text{ cups:}4 \text{ batches} = \frac{10 \div 2}{4 \div 2} \text{ or } \frac{5}{2} \qquad \text{Divide the numerator and denominator by the GCF, 2}$$

$$15 \text{ cups:}6 \text{ batches} = \frac{15 \div 3}{6 \div 3} \text{ or } \frac{5}{2} \qquad \text{Divide the numerator and denominator by the GCF, 3}$$

Since the ratios simplify to the same fraction, the ratios of cups to batches are equivalent.

Exercises

Write each ratio as a fraction in simplest form.

1. 30 to 12 $\frac{5}{2}$

2. 5:20 $\frac{1}{4}$

3. 49:42 $\frac{7}{6}$

4. 15 to 13 $\frac{15}{13}$

5. 28 feet:35 feet $\frac{4}{5}$

6. 24 minutes to 18 minutes $\frac{4}{3}$

7. 75 seconds:150 seconds $\frac{1}{2}$

8. 12 feet:60 feet $\frac{1}{5}$

Determine whether the ratios are equivalent. Explain.

9. $\frac{3}{4}$ and $\frac{12}{16}$
yes; $\frac{3}{4} = \frac{12}{16}$

10. 12:17 and 10:15
no; $12:17 = \frac{12}{17}$,

$10:15 = \frac{2}{3}$,
and $\frac{12}{17} \neq \frac{2}{3}$

11. $\frac{25}{35}$ and $\frac{10}{14}$
yes; $\frac{25}{35} = \frac{5}{7}$
and $\frac{10}{14} = \frac{5}{7}$

12. 2 lb:36 oz and 3 lb:44 oz
no; $2 \text{ lb:}36 \text{ oz} = \frac{8}{9}$,
 $3 \text{ lb:}44 \text{ oz} = \frac{12}{11}$, and $\frac{8}{9} \neq \frac{12}{11}$

13. 1 ft:4 in. and 3 ft:12 in.
yes; $1 \text{ ft:}4 \text{ in.} = \frac{3}{1}$
and $3 \text{ ft:}12 \text{ in.} = \frac{3}{1}$