Module 3 - Lesson 12:

Divide a nonzero whole number by a unit fraction to find the number of groups.

CCSS Standard – 5.NF.B.7b / 5.NF.B.7/c

FLUENCY (10-min) **Choral Response: Divide Whole Numbers**

Raise your hand when you know the answer to each question.
Wait for my signal to say the answer.

What division expression represents this question? How many twos are in 6?

What is 6 ÷ 2?

FLUENCY (10-min) **Choral Response: Divide Whole Numbers**

Raise your hand when you know the answer to each question.
Wait for my signal to say the answer.

What division expression represents this question?

How many threes are in 27?

What is 27 ÷ 3?

FLUENCY (10-min) **Choral Response: Divide Whole Numbers**

Raise your hand when you know the answer to each question.
Wait for my signal to say the answer.

What division expression represents this question?

12 is 4 groups of what?

What is 12 ÷ 4?

FLUENCY (10-min) **Choral Response: Divide Whole Numbers**

Raise your hand when you know the answer to each question.
Wait for my signal to say the answer.

What division expression represents this question?

25 is 5 groups of what?

What is 25 ÷ 5?

FLUENCY (10-min) **Choral Response: Divide Whole Numbers**

Raise your hand when you know the answer to each question.
Wait for my signal to say the answer.

What division expression represents this question?

How many sixes are in 42?

What is 42 ÷ 6?

FLUENCY (10-min) **Choral Response: Divide Whole Numbers**

Raise your hand when you know the answer to each question.
Wait for my signal to say the answer.

What division expression represents this question?

63 is 7 groups of what?

What is 63 ÷ 7?

FLUENCY (10-min) **Choral Response: Divide Whole Numbers**

Raise your hand when you know the answer to each question.
Wait for my signal to say the answer.

What division expression represents this question?

How many eights are in 64?

What is 64 ÷ 8?

FLUENCY (10-min) **Choral Response: Divide Whole Numbers**

Raise your hand when you know the answer to each question.
Wait for my signal to say the answer.

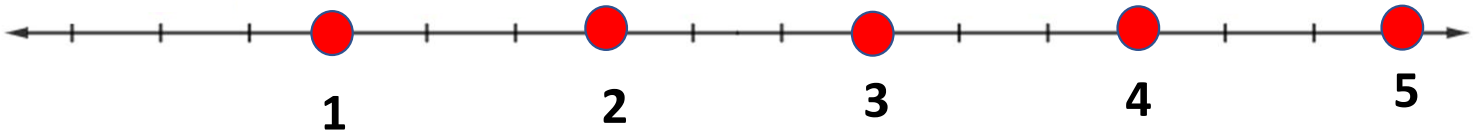
What division expression represents this question?

54 is 9 groups of what?

What is 54 ÷ 9?

FLUENCY (10-min) **Choral Response: Fractions Equal to Whole Numbers**

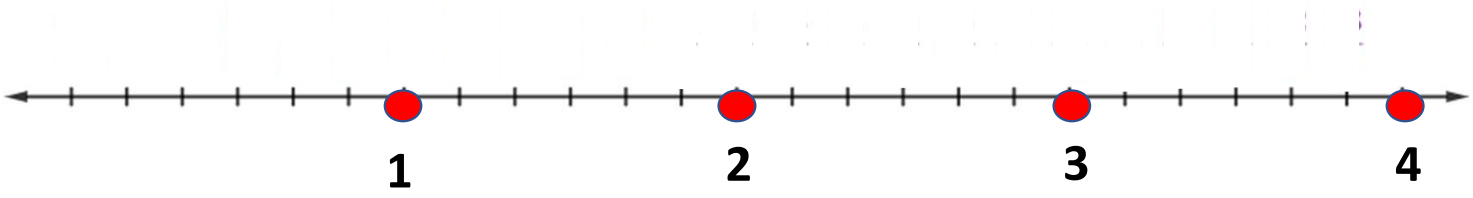
Use the number line to count forward by thirds from 0 thirds to 15 thirds.
The first number you say is 0 thirds. Ready?



Where are the WHOLE numbers located on the number line?

FLUENCY (10-min) **Choral Response: Fractions Equal to Whole Numbers**

Use the number line to count forward by sixths from 0 sixths to 24 sixths.
The first number you say is 0 sixths. Ready?



Where are the WHOLE numbers located on the number line?

FLUENCY (10-min) **Whiteboard Exchange: Multiply a Whole Number by a Fraction**

Write and complete the equation.

$\frac{1}{3} \times 6 =$ _____

$\frac{2}{3} \times 9 =$ _____

$\frac{1}{4} \times 4 =$ _____

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

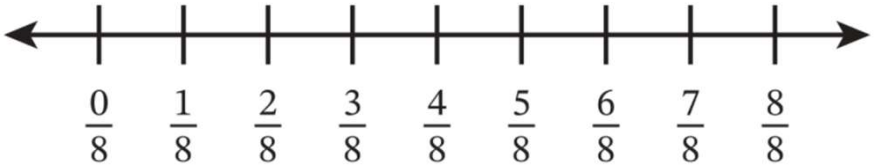
$\frac{1}{5} \times 10 =$ _____

$\frac{4}{5} \times 3 =$ _____

LAUNCH (10-min) **Students divide 1 by a unit fraction by using a tape diagram and a number line.**

How many eighths are in 1?

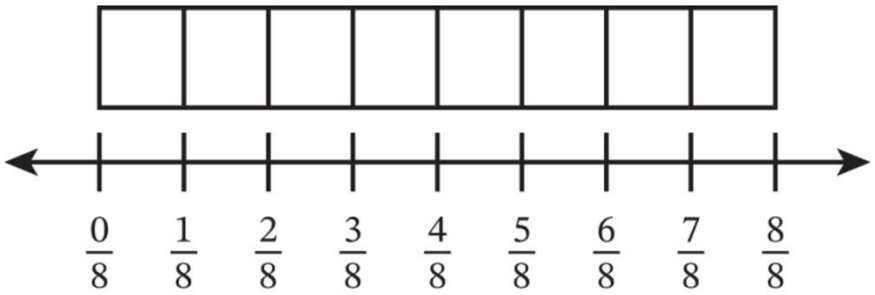
8 eighths are in 1.



The number line shows each eighth, counting up from 0/8 to 8/8. There are 8 equal intervals between 0/8 and 8/8.

The tape diagram shows 1 portioned into 8 equal units, so there are 8 eighths in 1.

What do you notice and wonder with the number line and tape diagram above each other?

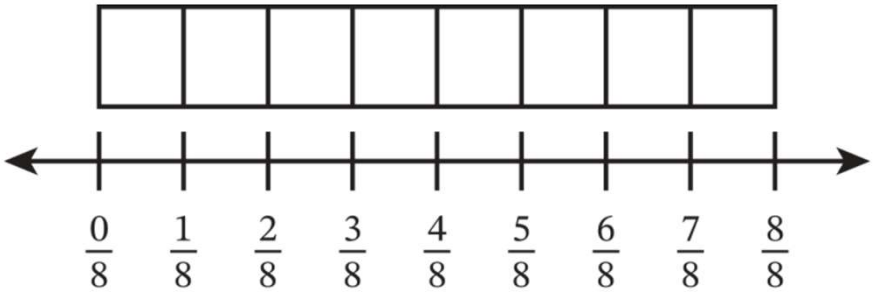


LAUNCH (10-min) **Students divide 1 by a unit fraction by using a tape diagram and a number line.**

Let's explore this a little more.

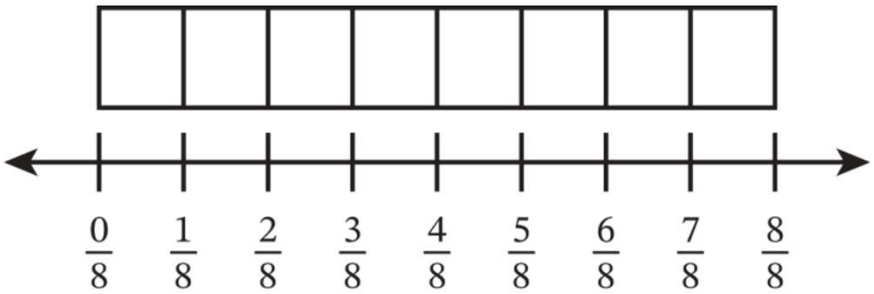
One equation that matches the representation is:

$$1 \div \frac{1}{8} = 8$$



Both the number line and the tape diagram show ONE (a total of 8/8) ***divided into 8 EQUAL PARTS****. So…….*

$$2 \div \frac{1}{8} = 16$$



TURN & TALK: *Can you see a rule that we may use for dividing a whole number by a fraction?*

Today, we will divide whole numbers by unit fractions and interpret each quotient as the number of unit fractions in each whole number.

LEARN (30-min) **Use a Number line and a Tape Diagram to Divide**

Draw the tape diagram and number line.
What total does the tape diagram represent?
How do you know?

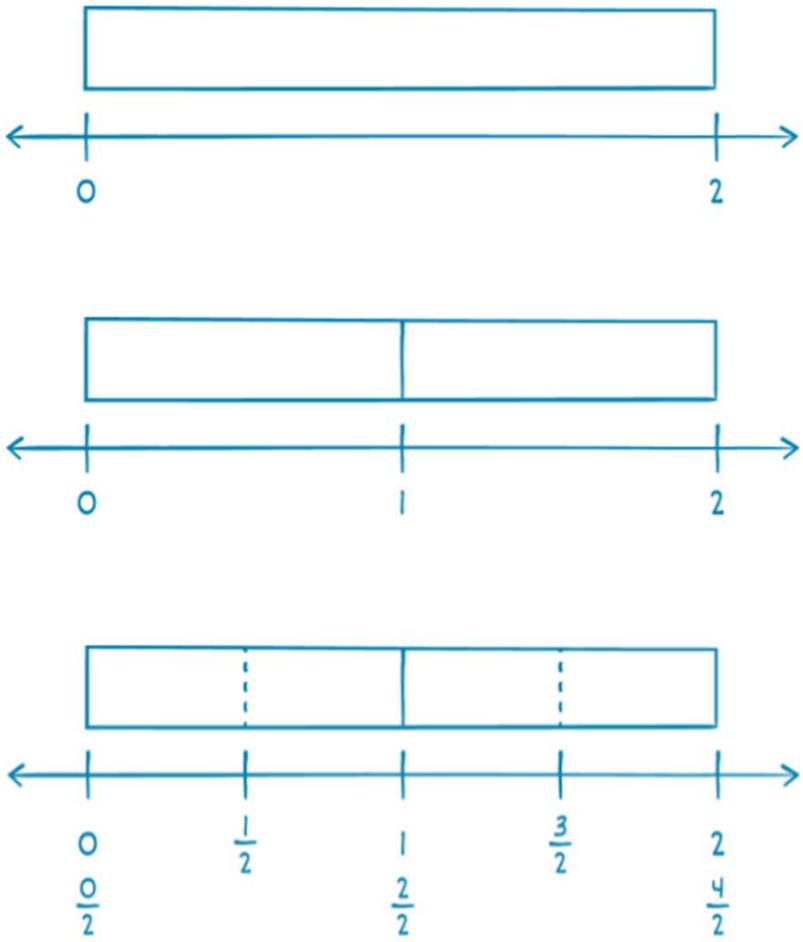
The tape diagram represents 2.

How many halves are in 2? **4**

So, our tape diagram shows that 4 halves, or 4 groups of ½ make 2.

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

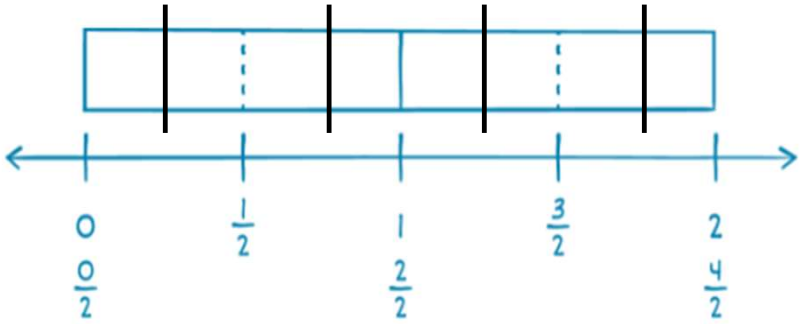
Does it make sense that the answer is greater than 2? Why?



LEARN (30-min) **Use a Number line and a Tape Diagram to Divide**

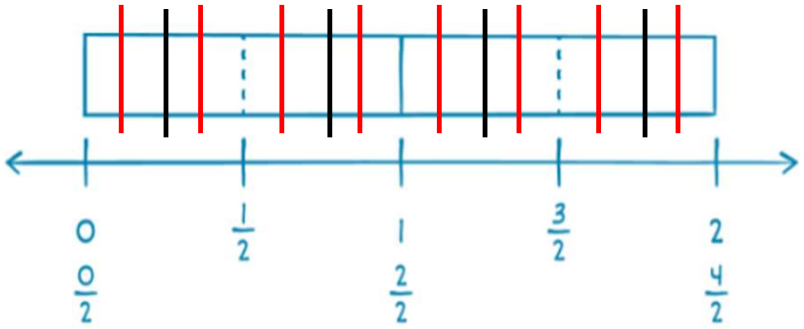
How many fourths are in 2?

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



How many eighths are in 2?

$$2 \div \frac{1}{8} = 16$$



TURN & TALK: *Can you see a rule that we may use for dividing a whole number by a fraction?*

LEARN (30-min) **Use a tape diagram to divide a nonzero whole number by a unit fraction.**

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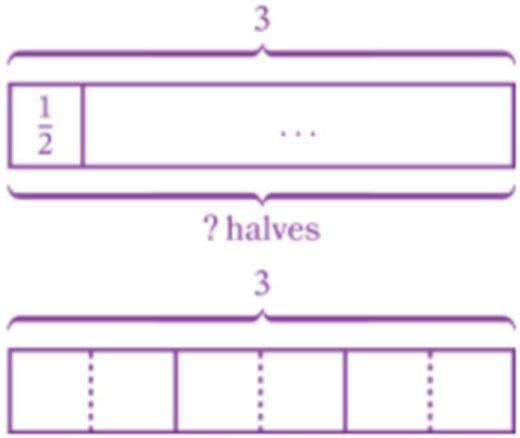
Use the Read–Draw–Write process to solve each problem.

1. A family makes 3 pans of brownies for a bake sale. They plan to sell gift bags that each hold $\frac{1}{2}$ of a pan of brownies. How many gift bags can the family make?

How many halves are in 3?

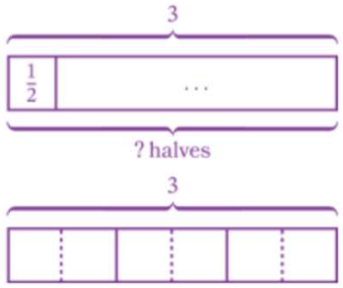


$$3 \div \frac{1}{2} = 6$$

Dividend Divisor Quotient

LEARN (30-min) **Use a tape diagram to divide a nonzero whole number by a unit fraction.**

LEARN BOOK – Page 107



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

Dividend Divisor Quotient

Let's think about what happened on this problem.

We needed to find how many HALVES are in 3. So the equation became 3 divided by ½.

The 3 pans of brownies were the DIVIDEND – the thing being divided.

½ was the size of each gift bag. Therefore, ½ was the divisor (the size of each gift bag).

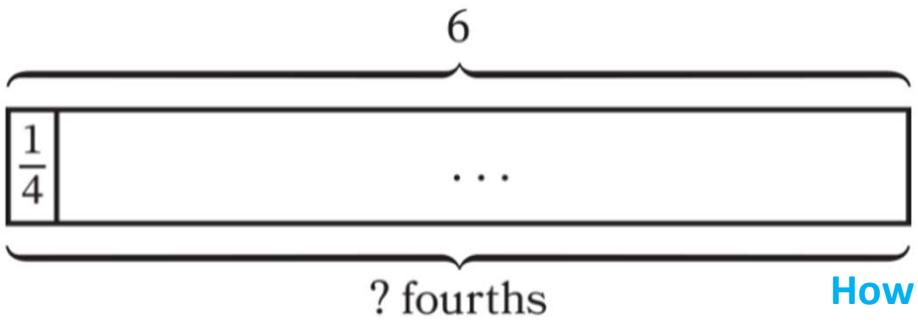
6 was the quotient or the answer – the number of gift bags that the family can sell.

Because we are dividing by a unit fraction, which is LESS THAN 1, our quotient is GREATER than the dividend!

LEARN (30-min) Use a Number line and a Tape Diagram to Divide

LEARN BOOK – Page 107 (video)

2. Julie paints birdhouses. She uses $\frac{1}{4}$ pint of paint for each birdhouse. How many birdhouses can Julie paint with 6 pints of paint?



How many fourths are in 6?

$$6 \div \frac{1}{4} = 24$$

Dividend Divisor Quotient

LEARN (30-min) **Use a Number line and a Tape Diagram to Divide**

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3. Ryan makes bags of peanuts for snacks. He has 4 pounds of peanuts. He puts $\frac{1}{6}$ pound of peanuts into each bag. How many bags can he make?

How many sixths are in 4?

$$4 \div \frac{1}{6} = 24$$

Dividend Divisor Quotient

LAND (10-min) **Exit Ticket**

12

Use the Read–Draw–Write process to solve the problem.

Jada buys 7 yards of ribbon to make bows. She uses $\frac{1}{2}$ yard of ribbon to make each bow.
How many bows can Jada make?

Exit Ticket – PAGE 113

Small Group Time:
Problem Set Pages 109 -110

Homework:
Page 77 APPLY BOOK