

Course: 6th Grade Math
Davis Essential: Number Sense/Fractions
Skills and Knowledge: Division of Fractions

Title Division of Fractions

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Objectives
What will students know and be able to do at the end of this lesson?

Interpret and compute quotients of fractions and solve word problems by using visual fraction models and equations to represent the problem.

Description

Students will be able to solve problems involving division of fractions by using manipulatives (concrete) and writing the equivalent equations.

Materials and Resources

Materials:

Fraction pattern blocks
Crayons or colored pencils
Fractional Relationships sheet
Learning to Divide Fractions sheet
I Can Divide Fractions sheet

Technology component - Optional: Computer/Internet for “www.visualfractions.com”

This lesson can be divided into 1-2 days depending on where the students are in the understanding of fractions.

Background knowledge: Teachers should make sure students understand that the “fraction” symbol (line) between the numerator and the denominator means “to divide.” The same is true when writing a fraction divided by a fraction.

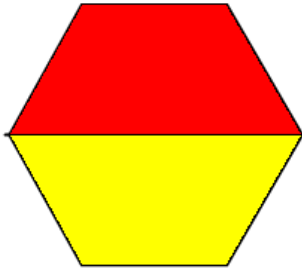
$$\frac{\frac{1}{2}}{\frac{3}{4}}$$

This is equal to one-half divided by three-fourths. This is a complex fraction.

Instructional Activities

Introduction:

Pass out fraction pattern blocks. Give students time to manipulate and find relationships between the pieces. Pass out the “Fractional Relationships sheet. Discuss and record the relationships students found. Record “pictorially” the relationship for the yellow hexagon (whole) to the red trapezoid. For example – Lay the red trapezoid onto the yellow hexagon. What does the red trapezoid show? It shows $\frac{1}{2}$ of the whole yellow hexagon. Draw a line to show $\frac{1}{2}$ of the hexagon and color the top trapezoid red to show one half.



Write about the relationships using complete sentences.

For example: The red trapezoid covers one half of the yellow hexagon showing $\frac{1}{2}$ of the whole yellow hexagon.

Continue the sheet using the fractional shapes for the blue rhombus, the green equilateral triangle, the brown right trapezoid, and the purple right triangle.

Instruction:

Pass out the “Learning to Divide Fraction” sheet.

Students will use the models and drawing lines on bars to show the division representation of fractions.

Lay the red trapezoid onto the yellow hexagon. What does the red trapezoid show? It shows $\frac{1}{2}$ of the whole yellow hexagon. Draw a line on the bar to show $\frac{1}{2}$ of the hexagon and color the top trapezoid red to show one half. Ask yourself, “If we divide $\frac{1}{2}$ by $\frac{1}{4}$, how many fourths fit onto $\frac{1}{2}$? One brown right trapezoid represents $\frac{1}{4}$ of the whole. Two brown right trapezoids will fit onto the red trapezoid. So how many $\frac{1}{4}$ s will fit onto trapezoid? Two. Draw lines and color the hexagon to show what you found.

On the bar model that represents $\frac{1}{2}$, color $\frac{1}{2}$ red.

On the bar representing fourths, color 2 sections brown. This shows that 2 one-fourth Pieces is equal to $\frac{1}{2}$.

$\frac{1}{2}$ divided by $\frac{1}{4}$ equals 2.

Continue with the same procedure for the next 2 problems.

Formative Assessment

How will I check for understanding?

Use the sheet “I Can Divide Fractions” for independent practice, homework, or assessment.

*How will students
show what they
know?*

**Extending the
Lesson**

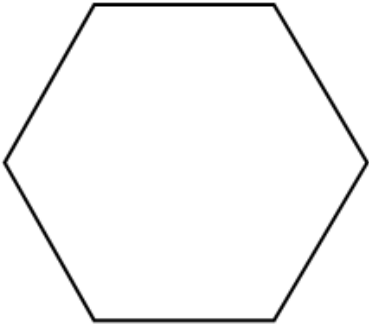
*What are ways to re-
teach the objectives?*

*What are ways to
enrich the lesson?*

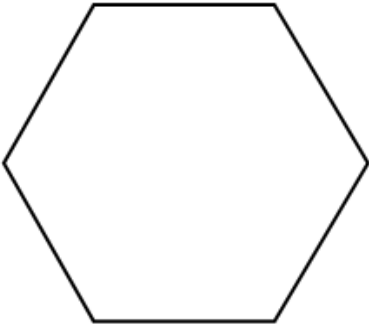
To show what students know, have students create their own fractions problems and let shoulder partners solve them.

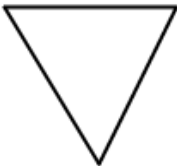
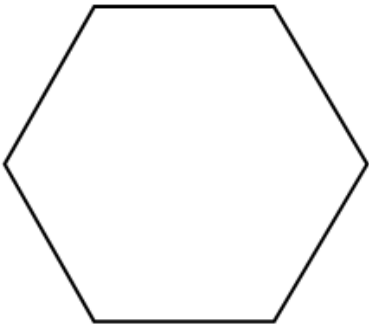
Name _____

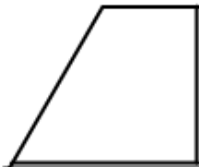
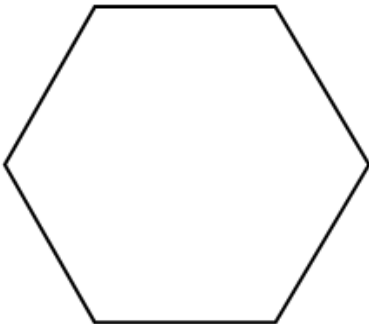
Fractional Relationships

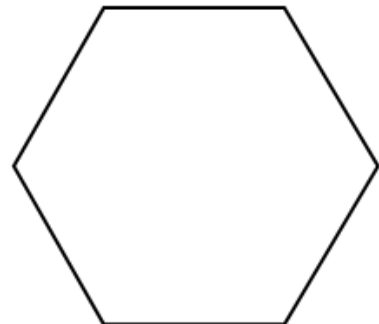


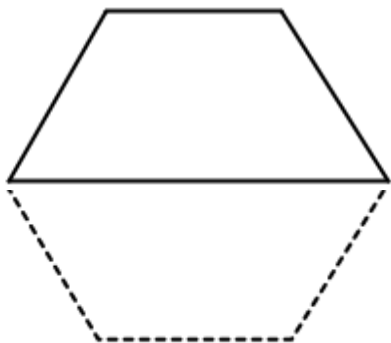
Fractional Relationships











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

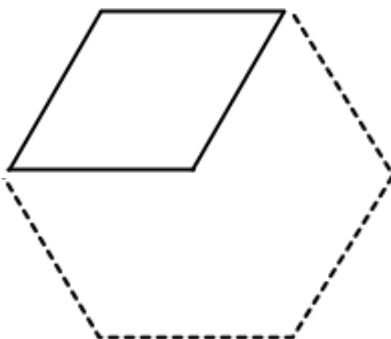
There was $\frac{1}{2}$ of a pizza left over. How many $\frac{1}{4}$ pieces can we cut out of it?

$\frac{1}{2}$

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How many $\frac{1}{4}$ pieces (of the whole) are in $\frac{1}{2}$? How do you know?



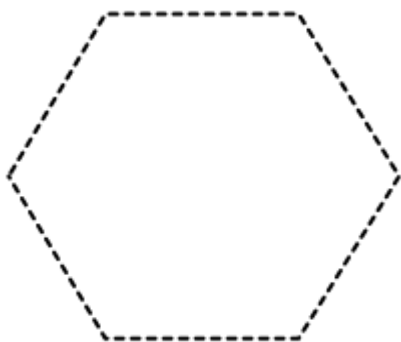
$$\frac{1}{3} \div \frac{1}{6}$$

There was $\frac{1}{3}$ of a yard of ribbon. How many $\frac{1}{6}$ of a yard pieces can we cut?

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How many $\frac{1}{6}$ pieces (of the whole) are in $\frac{1}{3}$? How do you know?

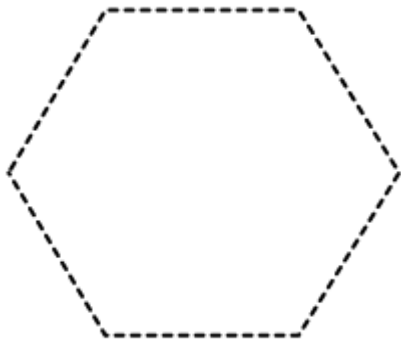


Darin mowed all but $\frac{1}{4}$ of the yard. If he divides the yard into $\frac{1}{12}$ ths, how many sections does he have left to mow?

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How many _____ pieces (of the whole) are in _____? How do you know?



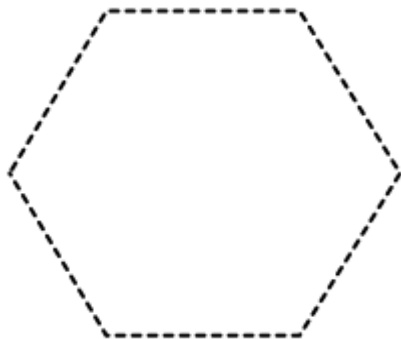
$$\frac{1}{3} \div \frac{1}{12}$$

There was $\frac{1}{3}$ of a pizza left over. How many $\frac{1}{12}$ pieces can we cut out of it?

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How many $\frac{1}{12}$ pieces (of the whole) are in $\frac{1}{3}$? How do you know?



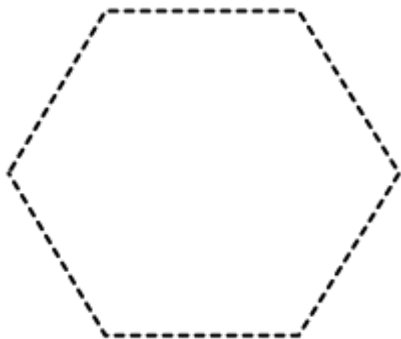
$$\frac{1}{2} \div \frac{1}{6}$$

There was $\frac{1}{2}$ of a yard of ribbon. How many $\frac{1}{6}$ of a yard pieces can we cut?

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How many $\frac{1}{6}$ pieces (of the whole) are in $\frac{1}{2}$? How do you know?



Darin only mowed $\frac{1}{4}$ of the yard. If he divides the yard into sixths, how many sections does he have left to mow?

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How many _____ pieces (of the whole) are in _____? How do you know?
