




# Find Fraction Products and Quotients

Think about your work on Self-Check: Questions 2–4 on the *Workshop: Multiply and Divide Fractions* pages in the *Student Guide*, and your progress with multiplying and dividing fractions. Use the Workshop Menu to choose practice with finding fraction products and quotients.

Workshop Menu			
Can I Do This?	▲ Working On It!	● Getting It!	■ Got It!
	 <p>I could use some extra help.</p>	 <p>I just need some more practice.</p>	 <p>I'm ready for a challenge.</p>
Represent and solve problems involving multiplication and division of fractions.	Questions 1–2, 4–8, 10–16	Questions 1–3, 9A–D, 15–25	Questions 1–3, 9E–H, 15–30

For Questions 1–3, estimate the product or quotient. Circle the best estimate.

▲●■ 1. Estimate.

- |  |                         |                                     |
|--|-------------------------|-------------------------------------|
| <b>A.</b> $2 \times 1$                     | less than 1             | greater than 1                      |
| <b>B.</b> $\frac{1}{2} \times 1$           | less than 1             | greater than 1                      |
| <b>C.</b> $\frac{3}{4} \times 3$           | less than 1             | greater than 1                      |
| <b>D.</b> $\frac{1}{2} \times 3$           | less than 1             | greater than 1                      |
| <b>E.</b> $\frac{1}{2} \times \frac{1}{2}$ | less than $\frac{1}{2}$ | greater than $\frac{1}{2}$          |
| <b>F.</b> $\frac{3}{4} \times \frac{1}{2}$ | less than $\frac{1}{2}$ | greater than $\frac{1}{2}$          |
| <b>G.</b> Circle which is greater?         | $\frac{1}{2} \times 3$  | or $\frac{1}{2} \times \frac{3}{4}$ |

   **2.** Estimate.

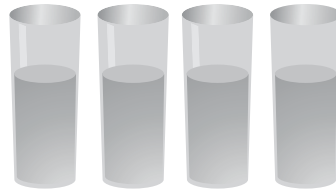
- |                                    |                         |                            |
|------------------------------------|-------------------------|----------------------------|
| <b>A.</b> $3 \div 1$               | less than 1             | greater than 1             |
| <b>B.</b> $3 \div \frac{1}{3}$     | less than 1             | greater than 1             |
| <b>C.</b> $1 \div 3$               | less than 1             | greater than 1             |
| <b>D.</b> $\frac{1}{3} \div 1$     | less than 1             | greater than 1             |
| <b>E.</b> $\frac{1}{3} \div 1$     | less than $\frac{1}{2}$ | greater than $\frac{1}{2}$ |
| <b>F.</b> $\frac{1}{3} \div 3$     | less than $\frac{1}{2}$ | greater than $\frac{1}{2}$ |
| <b>G.</b> Circle which is greater? | $\frac{1}{2} \div 6$    | or $6 \times \frac{1}{2}$  |

   **3.** Estimate.

- |  |             |                |
|--|-------------|----------------|
| <b>A.</b> $2 \times \frac{3}{5}$           | less than 1 | greater than 1 |
| <b>B.</b> $\frac{1}{2} \times \frac{3}{4}$ | less than 1 | greater than 1 |
| <b>C.</b> $\frac{7}{8} \times 2$           | less than 1 | greater than 1 |
| <b>D.</b> $\frac{4}{5} \times \frac{7}{8}$ | less than 1 | greater than 1 |
| <b>E.</b> $\frac{1}{2} \times \frac{1}{2}$ | less than 1 | greater than 1 |
| <b>F.</b> $12 \div \frac{1}{5}$            | less than 1 | greater than 1 |
| <b>G.</b> $\frac{1}{5} \div 12$            | less than 1 | greater than 1 |
| <b>H.</b> $1 \div 4$                       | less than 1 | greater than 1 |
| <b>I.</b> $2 \div \frac{1}{7}$             | less than 1 | greater than 1 |
| <b>J.</b> $2 \times \frac{3}{2}$           | less than 1 | greater than 1 |

Use rectangles, fraction circle pieces, drawings, number lines, or paper and pencil to solve the problems. Refer to the *Multiplying Fractions Menu* and the *Dividing Fractions Menu* in the *Student Guide* Reference section.

- 4.** There are 4 glasses with  $\frac{2}{3}$ -cup juice. How many cups of juice are there altogether?



$$4 \times \frac{2}{3}$$

- A.** Is  $4 \times \frac{2}{3}$  greater than or less than  $\frac{2}{3}$ ? \_\_\_\_\_
- B.** Is  $4 \times \frac{2}{3}$  greater than or less than 4? \_\_\_\_\_
- C.** Should the product be closer to  $\frac{2}{3}$  or 4? \_\_\_\_\_
- D.** Use the number line to show  $4 \times \frac{2}{3}$ .



**E.**  $4 \times \frac{2}{3} =$  \_\_\_\_\_

Is your answer in simplest form? If not, rewrite it.

- F.** Does your answer make sense?

**5.** There was  $\frac{1}{2}$  pan of brownies. Emily and Ana ate  $\frac{2}{3}$  of it. How much of the whole pan of brownies did the girls eat?



$$\frac{2}{3} \times \frac{1}{2}$$

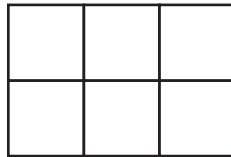
**A.** Is  $\frac{2}{3} \times \frac{1}{2}$  greater than or less than  $\frac{2}{3}$ ?

\_\_\_\_\_

**B.** Is  $\frac{2}{3} \times \frac{1}{2}$  greater than or less than  $\frac{1}{2}$ ?

\_\_\_\_\_

**C.** Use the rectangle to show  $\frac{2}{3} \times \frac{1}{2}$ .

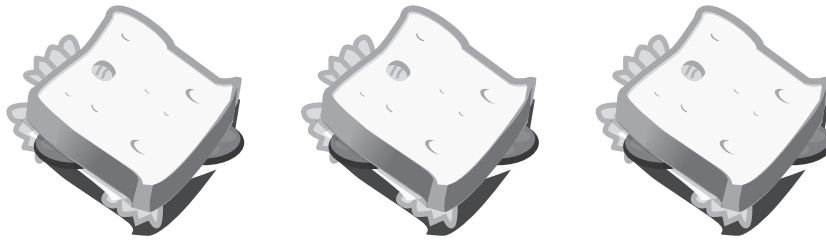


**D.**  $\frac{2}{3} \times \frac{1}{2} =$  \_\_\_\_\_

Is your answer in simplest form? If not, rewrite it.

**E.** Does your answer make sense?

- 6.** 4 children want to share 3 sandwiches equally. How much sandwich will each child get?



$$3 \div 4$$

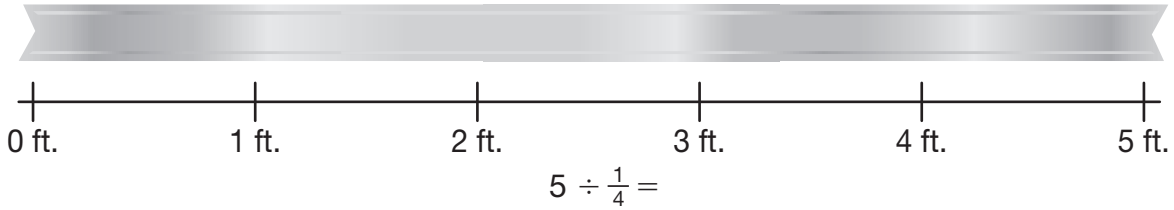
- A.** How will you label your answer? \_\_\_\_\_
- B.** Is  $3 \div 4$  greater than or less than 1? \_\_\_\_\_
- C.** Use the picture above to show how to divide 3 sandwiches between 4 children.

**D.**  $3 \div 4 =$  \_\_\_\_\_

Is your answer in simplest form? If not, rewrite it.

- E.** Does your answer make sense?

- 7.** Elizabeth cuts 5 feet of ribbon into  $\frac{1}{4}$ -foot pieces. How many smaller pieces of ribbon will she have?



- A.** How will you label your answer? \_\_\_\_\_
- B.** Is  $5 \div \frac{1}{4}$  greater than or less than 5? \_\_\_\_\_
- C.** Use the picture above to show how to divide the ribbon into  $\frac{1}{4}$ -foot pieces.
- D.**  $5 \div \frac{1}{4} =$  \_\_\_\_\_  
Is your answer in simplest form? If not, rewrite it.
- E.** Show how to solve  $5 \div \frac{1}{4}$  another way. How would you show how many fourths are in 5 wholes with fraction circle pieces? Sketch the pieces below.
- F.** Does your answer in Question 7D make sense?

- 8.** There was  $\frac{1}{3}$  of a cake left over. Luis cut it into 4 pieces. How much of the whole cake is each piece?



$$\frac{1}{3} \div 4$$

- A.** How will you label your answer? \_\_\_\_\_
- B.** Is  $\frac{1}{3} \div 4$  greater than or less than 4? \_\_\_\_\_
- C.** Use the picture above to show how to divide the leftover cake by 4.

**D.**  $\frac{1}{3} \div 4 =$  \_\_\_\_\_

Is your answer in simplest form? If not, rewrite it.

- E.** Show how to solve  $\frac{1}{3} \div 4$  another way. Use the fraction circle piece below to show how to divide  $\frac{1}{3}$  into 4 equal shares.



- F.** Does your answer in Question 8D make sense?

9. Represent each of the following problems with rectangles, fraction circle pieces, number lines, drawings, or stories. Show your solution by completing the number sentence. Write your answer in simplest form.

 **A.**  $4 \times \frac{3}{4} =$

 **B.**  $\frac{2}{5} \times \frac{3}{4} =$

 **C.**  $3 \div \frac{1}{4} =$

 **D.**  $\frac{1}{3} \div 4 =$

 **E.**  $5 \times \frac{4}{5} =$

 **F.**  $\frac{2}{3} \times \frac{5}{8} =$




 **G.**  $\frac{1}{8} \div 6 =$

 **H.**  $5 \div \frac{1}{6} =$






**Solve the word problems in Questions 10–30.**




- Use rectangles, fraction circle pieces, drawings, number lines, or paper and pencil to solve.
- Include number sentences and labels when needed.
- Write your answers in simplest form.
- Refer to the *Multiplying Fractions Menu* and *Dividing Fractions Menu* in the *Student Guide* Reference section.

   **10.** It takes Mrs. Murphy  $\frac{1}{12}$  of an hour to decorate each sugar cookie. How long will it take to decorate 10 cookies?



Number sentence \_\_\_\_\_

   **11.** Mrs. Murphy wants to make half of a recipe of cookies. If a whole recipe calls for  $\frac{3}{4}$  cup sugar, how much sugar will she need for half the recipe?

Number sentence \_\_\_\_\_

   **12.** Johnny buys 5 cookies at the bakery to share with his friends. If every friend gets  $\frac{1}{2}$  of a cookie, how many friends can have cookies?

Number sentence \_\_\_\_\_

  **13.** Mrs. Murphy wants to know how many scoops of chocolate chips are stored in each container.

**A.** How many  $\frac{1}{4}$ -cup scoops are in 3 containers?  
Draw a picture to solve  $3 \div \frac{1}{4}$ .




\_\_\_\_\_ scoops

**B.** How many  $\frac{1}{3}$ -cup scoops are in 5 containers?  
Draw a picture to solve  $5 \div \frac{1}{3}$ .

\_\_\_\_\_ scoops

**C.** How many  $\frac{1}{5}$ -cup scoops are in 4 containers?  
Draw a picture to solve  $4 \div \frac{1}{5}$ .

\_\_\_\_\_ scoops

   **14.** Mrs. Murphy is cutting slices of cake. Tell how much of the whole cake each slice will be.

**A.** How can she cut  $\frac{1}{2}$  of a cake into 2 equal parts?  
Draw a picture to solve  $\frac{1}{2} \div 2$ .

Each slice is \_\_\_\_\_ of the whole cake.

**B.** How can she cut  $\frac{1}{2}$  of a cake into 4 equal parts?  
Draw a picture to solve  $\frac{1}{2} \div 4$ .

Each slice is \_\_\_\_\_ of the whole cake.

**C.** How can she cut  $\frac{1}{2}$  of a cake into 8 equal parts?  
Draw a picture to solve  $\frac{1}{2} \div 8$ .

Each slice is \_\_\_\_\_ of the whole cake.



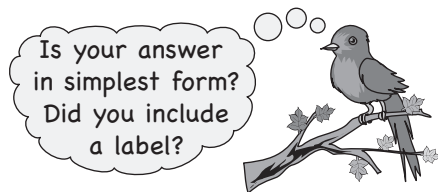
## Check-In: Questions 15–16

**▲●■ 15.** Mrs. Murphy wants to cut  $\frac{1}{3}$  of a pan of brownies into 3 pieces. How much of the pan is each piece?

**A.** Represent the problem with a drawing, fraction circle pieces, rectangle, or a number line.

**B.** Number sentence \_\_\_\_\_

**▲●■ 16.** There was  $\frac{4}{5}$  of a bag of flour in the bakery. Mrs. Murphy used  $\frac{3}{4}$  of it to make batches of brownies. How much of the whole bag of flour did she use to make brownies?



**A.** Show how you solve the problem.

**B.** Number sentence \_\_\_\_\_

**■●■ 17. A.** How many half hours are in 5 hours?

$$5 \div \frac{1}{2} = \underline{\hspace{2cm}} \text{ and } \underline{\hspace{2cm}} \times \frac{1}{2} = 5$$

**B.** How many half hours are in 10 hours?

$$10 \div \frac{1}{2} = \underline{\hspace{2cm}} \text{ and } \underline{\hspace{2cm}} \times \frac{1}{2} = 10$$

**C.** How many quarter hours are in 5 hours?

$$5 \div \frac{1}{4} = \underline{\hspace{2cm}} \text{ and } \underline{\hspace{2cm}} \times \frac{1}{4} = 5$$

**D.** How many quarter hours are in 10 hours?

$$10 \div \frac{1}{4} = \underline{\hspace{2cm}} \text{ and } \underline{\hspace{2cm}} \times \frac{1}{4} = 10$$

- 18. A.** How many  $\frac{1}{2}$  miles are in 14 miles? \_\_\_\_\_
- B.** How many  $\frac{1}{4}$  pies are in 12 pies? \_\_\_\_\_
- C.** How many  $\frac{1}{3}$  cups are in 9 cups? \_\_\_\_\_
- D.** How many one-fifths are in 8 wholes?

- 19.** Keenya spends  $\frac{2}{3}$  hour practicing her violin each day. How many hours will she practice in one week?

Number sentence \_\_\_\_\_


- 20.** Romesh skates  $\frac{3}{4}$  mile in  $\frac{1}{4}$  hour.
- A.** How far can he skate in 1 hour? \_\_\_\_\_
- B.** How far can he skate in 3 hours? \_\_\_\_\_

- 21.** Josh has 4 pies. He is going to share the pies with his classmates. There is exactly enough to give each person  $\frac{1}{6}$  of the pie. How many people are in his class?

Number sentence \_\_\_\_\_

- 22.** Fern is hanging 5 block party posters on her city block. Her block is  $\frac{1}{8}$  mile long. How far apart should she hang the posters so that they are evenly spaced?

Number sentence \_\_\_\_\_

 **23.** An artist wants to tile  $\frac{4}{5}$  of a wall. He will leave the rest of the wall untiled so he can paint on it. He wants  $\frac{1}{8}$  of the tile to be blue,  $\frac{2}{5}$  of the tile to be yellow, and  $\frac{3}{10}$  of the tile to be green.

**A.** How much of the whole wall will be tiled with blue?


Number sentence \_\_\_\_\_

**B.** How much of the whole wall will be tiled with yellow?


Number sentence \_\_\_\_\_

**C.** How much of the whole wall will be tiled with green?

Number sentence \_\_\_\_\_

 **24.** There is  $\frac{1}{5}$  of a pan of lasagna. Sam cuts it into 3 equal portions. How much of the pan is each portion?

Number sentence \_\_\_\_\_

 **25.** Trail mix costs \$9 per pound. How much will Grace pay for  $\frac{1}{3}$  pound?

Number sentence \_\_\_\_\_

- 26. A.** Grace wants to share the  $\frac{1}{3}$  pound of trail mix equally among 6 people. How much trail mix will each person get?

Number sentence \_\_\_\_\_

- B.** Ana has twice as much trail mix as Grace. She wants to share the  $\frac{2}{3}$  pound of trail mix equally among 6 people. How much will each person get?

Number sentence \_\_\_\_\_

- 27. A.** There is 3 pounds of hamburger. Linda wants to make  $\frac{1}{3}$ -pound patties. How many hamburger patties can she make?

Number sentence \_\_\_\_\_

- B.** Linda is thinking about making bigger hamburger patties. About how many  $\frac{2}{3}$ -pound patties can Linda make with 3 pounds of hamburger?

Number sentence \_\_\_\_\_

- 28. A.** There are 5 sub sandwiches. One serving is  $\frac{1}{5}$  of a sandwich. How many people can get a full serving?

Number sentence \_\_\_\_\_

- B.** There are 5 smaller sub sandwiches. One serving is  $\frac{2}{5}$  of a sandwich. About how many people can get a full serving?

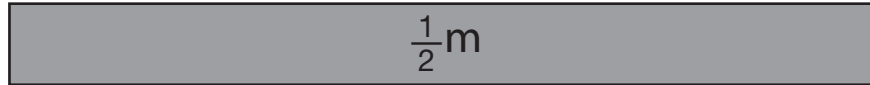
Number sentence \_\_\_\_\_

- 29.** Diana has  $\frac{7}{8}$  yard of fabric. She needs  $\frac{3}{5}$  of the fabric to make a pillow. How much of a yard of fabric is needed to make the pillow?

Number sentence \_\_\_\_\_

**30.** Nisha has  $\frac{1}{2}$  meter of ribbon to make bows. She is deciding if she wants to make big, medium, or small bows.

**A.** Each big bow takes  $\frac{1}{2}$  meter. How many big bows can she make with the ribbon?



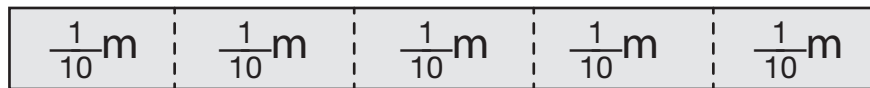
$\frac{1}{2} \div \frac{1}{2} =$  \_\_\_\_\_ big bow

**B.** Each medium bow takes  $\frac{1}{4}$  meter. How many medium bows can she make with the ribbon?



$\frac{1}{2} \div \frac{1}{4} =$  \_\_\_\_\_ medium bows

**C.** Each small bow takes  $\frac{1}{10}$  meter. How many small bows can she make with the ribbon?



$\frac{1}{2} \div \frac{1}{10} =$  \_\_\_\_\_ small bows