Lesson 14:

Subtract mixed numbers from mixed numbers with unrelated units.

CCSS Standard – 5.NF.A.1 / 5.NF.A.2

FLUENCY (10-min) **Whiteboard Exchange: Interpret Division as a Fraction**

Write the quotient as a fraction.
Then express the quotient as a whole or mixed number.

$3 \div 3 = \square = \square$

$5 \div 3 = \square = \square$

$18 \div 6 = \square = \square$

$19 \div 6 = \square = \square$

FLUENCY (10-min) **Whiteboard Exchange: Interpret Division as a Fraction**

Write the quotient as a fraction.
Then express the quotient as a whole or mixed number.

$11 \div 8 = \square = \square$

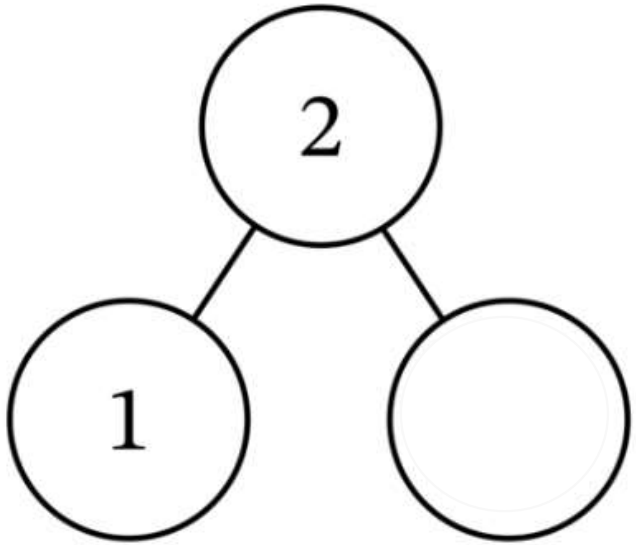
$21 \div 8 = \square = \square$

$27 \div 9 = \square = \square$

$33 \div 9 = \square = \square$

FLUENCY (10-min) **Choral Response: Decompose Whole or Mixed Numbers**

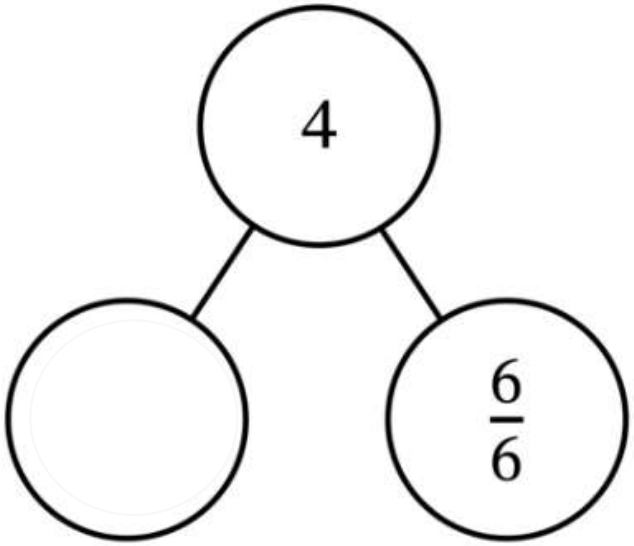
What is the unknown part? Raise your hand when you know.
When I give the signal, say the completed equation. Ready?



$$2 = 1 + \frac{\square}{3}$$

FLUENCY (10-min) **Choral Response: Decompose Whole or Mixed Numbers**

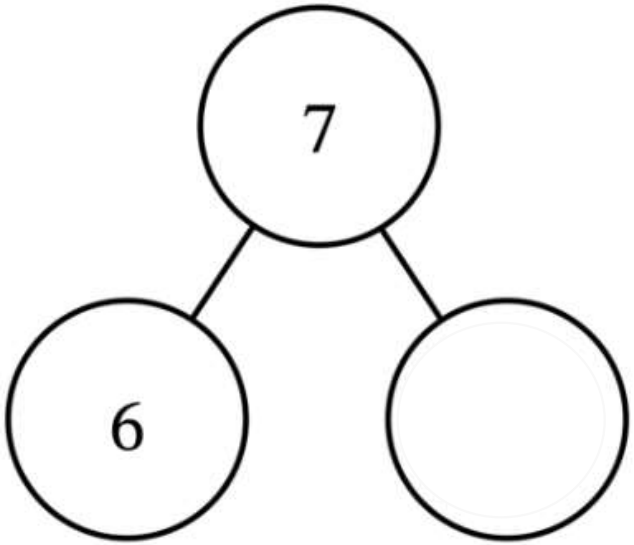
What is the unknown part? Raise your hand when you know.
When I give the signal, say the completed equation. Ready?



$$4 = \_\_\_\_ + \frac{6}{6}$$

FLUENCY (10-min) **Choral Response: Decompose Whole or Mixed Numbers**

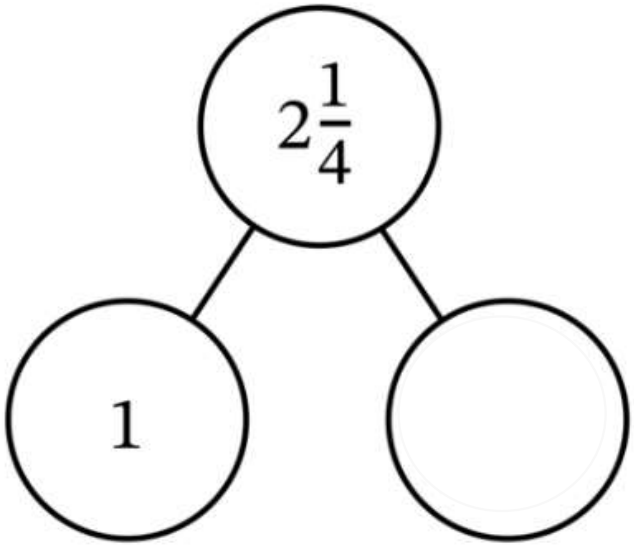
What is the unknown part? Raise your hand when you know.
When I give the signal, say the completed equation. Ready?



$$7 = 6 + \frac{\square}{7}$$

FLUENCY (10-min) **Choral Response: Decompose Whole or Mixed Numbers**

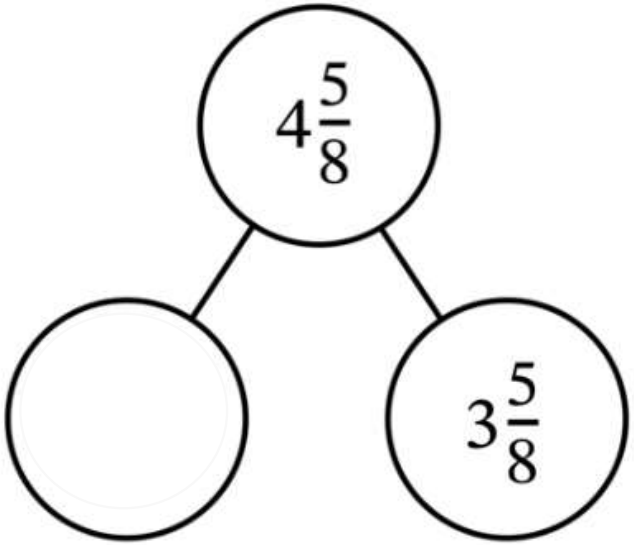
What is the unknown part? Raise your hand when you know.
When I give the signal, say the completed equation. Ready?



$$2\frac{1}{4} = 1 + \underline{\quad\quad}$$

FLUENCY (10-min) **Choral Response: Decompose Whole or Mixed Numbers**

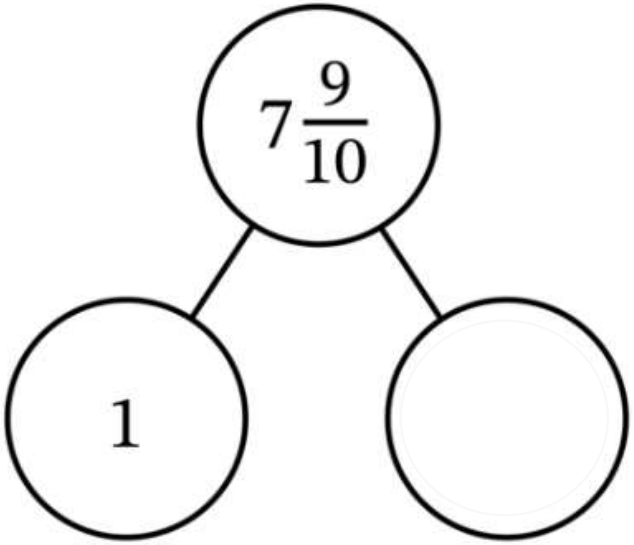
What is the unknown part? Raise your hand when you know.
When I give the signal, say the completed equation. Ready?



$$4\frac{5}{8} = \underline{\quad} + 3\frac{5}{8}$$

FLUENCY (10-min) **Choral Response: Decompose Whole or Mixed Numbers**

What is the unknown part? Raise your hand when you know.
When I give the signal, say the completed equation. Ready?



$$7\frac{9}{10} = 1 + \square$$

FLUENCY (10-min) **Whiteboard Exchange: Make Like Units**

Which fraction can we RENAME so that the fractional units are the same?
Raise your hand when you know.

$$\frac{1}{2} + \frac{3}{10}$$

We should rename 1/2 into tenths.

$= \frac{8}{10} = \frac{4}{5}$

FLUENCY (10-min) **Whiteboard Exchange: Make Like Units**

Which fraction can we RENAME so that the fractional units are the same?
Raise your hand when you know.

$$\frac{7}{12} + \frac{3}{4}$$

We should rename 3/4 into twelfths

$$= \frac{16}{12} \quad = 1\frac{4}{12} \quad = 1\frac{1}{3}$$

FLUENCY (10-min) **Whiteboard Exchange: Make Like Units**

Which fraction can we RENAME so that the fractional units are the same?
Raise your hand when you know.

$$\frac{7}{8} - \frac{3}{4}$$

We should rename 3/4 into eighths.

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

FLUENCY (10-min) **Whiteboard Exchange: Make Like Units**

Which fraction can we RENAME so that the fractional units are the same?
Raise your hand when you know.

$$\frac{2}{3} - \frac{4}{15}$$

We should rename 2/3 into fifteenths.

$= \frac{6}{15} = \frac{2}{5}$

LAUNCH (5-min) **Identify a common subtraction error.**

$$5\frac{2}{6} - 2\frac{4}{10} = 5\frac{10}{30} - 2\frac{12}{30}$$

Riley is working to find the difference $5\frac{2}{6} - 2\frac{4}{10}$. Riley knows the correct answer is $2\frac{28}{30}$ and not $1\frac{22}{30}$. Riley is confident the first part of the work is correct.

Do you agree? Is her work correct?

Riley correctly found <u>equivalent fractions</u> for both mixed numbers. This part is correct!

$$= 3\frac{10}{30} - \frac{12}{30}$$

$$2\frac{10}{30} \quad 1$$

If the top part is correct, then that means there is an error in lower part. Let's try to find the mistake by analyzing her work.

$$1 - \frac{12}{30} = \frac{18}{30}$$

$$\frac{10}{30} \quad \frac{8}{30}$$

We can see that Riley should have stopped subtracting after taking 12/30 from 1. She took away 3 but only needed to take away 2 12/30.

$$2\frac{10}{30} - \frac{10}{30} = 2$$

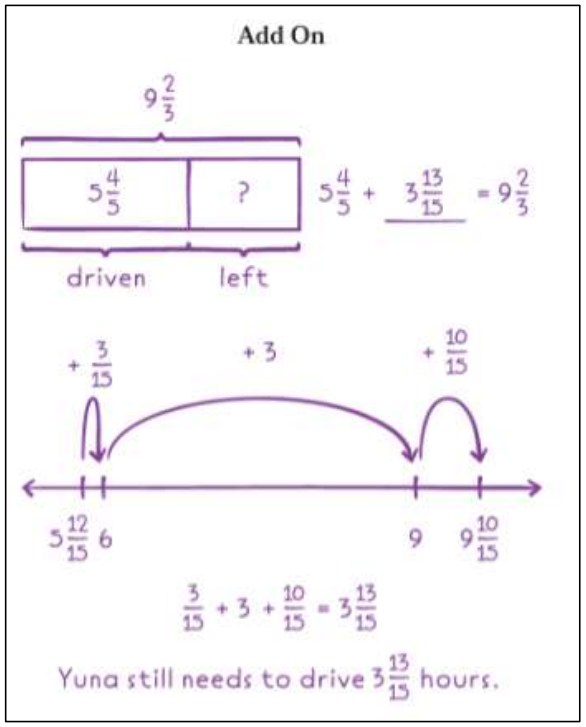
She should have added 18/30 to 2 10/30.

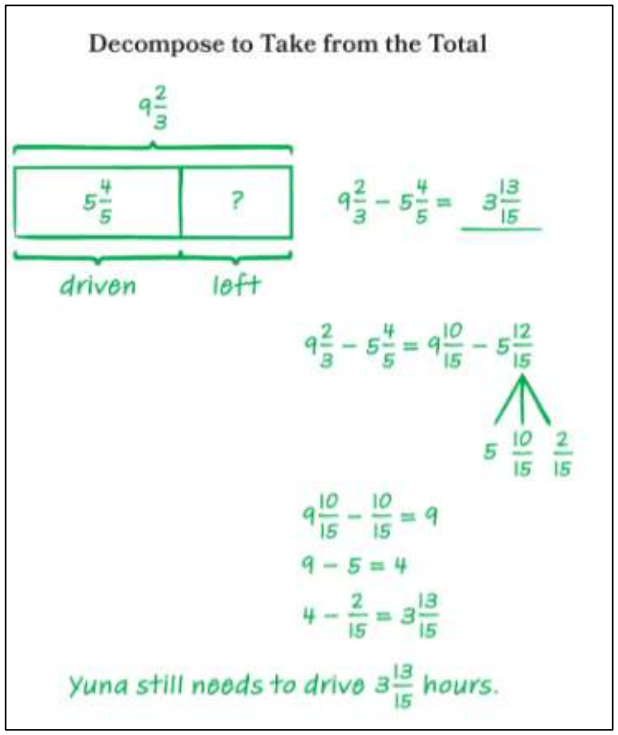
$$2 - \frac{8}{30} = 1\frac{22}{30}$$

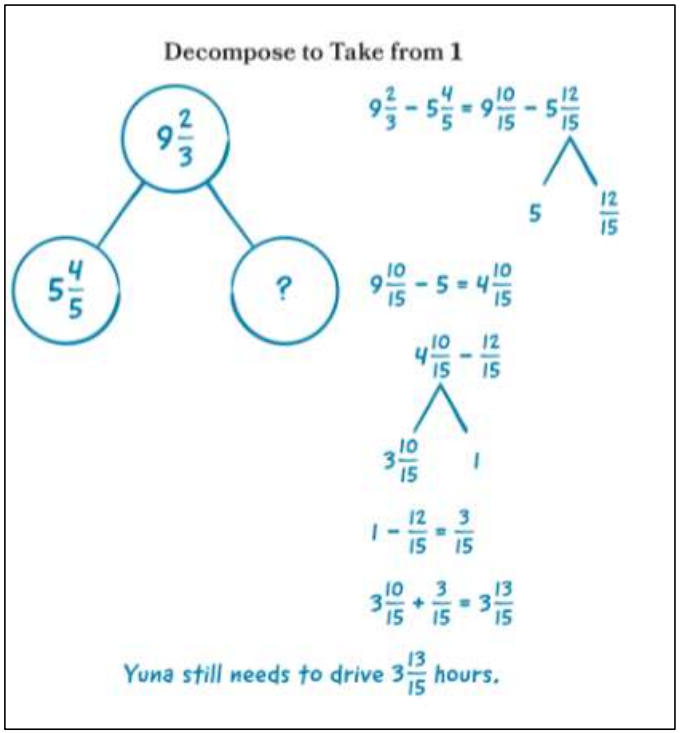
LEARN (35-min) **Select a Method to Subtract**

LEARN BOOK PAGE 121

Yuna's car trip will take $9\frac{2}{3}$ hours of driving. She stops to take a break after $5\frac{4}{5}$ hours. How many hours does Yuna still need to drive after her break?







LEARN (35-min) **Select a Method to Subtract**

LEARN BOOK PAGE 121

Yuna's car trip will take $9\frac{2}{3}$ hours of driving. She stops to take a break after $5\frac{4}{5}$ hours. How many hours does Yuna still need to drive after her break?

$$9\frac{2}{3} - 5\frac{4}{5}$$

$$9\frac{10}{15} - 5\frac{12}{15}$$

$$9\frac{10}{15} - 5\frac{10}{15} - \frac{2}{15}$$

$$4 - \frac{2}{15}$$

$$3\frac{15}{15} - \frac{2}{15} = 3\frac{13}{15}$$

Are denominators the same?
No. Is there a multiplication or division relationship?
No. We need to RENAME both.

In this solution we used subtraction to solve it.

LEARN (35-min) **Select a Method to Subtract**

LEARN BOOK PAGE 121

Yuna's car trip will take $9\frac{2}{3}$ hours of driving. She stops to take a break after $5\frac{4}{5}$ hours. How many hours does Yuna still need to drive after her break?

$$9\frac{2}{3} - 5\frac{4}{5}$$

$$9\frac{10}{15} \quad 5\frac{12}{15}$$

Are denominators the same?
No. Is there a multiplication or division relationship?
No. We need to RENAME both.

$$5\frac{12}{15} + \frac{3}{15} = 6$$

$$6 + 3 = 9$$

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

In this solution we used addition to solve it.

LEARN (35-min) **Select a Method to Subtract** **LEARN BOOK PAGE 121**

Subtraction Method

$20\frac{5}{6} - 14\frac{8}{9}$

$20\frac{15}{18} - 14\frac{16}{18}$

$20\frac{15}{18} - 14\frac{15}{18} - \frac{1}{18}$

$6 - \frac{1}{18}$ $\quad 5\frac{18}{18} - \frac{1}{18} = 5\frac{17}{18}$

Are denominators the same?
No. Is there a multiplication or division relationship?
No. We need to RENAME both.

Addition Method

$20\frac{5}{6} - 14\frac{8}{9}$

$20\frac{15}{18} \quad 14\frac{16}{18}$

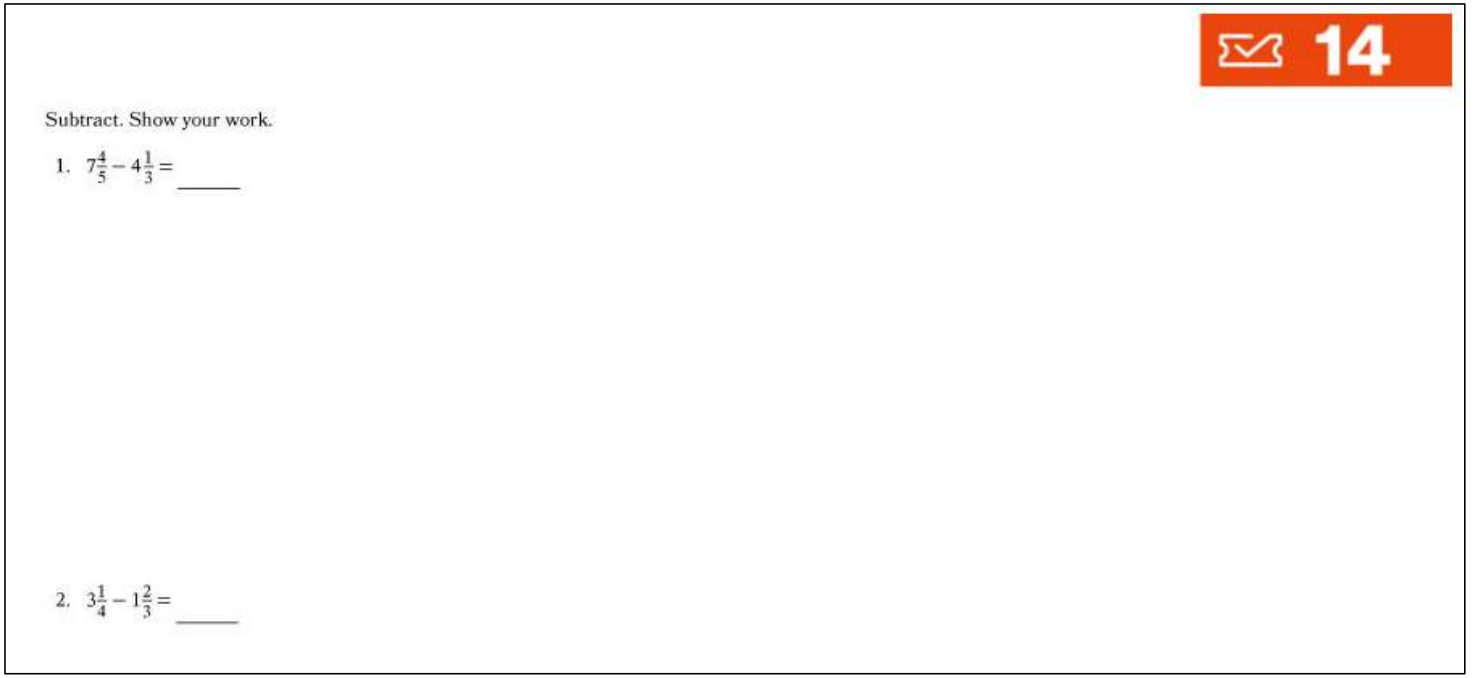
$14\frac{16}{18} + \frac{2}{18} = 15$

$15 + 5 = 20$

$20 + \frac{5}{6} = 20\frac{5}{6}$

LAND (10-min)

Exit Ticket



Exit Ticket – PAGE 127

Small Group Time:
Problem Set Pages 123 – 126

Homework:
Page 93 APPLY BOOK