Module 6   Computational Fluency of Fractions
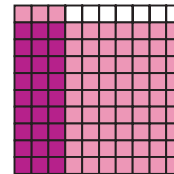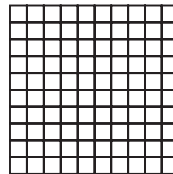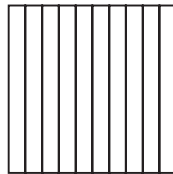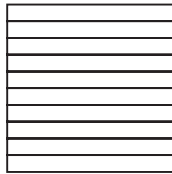**Lesson 5   Multiplying Fractions**

1. Colby spent $\frac{9}{10}$ of his allowance on ingredients for baking. Three-tenths of the money spent on baking was spent on cake ingredients. What fraction of Colby's allowance was spent on cake ingredients? Use the models.

$\frac{27}{100}$

Find the product.

2. $\frac{3}{7} \times \frac{5}{6}$

$\frac{5}{14}$

3. $12 \times \frac{2}{3}$

8

4. $2\frac{1}{3} \times \frac{3}{5}$

$1\frac{2}{5}$

5. $\frac{1}{5} \times 14$

$2\frac{4}{5}$

6. $6\frac{1}{8} \times \frac{3}{7}$

$2\frac{5}{8}$

7. $1\frac{5}{6} \times 4\frac{1}{2}$

$8\frac{1}{4}$

8. Four-sevenths of the students in the school choir are girls. One-sixth of the girls are sopranos. What fraction of the students in the choir are female sopranos?

Of the girls in the choir $\frac{2}{21}$ are sopranos.

9. Three-fourths of the flowers Peter bought were long stemmed flowers. Two-thirds of the long stemmed flowers were roses. How many of all the flowers were roses if Peter bought 24 flowers?

Twelve of the flowers were roses.

10. Alex took 81 pictures while on vacation. Eight-ninths of the pictures were taken while he was at the beach. How many pictures did he take while at the beach?

Alex took 72 pictures at the beach.

11. David read $9\frac{1}{4}$ pages of a library book for his book report. He read $\frac{4}{5}$ of those pages at home. How many pages of the library book did David read at home?

David read $7\frac{2}{5}$ pages at home.

12. Amanda will draw a chalk line on the basketball court $6\frac{1}{3}$ yards long. One-half of the line will be drawn in green. What length of the line will be green?

The length of the green line will be $3\frac{1}{6}$ yards.

13. Candice surveyed several students and found that $\frac{3}{4}$ of them had a pet. Of those, $\frac{2}{9}$ had a turtle. What fraction of those surveyed had a turtle?

If 96 students were surveyed, how many had turtles?

One-sixth of students surveyed had turtles. Sixteen out of the 96 students had turtles.

Evaluate.

14. $\frac{2}{3} \times 2\frac{1}{4}$

$\mathbf{1\frac{1}{2}}$

15. $1\frac{1}{5} \times 1\frac{1}{9}$

$\mathbf{1\frac{1}{3}}$

16. $\frac{2}{3} \times \frac{1}{4}$

$\mathbf{\frac{1}{6}}$

17. $\left(\frac{1}{8} \times \frac{4}{5}\right) \times 4$

$\mathbf{\frac{2}{5}}$

Module 6 Computational Fluency of Fractions
Lesson 5 Multiplying Fractions

Journal

1. After being simplified, the product of two fractions was $\dfrac{3}{8}$. What could those two fractions have been? Give two possible pairs. Explain how you chose your fractions.

2. Explain why the product of two fractions less than one results in a fraction that is smaller than either fraction. Use an example in your explanation.

3. Explain two ways to find $\dfrac{1}{6} \times \dfrac{3}{5}$ without a model.

Cumulative Review

Simplify.

1. $\dfrac{12}{18}$

   $\dfrac{2}{3}$

2. $\dfrac{28}{49}$

   $\dfrac{4}{7}$

3. $\dfrac{13}{5}$

   $2\dfrac{3}{5}$

4. $\dfrac{6}{5}$

   $1\dfrac{1}{5}$

Find the product or quotient.

5. 0.44×6

   2.64

6. $10.37 \div 1.7$

   6.1

Solve.

7. $\dfrac{3}{8} + \dfrac{7}{8}$

   $1\dfrac{1}{4}$

8. $\dfrac{5}{6} + \dfrac{1}{3}$

   $1\dfrac{1}{6}$

63

Solve.

9. $\dfrac{7}{12} - \dfrac{5}{12}$

$\dfrac{1}{6}$

10. $\dfrac{3}{5} - \dfrac{1}{10}$

$\dfrac{1}{2}$

11. $3\dfrac{1}{6} + 1\dfrac{2}{5}$

$4\dfrac{17}{30}$

12. $9\dfrac{3}{8} - 2\dfrac{1}{2}$

$6\dfrac{7}{8}$

Possible Journal Answers

1. To have a product of $\dfrac{3}{8}$ after being simplified, the product before being simplified must be a fraction equivalent to $\dfrac{3}{8}$, such as $\dfrac{6}{16}$. So, the numerators can have a product of six and the denominators can have a product of sixteen. One pair is $\dfrac{1}{2} \times \dfrac{6}{8}$, or the equivalent fraction could be $\dfrac{9}{24}$, so another pair is $\dfrac{3}{4} \times \dfrac{3}{6}$.

2. A fraction is part of a number. I am finding part of another part, which makes it an even smaller part. For example, $\dfrac{1}{2} \times \dfrac{1}{3}$ means $\dfrac{1}{2}$ of $\dfrac{1}{3}$. Half of $\dfrac{1}{3}$ is less than $\dfrac{1}{3}$. Also, half of a number less than one will be less than $\dfrac{1}{2}$.

3. One way is to multiply the numerators, then to multiply the denominators, and then to simplify.

$$\dfrac{1}{6} \times \dfrac{3}{5} = \dfrac{3 \div 3}{30 \div 3} = \dfrac{1}{10}$$

The other way is to divide out the common factor of three, then to multiply the numerators, and then to multiply the denominators.

$$\dfrac{1}{\cancel{6}_2} \times \dfrac{\overset{1}{\cancel{3}}}{5} = \dfrac{1 \times 1}{2 \times 5} = \dfrac{1}{10}$$

64