# Eureka Math

## 4th Grade
## Module 5
## Lesson 3

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


Read, Draw, Write

Learning Target

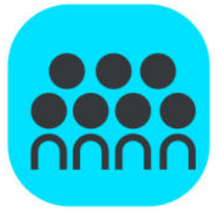
Personal White Board


Problem Set

Manipulatives Needed

Fluency

Think Pair Share



Whole Class

Individual

Partner

Small Group

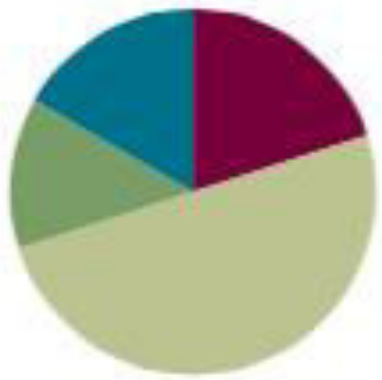
Small Group Time

# Lesson 3

Objective: Decompose non-unit fractions and represent them as a whole number times a unit fraction using tape diagrams.

**Suggested Lesson Structure**

| | |
|---|---|
| Fluency Practice | (12 minutes) |
| Application Problem | (8 minutes) |
| Concept Development | (30 minutes) |
| Student Debrief | (10 minutes) |
| **Total Time** | **(60 minutes)** |



Decompose non-unit fractions and represent them as a whole number times a unit fraction using tape diagrams.

# Mental Multiplication

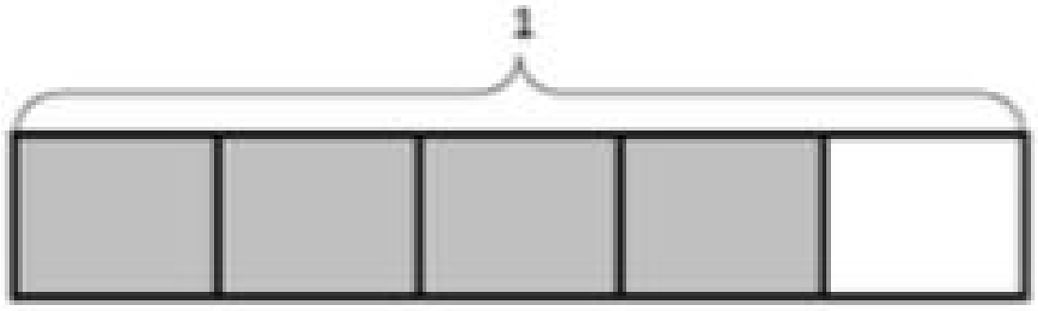
32 x 2=_____

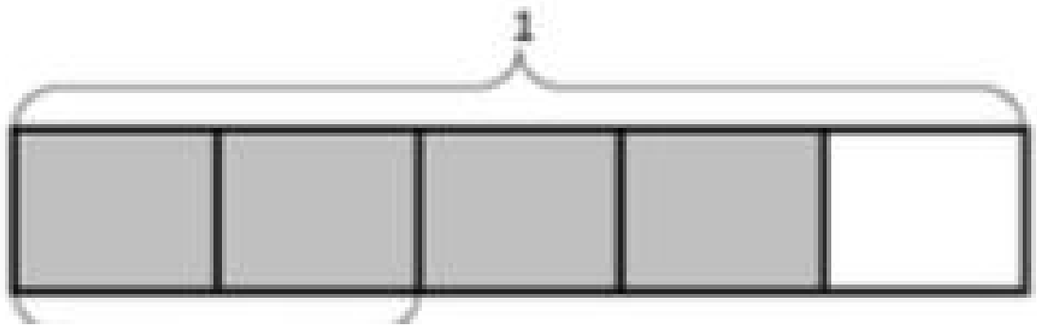
32 x 20=_____

23 x 3=

23 x 30=_____

# Add fractions




- What part of the tape diagram is shaded?
- Decompose both tape diagrams in three different ways. One way MUST in a sum of UNIT fractions.

# Application Problem

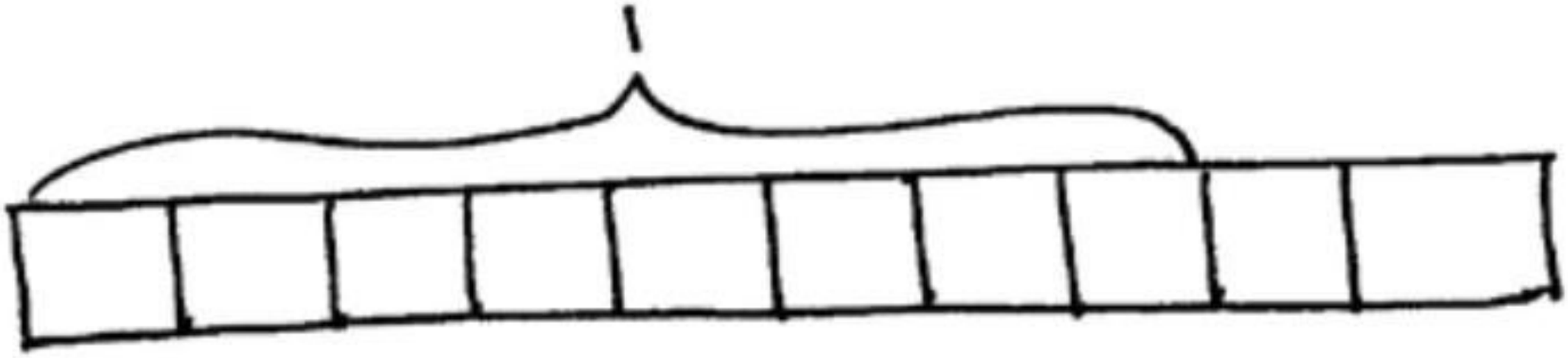
Mrs. Beach prepared copies for 4 reading groups. Each reading group needed 6 copies. How many copies were needed for the class?

A. Draw a tape diagram.
B. Write both an addition and a multiplication sentence to solve.
C. What fraction of the copies is needed for 3 groups? To show that, shade the tape diagram.

# Non-unit fraction x a whole number

- What fraction is represented by the shaded part in the tape diagram from the application problem?
- Say 3 fourths decomposed as the sum of unit fractions.
- How many fourths are in 3 fourths?
- How can we write a multiplication that shows that there are 3 fourths in 3 fourths?

Now let’s try writing a multiplication sentence to show how many eighths are 7 eighths.



- What fractional unit does the tape diagram show?
- Let’s show it as a sum of unit fractions!
- How could we show this using multiplication?

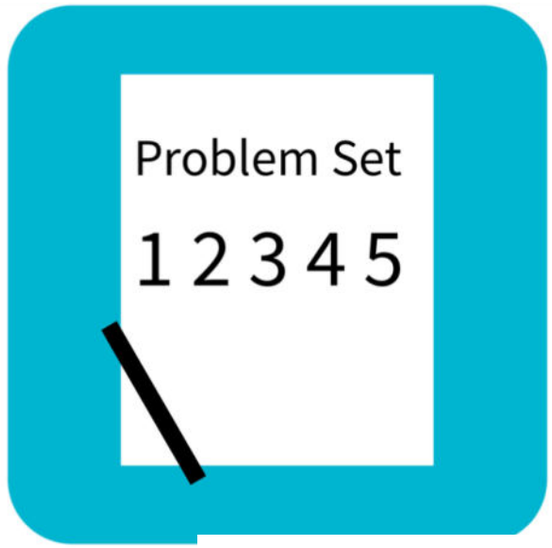
How could we show 5 x 1 third on a tape diagram?

Talk with your shoulder partner on what you would do.

Draw your tape diagram.

How could we 7 x 1 fourth.

Draw your tape diagram



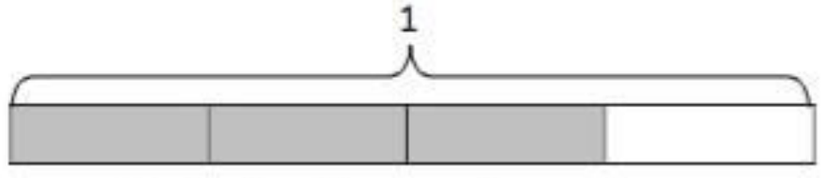

# Problem Set



Name _____ Date _____

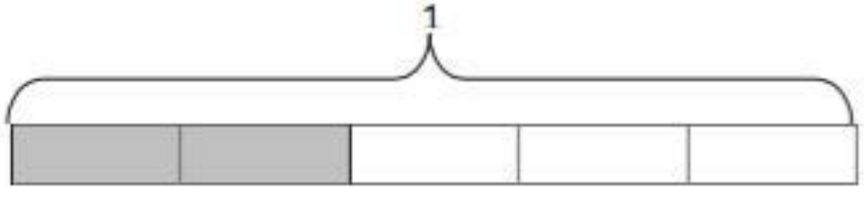
1. Decompose each fraction modeled by a tape diagram as a sum of unit fractions. Write the equivalent multiplication sentence. The first one has been done for you.

a.




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

b.



# Debrief

- What is an advantage to representing the fractions using multiplication?
- What is similar in Problems 3(c), 3(d), and 3(e)? Which fractions are greater than 1? Which is less than 1?
- Are you surprised to see multiplication sentences with products less than 1? Why?
- In our lesson, when we expressed $\frac{5}{3}$ as $\left(3 \times \frac{1}{3}\right) + \left(2 \times \frac{1}{3}\right)$, what property were we using?
- Consider the work we did in Lessons 1 and 2 where we decomposed a tape diagram multiple ways. Can we now rewrite those number sentences using addition and multiplication? Try it with this tape diagram (as shown below).

# Exit Ticket



Name _____ Date _____

1. Decompose each fraction modeled by a tape diagram as a sum of unit fractions. Write the equivalent multiplication sentence.

a.