

Lesson 13  
**Understand Equivalent Fractions**

Name \_\_\_\_\_

Prerequisite: **How do you know when fractions are equivalent?**

Study the example showing one way to find equivalent fractions. Then solve problems 1–6.

**Example**  
Find a fraction equivalent to  $\frac{4}{6}$ .  
The number line shows both thirds and sixths.  
 $\frac{4}{6}$  and  $\frac{2}{3}$  are at the same point on the number line.  
 $\frac{4}{6} = \frac{2}{3}$

**B 1** Look at the number line in the example above. Write a fraction equivalent to  $\frac{2}{3}$ .  
 $\frac{2}{3} = \frac{4}{6}$

**B 2** Fill in the missing fractions on the number line.

**M 3** Look at the number line in problem 2. Write equivalent fractions.  
 $\frac{1}{4} = \frac{2}{8}$     $\frac{2}{4} = \frac{4}{8}$     $\frac{3}{4} = \frac{6}{8}$

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**Solve.**

**M 4** Look at the models below. Shade the models to show two fractions equivalent to  $\frac{3}{4}$ . Then write the fractions.

**M 5** Use the models below to complete the sentences. The models show wholes and parts. There are 3 wholes, each divided into fourths.

Each part is  $\frac{1}{4}$  of a whole.  
There are 12 fourths in all.  $\frac{12}{4} = 3$

**C 6** Look at the models below. Write the fractions they represent. Are the fractions equivalent? Explain.

$\frac{1}{2}$  and  $\frac{2}{4}$ . Possible explanation: The fractions are equivalent. The amount that is shaded in the models is the same. It is shaded in a different way, but it is the same amount.

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## Key

B Basic   M Medium   C Challenge




Lesson 13 Name: \_\_\_\_\_

**Show Equivalent Fractions**


**Study the example showing one way to model equivalent fractions. Then solve problems 1–8.**

**Example**

A model can show equivalent fractions. The model has 5 equal parts. It shows  $\frac{3}{5}$ . Divide the model into 10 equal parts to show an equivalent fraction. The model shows  $\frac{6}{10}$ .


$$\frac{3}{5} = \frac{6}{10}$$


**B 1** Divide the model below to show  $\frac{1}{2} = \frac{5}{10}$ .



**M 2** Draw a model to show  $\frac{1}{6}$ . Then divide the model into twice as many parts to find an equivalent fraction.

*Drawings will vary. Possible drawing: Students might draw a circle or other model to solve the problem.*



$$\frac{1}{6} = \frac{2}{12}$$

**M 3** Multiply the numerator and denominator of  $\frac{1}{6}$  by 2.

$$\frac{1 \times 2}{6 \times 2} = \frac{2}{12}$$

**M 4** Why does it make sense that the fraction you wrote in problems 2 and 3 is the same?

*Answers will vary. Possible answer: Multiplying by 2 is the same as making twice as many equal parts and twice as many shaded parts.*

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**Solve.**

**M 5** Fill in the missing numbers to find two equivalent fractions to  $\frac{4}{5}$ .


$$\frac{4 \times \boxed{2}}{5 \times 2} = \frac{\boxed{8}}{10} \quad \frac{4 \times \boxed{20}}{5 \times \boxed{20}} = \frac{\boxed{80}}{100}$$

**C 6** Look at problem 5. Explain how  $\frac{8}{10} = \frac{80}{100}$ .

*Explanations will vary.*

*Possible explanation: You can multiply both the numerator and the denominator in  $\frac{8}{10}$  by 10 to find an equivalent fraction:  $8 \times 10 = 80$  and  $10 \times 10 = 100$ . So  $\frac{8}{10} = \frac{80}{100}$ . Problem 5 also shows that  $\frac{8}{10}$  and  $\frac{80}{100}$  are both equivalent to  $\frac{4}{5}$ . So I know  $\frac{8}{10}$  and  $\frac{80}{100}$  are also equivalent to each other.*

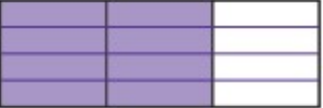
**M 7** Shade the model below to show  $\frac{1}{3}$ . Then show 10 equal parts and write an equivalent fraction.



$$\frac{1}{3} = \frac{2}{6}$$

*Possible dividing lines shown. Students may draw horizontal or vertical lines to divide each part into 2 equal parts.*

**M 8** Shade the model below to show  $\frac{2}{3}$ . Then show 12 equal parts and write an equivalent fraction.



$$\frac{2}{3} = \frac{8}{12}$$

*Possible dividing lines shown. Students may draw horizontal or vertical lines to divide each part into 4 equal parts.*

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## Lesson 13

Name: \_\_\_\_\_

## Reason and Write

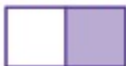
**Study the example.** Underline two parts that you think make it a particularly good answer and a helpful example.

## Example

Find a fraction equivalent to  $\frac{1}{2}$  that has a denominator of 12.

**Show your work.** Use models, words, and numbers to explain your answer.

I draw a model that shows  $\frac{1}{2}$ .



To find an equivalent fraction with a denominator of 12, I divide the model into 12 equal parts. The model shows  $\frac{6}{12}$ .

So  $\frac{1}{2} = \frac{6}{12}$ .



I can also multiply both the numerator and denominator of  $\frac{1}{2}$  by 6 to find an equivalent fraction with a denominator of 12.

$$\frac{1 \times 6}{2 \times 6} = \frac{6}{12}$$

Answers will vary. Note whether students incorporate the features they chose in their answer on the next page.

Where does the example ...

- use models to show equivalent fractions?
- use numbers to write equivalent fractions?
- use words to explain?

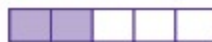


**Solve the problem.** Use what you learned from the example.

Find a fraction equivalent to  $\frac{2}{3}$  that has a denominator of 20.

**Show your work.** Use models, words, and numbers to explain your answer.

I draw a model that shows  $\frac{2}{3}$ .



To find an equivalent fraction with a denominator of 20, I divide the model into 20 equal parts. The model shows  $\frac{8}{20}$ .

So  $\frac{2}{3} = \frac{8}{20}$ .



I can also multiply both the numerator and denominator of  $\frac{2}{3}$  by 4 to find an equivalent fraction with a denominator of 20.

$$\frac{2 \times 4}{3 \times 4} = \frac{8}{20}$$

Did you ...

- use models to show equivalent fractions?
- use numbers to write equivalent fractions?
- use words to explain?



Name: \_\_\_\_\_

### Multi-Digit Subtraction—Skills Practice

Form A

Subtract within 10,000.

<p><b>1</b> <math>\begin{array}{r} 4,865 \\ - 2,341 \\ \hline 2,524 \end{array}</math></p>	<p><b>2</b> <math>\begin{array}{r} 1,788 \\ - 1,263 \\ \hline 525 \end{array}</math></p>	<p><b>3</b> <math>\begin{array}{r} 2,592 \\ - 1,271 \\ \hline 1,321 \end{array}</math></p>	<p><b>4</b> <math>\begin{array}{r} 7,342 \\ - 4,132 \\ \hline 3,210 \end{array}</math></p>
<p><b>5</b> <math>\begin{array}{r} 8,790 \\ - 6,688 \\ \hline 2,102 \end{array}</math></p>	<p><b>6</b> <math>\begin{array}{r} 3,743 \\ - 626 \\ \hline 3,117 \end{array}</math></p>	<p><b>7</b> <math>\begin{array}{r} 9,487 \\ - 1,394 \\ \hline 8,093 \end{array}</math></p>	<p><b>8</b> <math>\begin{array}{r} 6,427 \\ - 2,515 \\ \hline 3,912 \end{array}</math></p>
<p><b>9</b> <math>\begin{array}{r} 2,637 \\ - 2,419 \\ \hline 218 \end{array}</math></p>	<p><b>10</b> <math>\begin{array}{r} 3,780 \\ - 671 \\ \hline 3,109 \end{array}</math></p>	<p><b>11</b> <math>\begin{array}{r} 8,618 \\ - 3,425 \\ \hline 5,193 \end{array}</math></p>	<p><b>12</b> <math>\begin{array}{r} 4,756 \\ - 3,813 \\ \hline 943 \end{array}</math></p>
<p><b>13</b> <math>\begin{array}{r} 8,403 \\ - 6,520 \\ \hline 1,883 \end{array}</math></p>	<p><b>14</b> <math>\begin{array}{r} 1,438 \\ - 839 \\ \hline 599 \end{array}</math></p>	<p><b>15</b> <math>\begin{array}{r} 4,725 \\ - 1,439 \\ \hline 3,286 \end{array}</math></p>	<p><b>16</b> <math>\begin{array}{r} 7,275 \\ - 4,188 \\ \hline 3,087 \end{array}</math></p>
<p><b>17</b> <math>\begin{array}{r} 5,274 \\ - 2,778 \\ \hline 2,496 \end{array}</math></p>	<p><b>18</b> <math>\begin{array}{r} 2,923 \\ - 1,976 \\ \hline 947 \end{array}</math></p>	<p><b>19</b> <math>\begin{array}{r} 5,824 \\ - 2,948 \\ \hline 2,876 \end{array}</math></p>	<p><b>20</b> <math>\begin{array}{r} 6,743 \\ - 2,878 \\ \hline 3,865 \end{array}</math></p>

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### Multi-Digit Subtraction—Skills Practice

Form B

Subtract within 10,000.

<p><b>1</b> <math>\begin{array}{r} 5,647 \\ - 3,210 \\ \hline 2,437 \end{array}</math></p>	<p><b>2</b> <math>\begin{array}{r} 2,748 \\ - 312 \\ \hline 2,436 \end{array}</math></p>	<p><b>3</b> <math>\begin{array}{r} 5,429 \\ - 4,003 \\ \hline 1,426 \end{array}</math></p>	<p><b>4</b> <math>\begin{array}{r} 6,918 \\ - 4,105 \\ \hline 2,813 \end{array}</math></p>
<p><b>5</b> <math>\begin{array}{r} 8,263 \\ - 1,453 \\ \hline 6,810 \end{array}</math></p>	<p><b>6</b> <math>\begin{array}{r} 1,397 \\ - 1,239 \\ \hline 158 \end{array}</math></p>	<p><b>7</b> <math>\begin{array}{r} 4,131 \\ - 2,051 \\ \hline 2,080 \end{array}</math></p>	<p><b>8</b> <math>\begin{array}{r} 7,382 \\ - 2,581 \\ \hline 4,801 \end{array}</math></p>
<p><b>9</b> <math>\begin{array}{r} 2,732 \\ - 1,108 \\ \hline 1,624 \end{array}</math></p>	<p><b>10</b> <math>\begin{array}{r} 4,803 \\ - 615 \\ \hline 4,188 \end{array}</math></p>	<p><b>11</b> <math>\begin{array}{r} 8,652 \\ - 3,481 \\ \hline 5,171 \end{array}</math></p>	<p><b>12</b> <math>\begin{array}{r} 3,607 \\ - 2,801 \\ \hline 806 \end{array}</math></p>
<p><b>13</b> <math>\begin{array}{r} 8,275 \\ - 2,391 \\ \hline 5,884 \end{array}</math></p>	<p><b>14</b> <math>\begin{array}{r} 3,120 \\ - 1,052 \\ \hline 2,068 \end{array}</math></p>	<p><b>15</b> <math>\begin{array}{r} 9,253 \\ - 198 \\ \hline 9,055 \end{array}</math></p>	<p><b>16</b> <math>\begin{array}{r} 6,732 \\ - 5,587 \\ \hline 1,145 \end{array}</math></p>
<p><b>17</b> <math>\begin{array}{r} 4,366 \\ - 1,568 \\ \hline 2,798 \end{array}</math></p>	<p><b>18</b> <math>\begin{array}{r} 1,812 \\ - 945 \\ \hline 867 \end{array}</math></p>	<p><b>19</b> <math>\begin{array}{r} 7,493 \\ - 2,594 \\ \hline 4,899 \end{array}</math></p>	<p><b>20</b> <math>\begin{array}{r} 7,423 \\ - 2,846 \\ \hline 4,577 \end{array}</math></p>

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