4–2 Simplifying Fractions

MAIN IDEA

- Express fractions in simplest form.

BUILD YOUR VOCABULARY (pages 86–87)

Equivalent fractions are fractions that have the _____.

EXAMPLES **Write Equivalent Fractions**

Replace each ■ with a number so the fractions are equivalent.

1. $\frac{6}{13} = \frac{■}{52}$

Since $13 \times 4 = 52$, multiply the numerator and denominator by 4.

$\frac{6}{13} \overset{\times 4}{=} \frac{■}{52}$, so $\frac{6}{13} = \frac{\quad}{52}$.

2. $\frac{24}{40} = \frac{3}{■}$

Since $24 \div 8 = 3$, divide the numerator and denominator by 8.

$\frac{24}{40} \overset{\div 8}{=} \frac{3}{■}$, so $\frac{24}{40} = \frac{3}{\quad}$.

Check Your Progress **Replace each ■ with a number so the fractions are equivalent.**

a. $\frac{5}{9} = \frac{■}{54}$

b. $\frac{48}{60} = \frac{4}{■}$

WRITE IT

Is it possible to simplify a fraction if the numerator is a prime number? Explain.

_____

_____

_____

_____

BUILD YOUR VOCABULARY (pages 86–87)

A fraction is in **simplest form** when the GCF of the numerator and denominator is 1.

EXAMPLE Write Fractions in Simplest Form

1 **Write $\frac{14}{42}$ in simplest form.**

METHOD 1 Divide by common factors.

A common factor of 14 and 42 is 2. A common factor of 7 and 21 is 7.

$$\frac{14}{42} \overset{\div 2}{=} \frac{7}{21} \overset{\div 7}{=} \frac{\square}{\square}$$

Since 1 and 3 have no common factor greater than 1, the fraction ☐ is in simplest form.

METHOD 2 Divide by the GCF.

factors of 14: ☐

factors of 42: ☐

The GCF of 14 and 42 is ☐.

$$\frac{14}{42} \overset{\div 14}{=} \frac{\square}{\square}$$

Divide the numerator and denominator by the GCF, ☐.

Since the GCF of 1 and 3 is 1, the fraction ☐ is in simplest form.

Check Your Progress Write $\frac{21}{35}$ in simplest form.

☐

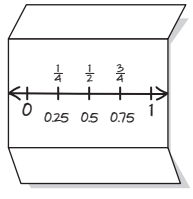
KEY CONCEPT

Simplest Form To write a fraction in simplest form, you can either:

- divide the numerator and denominator by common factors until the only common factor is 1, or
- divide the numerator and denominator by the GCF.

FOLDABLES ORGANIZE IT

Under the fractions tab of your Foldable, summarize how to express fractions in their simplest forms.



EXAMPLE

4 **GYMNASTICS** **Lin practices gymnastics 16 hours each week. There are 168 hours in a week. Express the fraction $\frac{16}{168}$ in simplest form.**

The GCF of 16 and 168 is ____.

$\frac{\cancel{16}^{2}}{\cancel{168}_{21}} =$ ____ Mentally divide both the ____ and ____ by 8.

So, Lin practices gymnastics for ____ or 2 out of every 21 hours of the week.

Check Your Progress **TRANSPORTATION** There are 244 students at Longfellow Elementary School. Of those students, 168 ride a school bus to get to school. Express the fraction $\frac{168}{244}$ in simplest form.

HOMEWORK ASSIGNMENT

Page(s):

Exercises: