Eureka Math

4th Grade
Module 5
Lesson 24

At the request of elementary teachers, a team of Bethel & Sumner educators met as a committee to create Eureka slideshow presentations. These presentations are not meant as a script, nor are they required to be used. Please customize as needed. Thank you to the many educators who contributed to this project!

Directions for customizing presentations are available on the next slide.

Icons

RDW — Read, Draw, Write

Learning Target

Personal White Board

Problem Set — 1 2 3 4 5

Manipulatives Needed

Fluency — + − × ÷

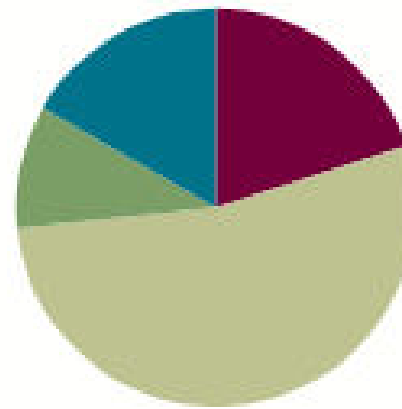Think Pair Share

Whole Class

Individual

Partner

Small Group

Small Group Time

Lesson 24

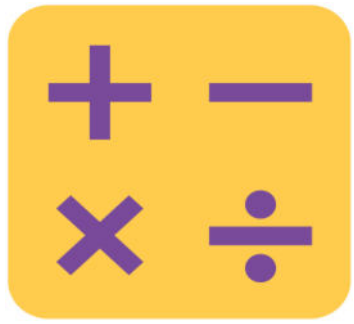Objective: Decompose and compose fractions greater than 1 to express them in various forms.

Suggested Lesson Structure

■ Fluency Practice	(12 minutes)	
■ Application Problem	(6 minutes)	
■ Concept Development	(32 minutes)	
■ Student Debrief	(10 minutes)	
Total Time	**(60 minutes)**	

Decompose and compose fractions greater than 1 to express them in various forms.

Add and Subtract

using the standard algorithm

547 thousands 936 ones plus 270 thousands 654 ones

547,239 + 381,798

500 thousands minus 213 thousands 724 ones

635,704 - 395,615

Count by Equivalent fractions

- Count by ones to 10 starting at 0.

- Count by halves to 10 halves, starting at 0 halves.

- 1 is the same as how many halves? Record.
- 2 is the same as how many halves? Record.

- Count by halves again. This time, when you come to the whole number, say the whole number.
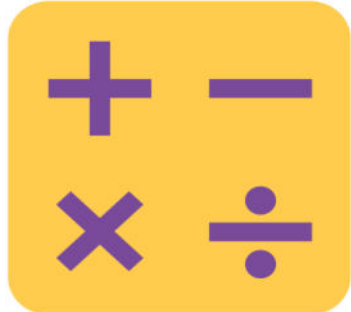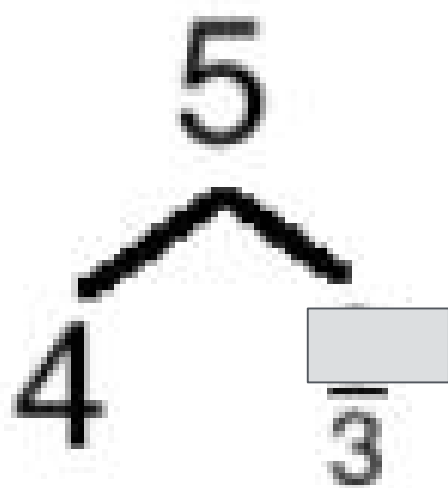
Count by Equivalent fractions

- Continue the process to create mixed numbers and whole numbers.

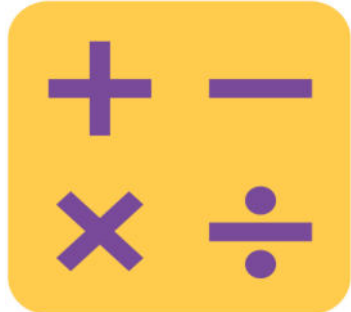| $\frac{0}{2}$	$\frac{1}{2}$	$\frac{2}{2}$	$\frac{3}{2}$	$\frac{4}{2}$	$\frac{5}{2}$	$\frac{6}{2}$	$\frac{7}{2}$	$\frac{8}{2}$	$\frac{9}{2}$	$\frac{10}{2}$
0	$\frac{1}{2}$	1	$\frac{3}{2}$	2	$\frac{5}{2}$	3	$\frac{7}{2}$	4	$\frac{9}{2}$	5
0	$\frac{1}{2}$	1	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5
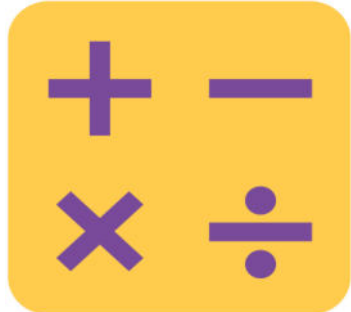
Add and Subtract Fractions

$$5$$

$$4 \qquad \dfrac{\Box}{3}$$
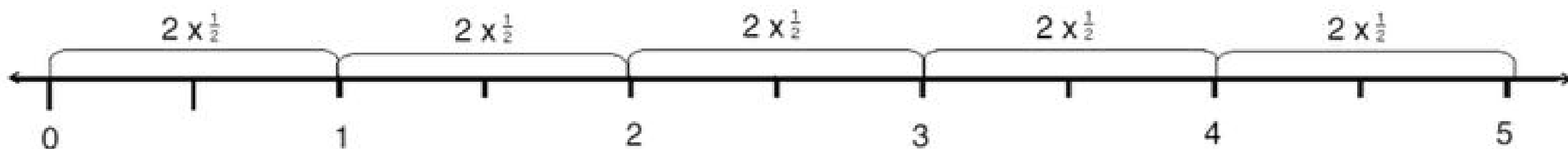
- How many thirds are in 1?

- Write the number sentence.

$$5 - \dfrac{2}{3} = 4 + \dfrac{1}{3} = 4\dfrac{1}{3}$$

Multiply Fractions on a Number Line

- Draw a number line.
- Show 10 x ½ .
- How many halves will you record on your number line?
- Starting at 0, draw tick marks on your number line to represent 10 halves.
- How many halves are in 1?
- Label as many ones as possible, and record each with multiplication.

$$10 \times \frac{1}{2} = 5 \times \frac{2}{2} = 5$$

RDW Application Problem

Shelly read her book for ½ hour each afternoon for 9 days. How many hours did Shelly spend reading in all 9 days?

Rename fractions as mixed numbers using decomposition.

$$\frac{7}{3}$$

How many thirds make 1?
Count by 3 thirds.

We only have 7 thirds. Decompose 7/3 using a bond to show 6/3 and the remaining fraction.

$$\frac{7}{3}$$

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

Use the bond to write an addition sentence for 7/3.

Rename using whole numbers.

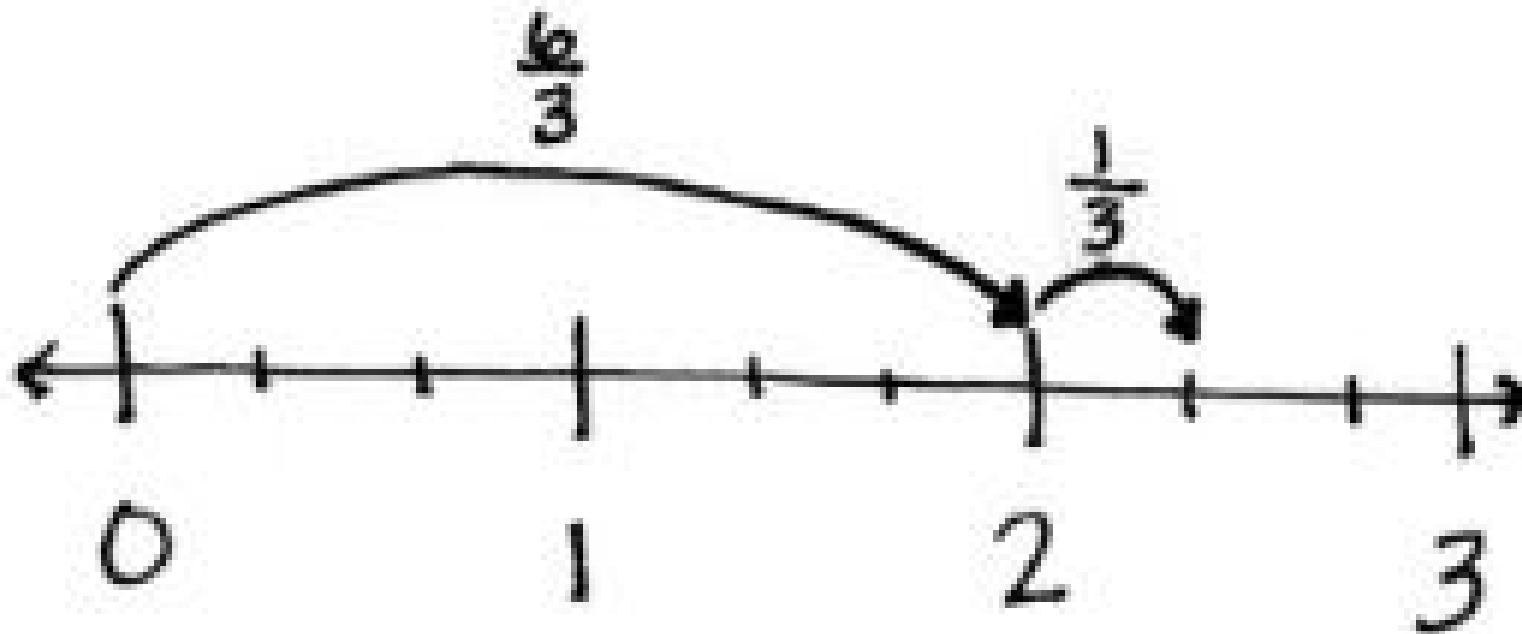$$\frac{7}{3} = \frac{6}{3} + \frac{1}{3} = 2 + \frac{1}{3} = 2\frac{1}{3}$$

Rename fractions as mixed numbers using decomposition.

$$\frac{7}{3} = 2\frac{1}{3}$$

Let's use a number line to model the equivalency.

Draw a number line with endpoints 0 and 3. Decompose each whole number into thirds and plot 7/3. Start at zero. Slide 6/3. Slide ⅓. 7/3 is equal to _____.

Convert a fraction into a mixed number using multiplication..

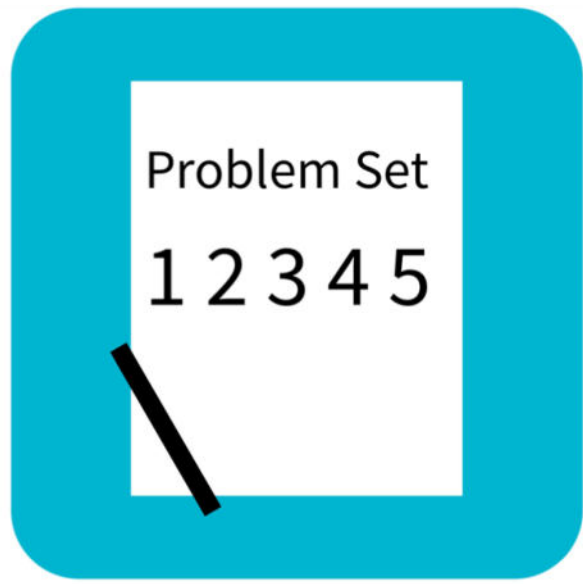$$\frac{7}{3}$$

How many groups of 3 thirds are in 7 thirds?

We write two groups of 3 thirds as 2 x 3/3 .

$$\frac{7}{3} = \left(2 \times \frac{3}{3}\right) + \frac{1}{3}$$
$$= 2 + \frac{1}{3}$$
$$= 2\frac{1}{3}$$

True or False?
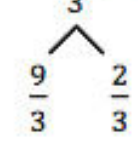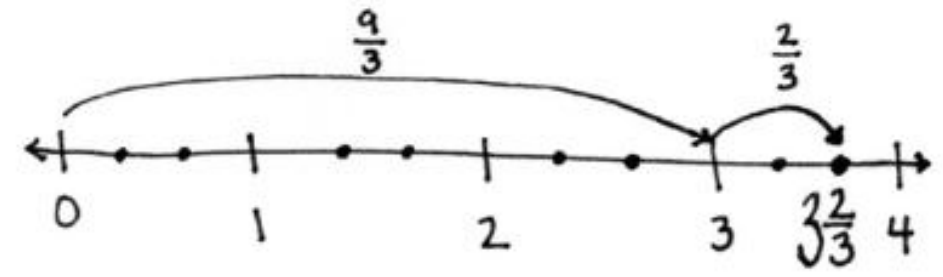Discuss.

$$2\frac{1}{3} = \frac{7}{3}$$

Problem Set

Problem Set
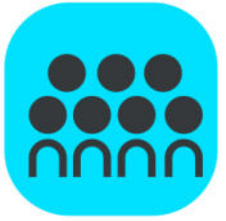
1 2 3 4 5

Name _____   Date _____

1. Rename each fraction as a mixed number by decomposing it into two parts as shown below. Model the decomposition with a number line and a number bond.

a. $\frac{11}{3}$

$$\frac{11}{3} = \frac{9}{3} + \frac{2}{3} = 3 + \frac{2}{3} = 3\frac{2}{3}$$

$\frac{9}{3}$ $\frac{2}{3}$

b. $\frac{12}{5}$

Debrief

- How can drawing a number line help you when converting a fraction to a mixed number?

- How can decomposing a fraction into two parts help you rename each fraction?

- In Problem 1, how did you decide what your two parts should be? Use a specific example to explain.

Debrief

- Compare the strategies you used in Problem 1 with the strategies you used in Problem 2. In the example in Problem 1(a) and Problem 2(a), how is using a number bond of $\frac{9}{3}$ and $\frac{2}{3}$ related to $\frac{3 \times 3}{3} + \frac{2}{3}$?

- In Problem 3, which fractions were the easiest for you to convert? Which were the most challenging? Why?

- How did the Application Problem connect to today's lesson?

Exit Ticket

Name _____ Date _____

1. Rename the fraction as a mixed number by decomposing it into two parts. Model the decomposition with a number line and a number bond.

$$\frac{17}{5}$$

2. Convert the fraction to a mixed number. Model with a number line.

$$\frac{19}{3}$$