

Lesson 9-5 (Goldman Absent)

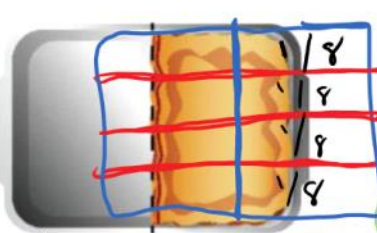
Tuesday, March 22, 2022 9:14 AM

Name MB 551

Lesson 9-5

Divide Unit Fractions by Non-Zero Whole Numbers

Solve & Share
 Yesterday, the cooking club made a pan of lasagna. They left half of the lasagna for 4 members of the photography club to share equally. What fraction of the pan of lasagna did each photography club member get? *Solve this problem any way you choose.*

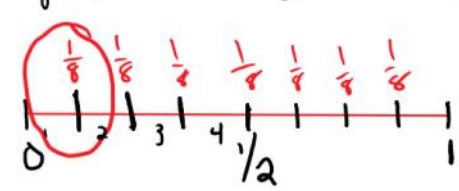


$\frac{1}{8}$ of the lasagna.

I can ...
 divide a unit fraction by a non-zero whole number.
 8 pieces

Content Standards 5.NF.B.7a, 5.NF.B.7c
Mathematical Practices MP.2, MP.3, MP.4, MP.5, MP.8

You can use appropriate tools to show how to divide what is left. Show your work!



Look Back! **MP.4 Model with Math** What equation can you write to model this problem?

$$\frac{1}{2} \div 4 = p$$


$$\frac{1}{2} \times \frac{1}{4} = \frac{1}{8}$$

$p = \frac{1}{8}$ of the lasagna

Check: $\frac{1}{8} \times 4 = \frac{4}{8} \div 4 = \frac{1}{2}$

Essential Question How Can You Model Dividing a Unit Fraction by a Whole Number?

Half of a pan of cornbread is left over. Ann, Beth, and Chuck are sharing the leftovers equally. What fraction of the original cornbread does each person get?



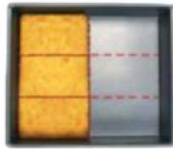
You can make a drawing to show $\frac{1}{2}$ of the cornbread.

One Way **Another Way**

One Way

Use a model. Divide $\frac{1}{2}$ into 3 equal parts.

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



Each part contains $\frac{1}{6}$ of the whole.

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

Each person gets $\frac{1}{6}$ of the cornbread.

Another Way

Use a number line. Shade $\frac{1}{2}$ on the number line. Partition $\frac{1}{2}$ into 3 equal parts.

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



Each part is $\frac{1}{6}$.

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

Each person gets $\frac{1}{6}$ of the cornbread.

Convince Me! ● **MP.2 Reasoning** In the example above, how is dividing by 3 the same as multiplying by $\frac{1}{3}$?

Dividing by 3 or multiplying by $\frac{1}{3}$ both separate a number into 3 equal parts.

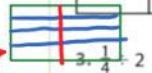
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Guided Practice

Do You Understand?

- In the example at the top of page 552, suppose that 4 people were sharing half of the cornbread equally. What fraction of the original cornbread would each person get? Draw a picture or use objects to help.

$\frac{1}{8}$ of the cornbread



- **MP.8 Generalize** When you divide a unit fraction by a non-zero whole number greater than 1, will the quotient be greater than or less than the unit fraction?

Less than.

Do You Know How?

In 3–6, find each quotient. Use the picture or objects to help.

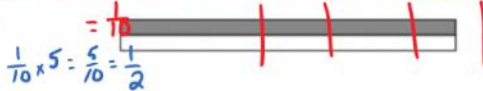
3. $\frac{1}{4} \div 2$	$= \frac{1}{8}$	$\frac{1}{4} \div 4$	$= \frac{1}{16}$
4. $\frac{1}{8} \times 2 = \frac{2}{8} = \frac{1}{4}$	$\frac{1}{8} \div 2 = \frac{1}{4}$	$\frac{1}{16} \times 4 = \frac{4}{16} = \frac{1}{4}$	$\frac{1}{16} \div 4 = \frac{1}{64}$
5. $\frac{1}{2} \div 2$	$= \frac{1}{4}$	$\frac{1}{2} \div 4$	$= \frac{1}{8}$
	$\frac{1}{4} \times 2 = \frac{2}{4} = \frac{1}{2}$	$\frac{1}{8} \times 4 = \frac{4}{8} = \frac{1}{2}$	

Complete 7, 13, 19, 20

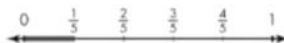
Independent Practice

Leveled Practice In 7 and 8, find each quotient. Use a picture or objects to help.

7. $\frac{1}{2} \div 5$



8. $\frac{1}{5} \div 2$



Partitioning pictures or objects can help when dividing fractions by a whole number.

In 9–14, find each quotient.

9. $\frac{1}{2} \div 7$

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

11. $\frac{1}{6} \div 2$

In 9–14, find each quotient.

9. $\frac{1}{2} \div 7$

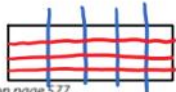
10. $\frac{1}{4} \div 3$

11. $\frac{1}{6} \div 2$

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

13. $\frac{1}{4} \div 5$

14. $\frac{1}{5} \div 3$



$$\frac{1}{20} \times 5 = \frac{5}{20} = \frac{1}{4}$$

*For another example, see Set C on page 577.

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Math Practices and Problem Solving

15. Vin, Corrie, Alexa, and Joe equally shared one fourth of a submarine sandwich. What fraction of the original sandwich did each friend get? Use the number line to help you find the answer.



16. Sue has $\frac{1}{2}$ gallon of milk to share evenly among four people. How much milk, in gallons, should she give each person?

17. **MP.3 Construct Arguments** Taryn says that $\frac{1}{4}$ of a cereal bar is larger than $\frac{1}{3}$ of the cereal bar. Is she correct? Explain.

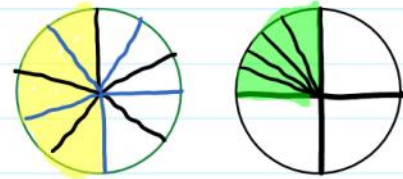
18. **Algebra** On Saturday, Amir ran $1\frac{3}{4}$ miles, and Janie ran $2\frac{1}{2}$ miles. Who ran farther? How much farther? Write an equation to find d , the difference of the two distances.

19. **Higher Order Thinking** Five friends equally shared half of one large pizza and $\frac{1}{4}$ of another large pizza. What fraction of each pizza did each friend get? How do the two amounts compare to each other?

$$\frac{1}{2} \div 5 = \frac{1}{10} \text{ of a pizza}$$

$$\frac{1}{4} \div 5 = \frac{1}{20} \text{ of a pizza}$$

$\frac{1}{20}$ is half of $\frac{1}{10}$
 $\frac{1}{10}$ just like $\frac{1}{4}$
 is half of $\frac{1}{2}$.



Common Core Assessment

20. Jamie cut a rope into thirds. He used two of the pieces to make a swing. He used equal lengths of the leftover rope on four picture frames. What fraction of the original rope did he use for each picture frame?

- (A) $\frac{1}{4}$
 (B) $\frac{1}{12}$
 (C) $\frac{1}{16}$
 (D) $\frac{3}{4}$

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

$$\frac{1}{3} \div 4 = \frac{1}{12} \text{ (B)}$$

$$\frac{1}{12} \times 4 = \frac{4}{12} = \frac{1}{3}$$

21. One half of an apple pie is left for 5 family members to share equally. What fraction of the original pie will each member get?

- (A) $\frac{1}{10}$
 (B) $\frac{1}{7}$
 (C) $\frac{1}{3}$
 (D) $\frac{2}{5}$

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