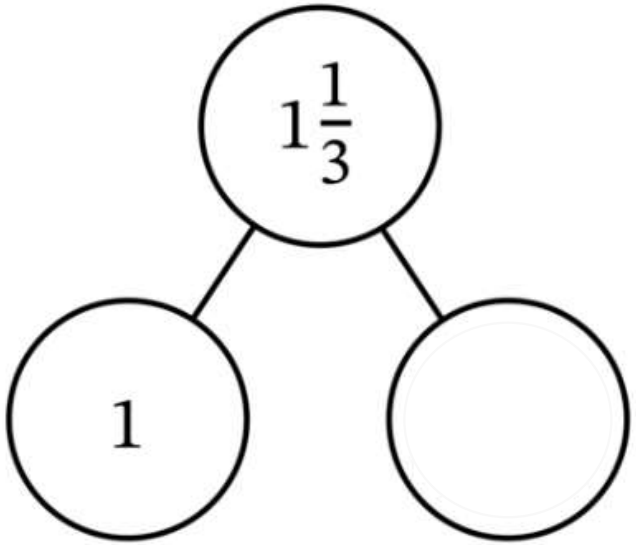
Lesson 10:

Add whole numbers and mixed numbers and add mixed numbers with related units.

CCSS Standard – 5.NF.A.1 / 5.NF.A.2

FLUENCY (15-min) **Choral Response: Decompose Mixed Numbers**

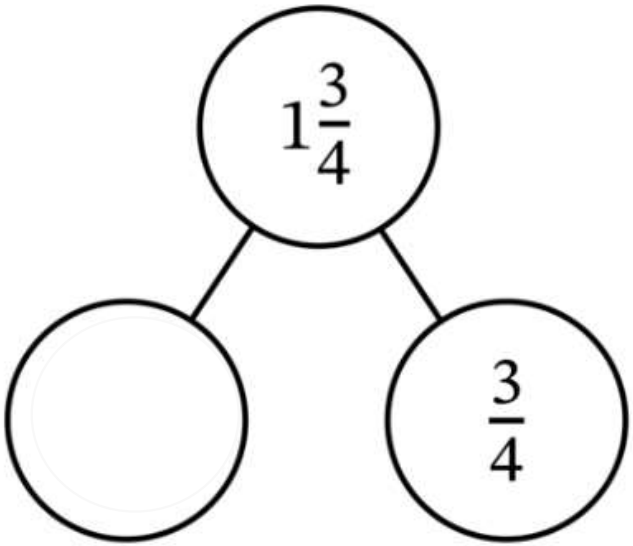
What is the unknown part? Raise your hand when you know.



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

FLUENCY (15-min) **Choral Response: Decompose Mixed Numbers**

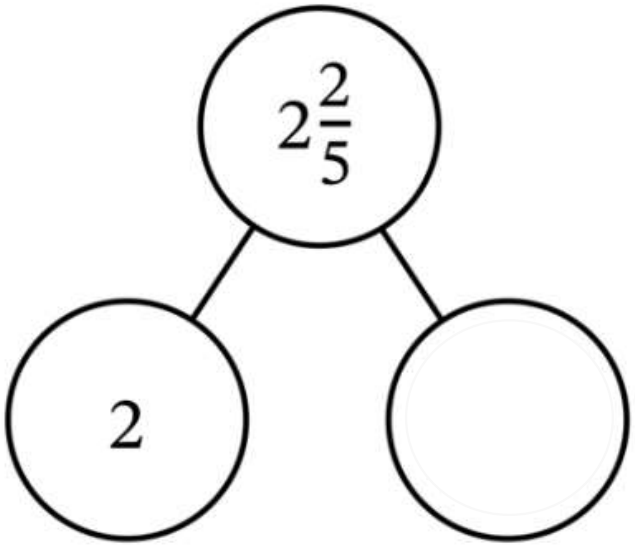
What is the unknown part? Raise your hand when you know.



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

FLUENCY (15-min) **Choral Response: Decompose Mixed Numbers**

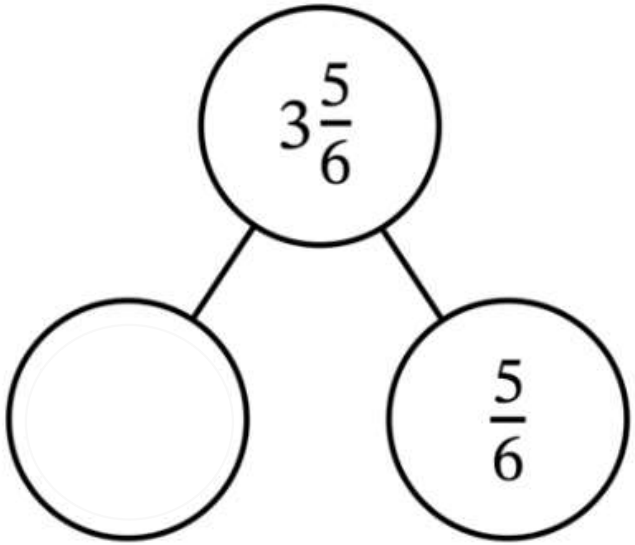
What is the unknown part? Raise your hand when you know.



$$2\frac{2}{5} = 2 + \square$$

FLUENCY (15-min) **Choral Response: Decompose Mixed Numbers**

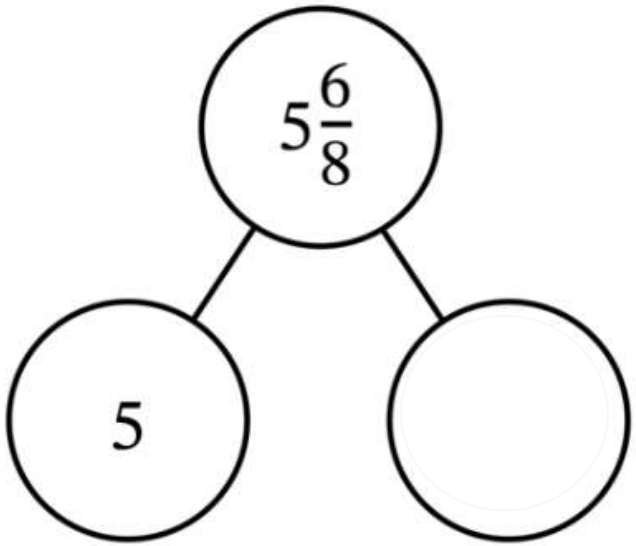
What is the unknown part? Raise your hand when you know.



$$3\frac{5}{6} = \square + \frac{5}{6}$$

FLUENCY (15-min) **Choral Response: Decompose Mixed Numbers**

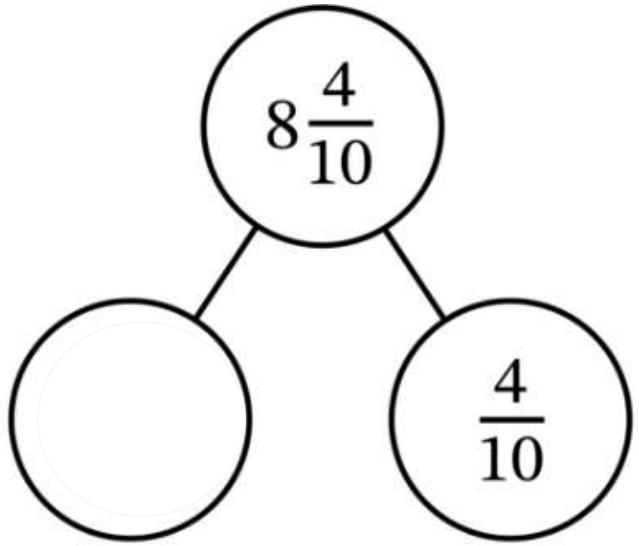
What is the unknown part? Raise your hand when you know.



$$5\frac{6}{8} = 5 + \square$$

FLUENCY (15-min) **Choral Response: Decompose Mixed Numbers**

What is the unknown part? Raise your hand when you know.

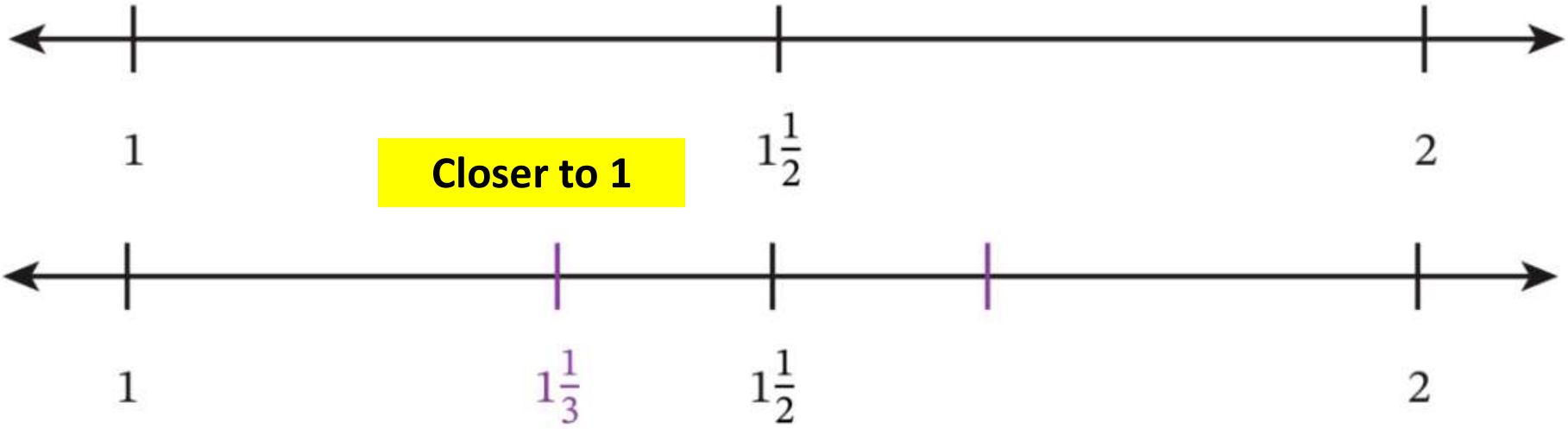


$$8\frac{4}{10} = \_\_\_\_ + \frac{4}{10}$$

FLUENCY (15-min) **Choral Response: Closer to 1 or 2?**

Think about where 1 1/3 is located on the number line.
Is 1 1/3 closer to 1 or 2?
Raise your hand when you know?

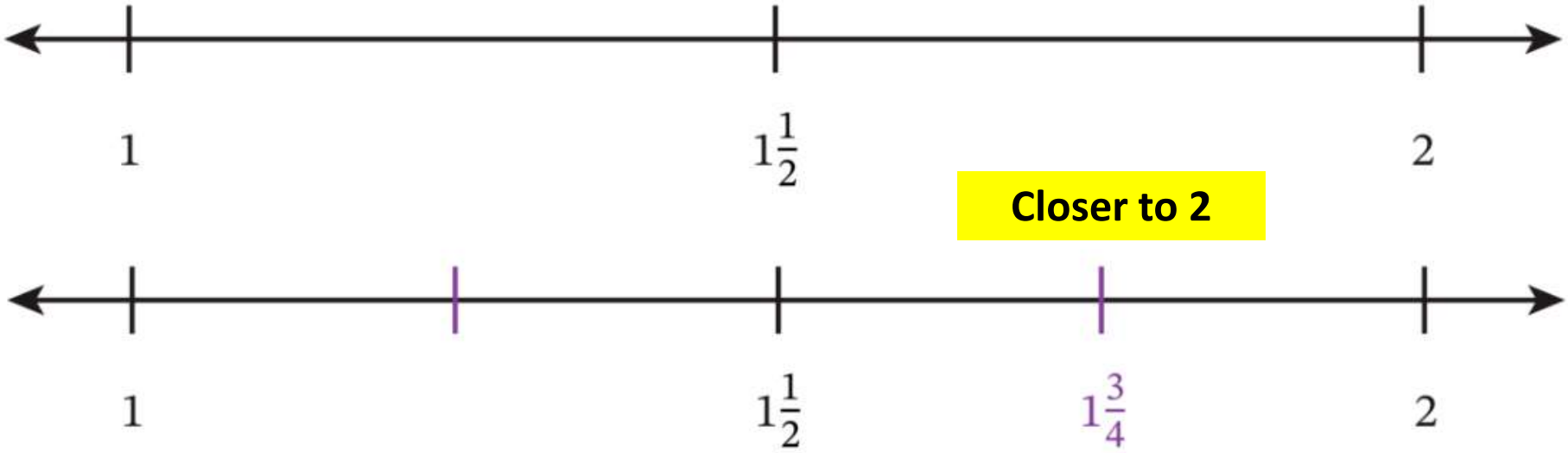
$1\frac{1}{3}$



FLUENCY (15-min) **Choral Response: Closer to 1 or 2?**

Think about where 1 3/4 is located on the number line.
Is 1 3/4 closer to 1 or 2?
Raise your hand when you know?

$1\frac{3}{4}$



FLUENCY (15-min) **Choral Response: Closer to 1 or 2?**

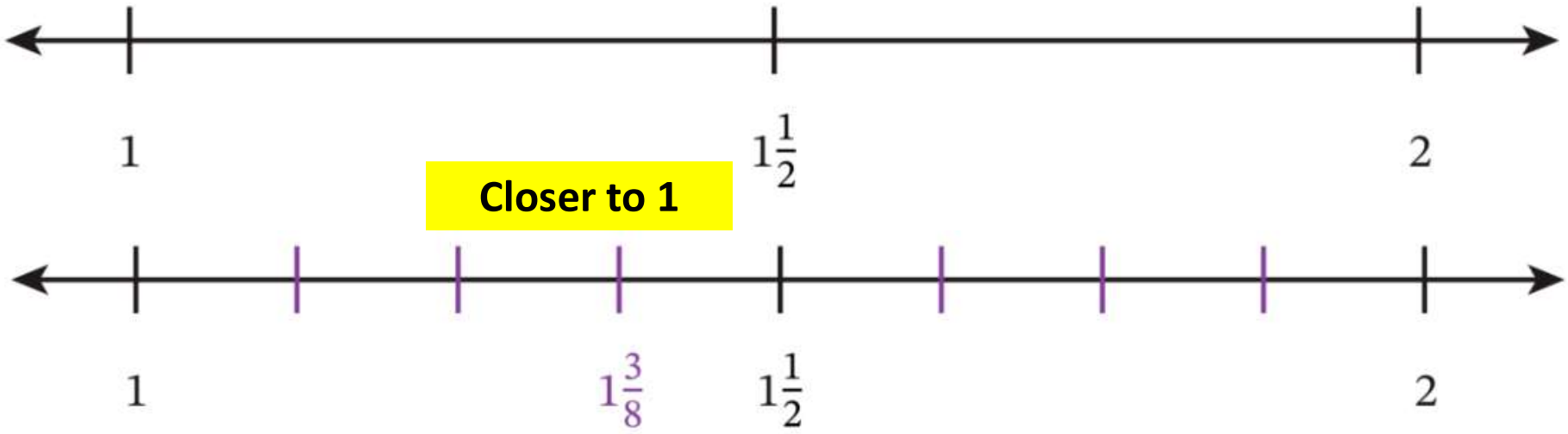
Think about where 1 4/6 is located on the number line.
Is 1 4/6 closer to 1 or 2?
Raise your hand when you know?

$1\frac{4}{6}$

FLUENCY (15-min) **Choral Response: Closer to 1 or 2?**

Think about where 1 3/8 is located on the number line.
Is 1 3/8 closer to 1 or 2?
Raise your hand when you know?

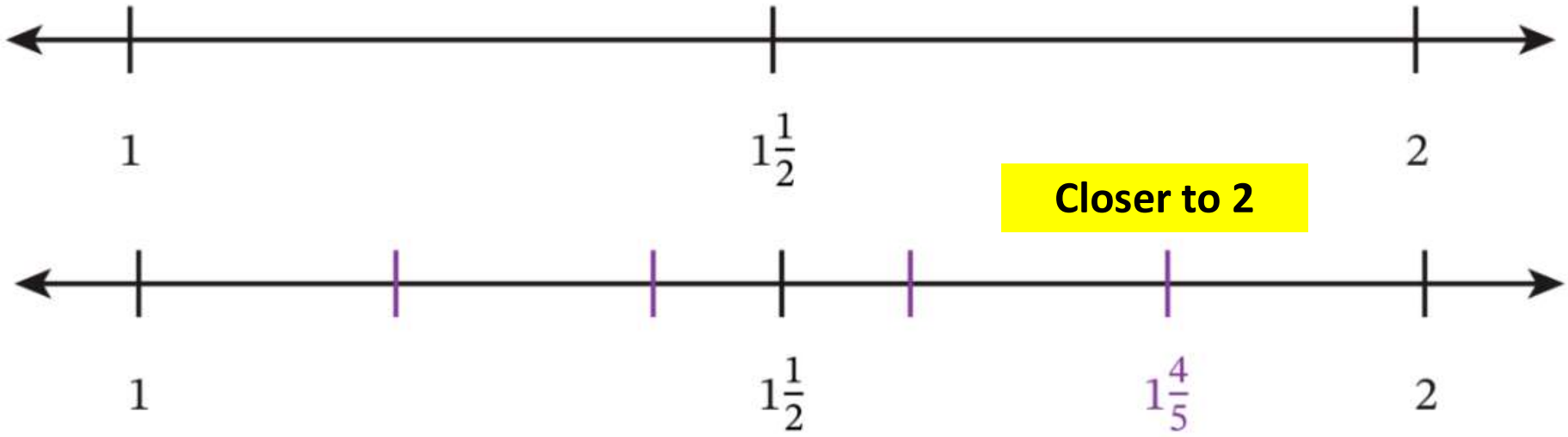
$1\frac{3}{8}$



FLUENCY (15-min) **Choral Response: Closer to 1 or 2?**

Think about where 1 4/5 is located on the number line.
Is 1 4/5 closer to 1 or 2?
Raise your hand when you know?

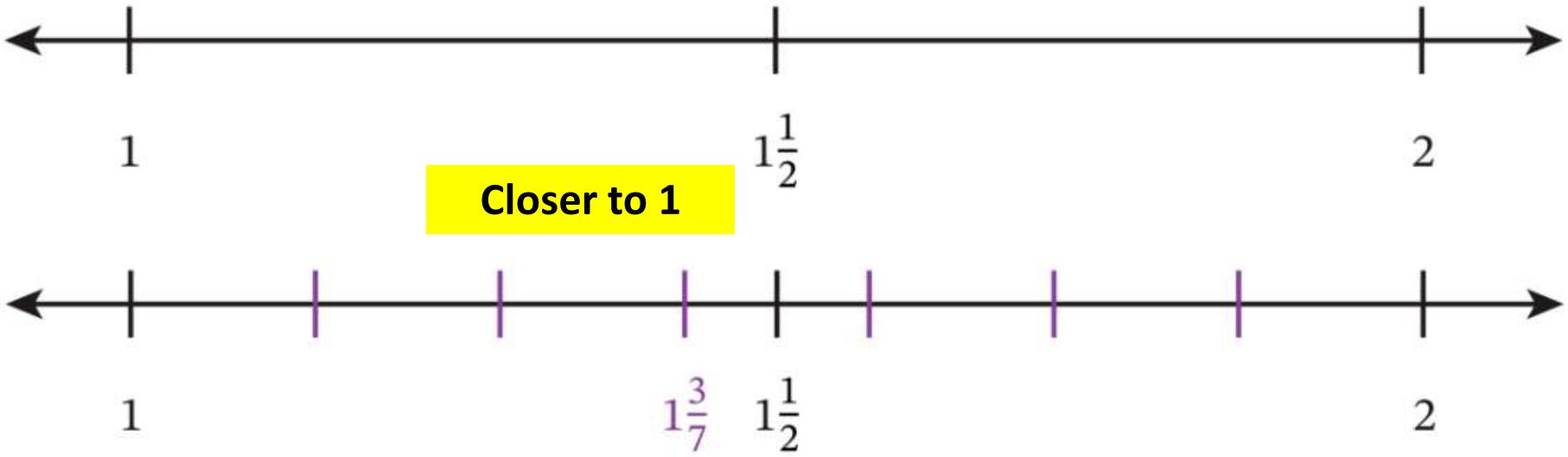
$1\frac{4}{5}$



FLUENCY (15-min) **Choral Response: Closer to 1 or 2?**

Think about where 1 3/7 is located on the number line.
Is 1 3/7 closer to 1 or 2?
Raise your hand when you know?

$1\frac{3}{7}$



FLUENCY (15-min) **Sprint: Equivalent**

SPRINT: Complete by generating an equivalent fraction.

1.	$\frac{1}{3} = \frac{\square}{6}$	2
2.	$\frac{3}{4} = \frac{9}{\square}$	12
3.	$\frac{3}{6} = \frac{\square}{2}$	1
4.	$\frac{6}{10} = \frac{3}{\square}$	5

I don't expect you to finish. Do as many problems as you can. Go for YOUR personal best.
Take your mark. Get set. Think!

FLUENCY (15-min) **Sprint: Equivalent Fractions**

Sprint A – Page 86

Sprint A

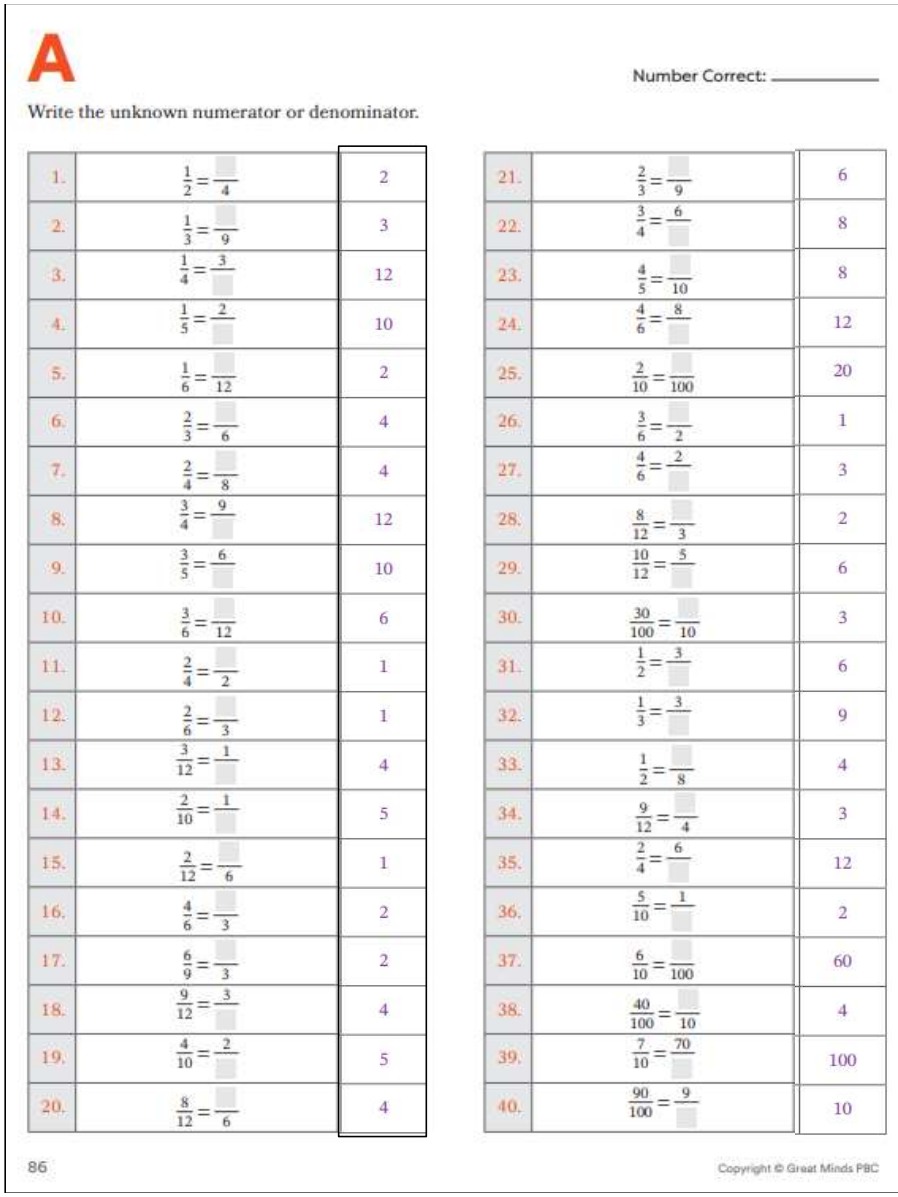
STOP!!

Underline the last problem that you did.

I am going to read the answers. If you got it right, call out "Yes!" If you made a mistake, circle the answer.

Count the number you got **correct** and write the number at the top of the page.

THIS WILL BE YOUR PERSONAL GOAL FOR SPRINT B



A

Number Correct: _____

Write the unknown numerator or denominator.

1.	$\frac{1}{2}=\frac{\square}{4}$	2
2.	$\frac{1}{3}=\frac{\square}{9}$	3
3.	$\frac{1}{4}=\frac{3}{\square}$	12
4.	$\frac{1}{5}=\frac{2}{\square}$	10
5.	$\frac{1}{6}=\frac{\square}{12}$	2
6.	$\frac{2}{3}=\frac{\square}{6}$	4
7.	$\frac{2}{4}=\frac{\square}{8}$	4
8.	$\frac{3}{4}=\frac{9}{\square}$	12
9.	$\frac{3}{5}=\frac{6}{\square}$	10
10.	$\frac{3}{6}=\frac{\square}{12}$	6
11.	$\frac{2}{4}=\frac{\square}{2}$	1
12.	$\frac{2}{6}=\frac{\square}{3}$	1
13.	$\frac{3}{12}=\frac{1}{\square}$	4
14.	$\frac{2}{10}=\frac{1}{\square}$	5
15.	$\frac{2}{12}=\frac{\square}{6}$	1
16.	$\frac{4}{6}=\frac{\square}{3}$	2
17.	$\frac{6}{9}=\frac{\square}{3}$	2
18.	$\frac{9}{12}=\frac{3}{\square}$	4
19.	$\frac{4}{10}=\frac{2}{\square}$	5
20.	$\frac{8}{12}=\frac{\square}{6}$	4
21.	$\frac{2}{3}=\frac{\square}{9}$	6
22.	$\frac{3}{4}=\frac{6}{\square}$	8
23.	$\frac{4}{5}=\frac{\square}{10}$	8
24.	$\frac{4}{6}=\frac{8}{\square}$	12
25.	$\frac{2}{10}=\frac{\square}{100}$	20
26.	$\frac{3}{6}=\frac{\square}{2}$	1
27.	$\frac{4}{6}=\frac{2}{\square}$	3
28.	$\frac{8}{12}=\frac{\square}{3}$	2
29.	$\frac{10}{12}=\frac{5}{\square}$	6
30.	$\frac{30}{100}=\frac{\square}{10}$	3
31.	$\frac{1}{2}=\frac{3}{\square}$	6
32.	$\frac{1}{3}=\frac{3}{\square}$	9
33.	$\frac{1}{2}=\frac{\square}{8}$	4
34.	$\frac{9}{12}=\frac{\square}{4}$	3
35.	$\frac{2}{4}=\frac{6}{\square}$	12
36.	$\frac{5}{10}=\frac{1}{\square}$	2
37.	$\frac{6}{10}=\frac{\square}{100}$	60
38.	$\frac{40}{100}=\frac{\square}{10}$	4
39.	$\frac{7}{10}=\frac{70}{\square}$	100
40.	$\frac{90}{100}=\frac{9}{\square}$	10

86

FLUENCY (15-min) **Sprint: Equivalent Fractions**

Sprint A – Page 88
Take your mark. Get set. Improve!

Sprint B

STOP!!

Underline the last problem that you did.

I am going to read the answers. If you got it right, call out "Yes!" If you made a mistake, circle the answer.

Count the number you got **correct** and write the number at the top of the page.

Determine your improved score!

B

Number Correct: _____

Improvement: _____

Write the unknown numerator or denominator.

1.	$\frac{1}{2}=\frac{2}{\square}$	4
2.	$\frac{1}{3}=\frac{3}{\square}$	9
3.	$\frac{1}{4}=\frac{\square}{12}$	3
4.	$\frac{1}{5}=\frac{\square}{10}$	2
5.	$\frac{1}{6}=\frac{2}{\square}$	12
6.	$\frac{2}{3}=\frac{4}{\square}$	6
7.	$\frac{2}{4}=\frac{4}{\square}$	8
8.	$\frac{3}{4}=\frac{\square}{12}$	9
9.	$\frac{3}{5}=\frac{\square}{10}$	6
10.	$\frac{3}{6}=\frac{6}{\square}$	12
11.	$\frac{2}{4}=\frac{1}{\square}$	2
12.	$\frac{2}{6}=\frac{1}{\square}$	3
13.	$\frac{3}{12}=\frac{\square}{4}$	1
14.	$\frac{2}{10}=\frac{\square}{5}$	1
15.	$\frac{2}{12}=\frac{1}{\square}$	6
16.	$\frac{4}{6}=\frac{2}{\square}$	3
17.	$\frac{6}{9}=\frac{2}{\square}$	3
18.	$\frac{9}{12}=\frac{\square}{4}$	3
19.	$\frac{4}{10}=\frac{\square}{5}$	2
20.	$\frac{8}{12}=\frac{4}{\square}$	6
21.	$\frac{2}{3}=\frac{6}{\square}$	9
22.	$\frac{3}{4}=\frac{\square}{8}$	6
23.	$\frac{4}{5}=\frac{8}{\square}$	10
24.	$\frac{4}{6}=\frac{\square}{12}$	8
25.	$\frac{2}{10}=\frac{20}{\square}$	100
26.	$\frac{3}{6}=\frac{1}{\square}$	2
27.	$\frac{4}{6}=\frac{\square}{3}$	2
28.	$\frac{8}{12}=\frac{2}{\square}$	3
29.	$\frac{10}{12}=\frac{\square}{6}$	5
30.	$\frac{30}{100}=\frac{3}{\square}$	10
31.	$\frac{1}{2}=\frac{2}{\square}$	4
32.	$\frac{1}{3}=\frac{2}{\square}$	6
33.	$\frac{1}{2}=\frac{4}{\square}$	8
34.	$\frac{9}{12}=\frac{3}{\square}$	4
35.	$\frac{2}{4}=\frac{\square}{12}$	6
36.	$\frac{5}{10}=\frac{\square}{2}$	1
37.	$\frac{6}{10}=\frac{60}{\square}$	100
38.	$\frac{40}{100}=\frac{4}{\square}$	10
39.	$\frac{7}{10}=\frac{\square}{100}$	70
40.	$\frac{90}{100}=\frac{\square}{10}$	9

LAUNCH (5-min) **Students analyze different ways of finding a SUM of whole numbers**

THINK-PAIR-SHARE: What are the similarities and differences shown in the sample work?

In A,C, and D, they add to make the next 10.

A and D use the arrow way.

In C a number line is shown starting with 97 and then adding 223 instead of starting with 223 and adding 97.

In B, like units are grouped, then added.

A

$97 + 223 = \underline{320}$

$223 \xrightarrow{+7} 230 \xrightarrow{+90} 320$

B

$97 + 223 = \underline{320}$

9 tens + 7 ones + 22 tens + 3 ones

9 tens + 22 tens = 31 tens

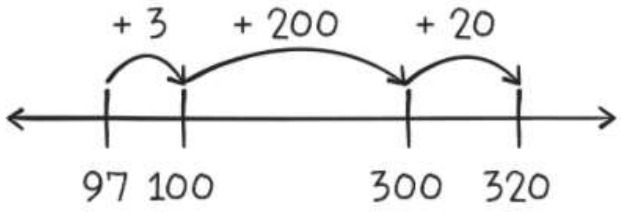
7 ones + 3 ones = 10 ones

310 + 10 = 320

C

$97 + 223 = \underline{320}$

200 20 3



D

$97 + 223 = \underline{320}$

$223 \xrightarrow{+7} 230 \xrightarrow{+70} 300 \xrightarrow{+20} 320$

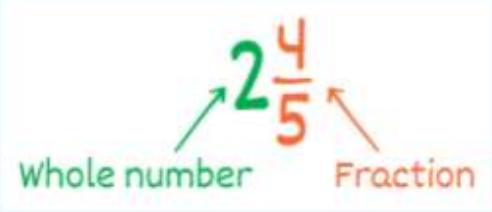
What do these methods help us understand about addition?

Today we will use what we understand about adding whole numbers to help us add MIXED numbers.

LAUNCH (5-min) **Students analyze different ways of finding a SUM of whole numbers**

MIXED NUMBERS: Understanding what a mixed number is.

The term *mixed number* is first introduced in grade 4 to refer to a number that is made of a whole number and a fraction less than 1. Consider previewing the term and discussing that $2\frac{4}{5}$ is an example of a mixed number. Label or highlight to distinguish the whole number 2 and the fraction $\frac{4}{5}$ in the mixed number $2\frac{4}{5}$.



Discuss that a whole number is a counting number (1, 2, 3, ...) or 0. Consider using the table to give examples of a whole number, fraction, and mixed number.

Whole Number	Fraction	Mixed Number
2	$\frac{4}{5}$	$2\frac{4}{5}$

LEARN (30-min) **Add with Mixed Numbers**

Let's estimate the sum.

Between which two WHOLE numbers is the sum?

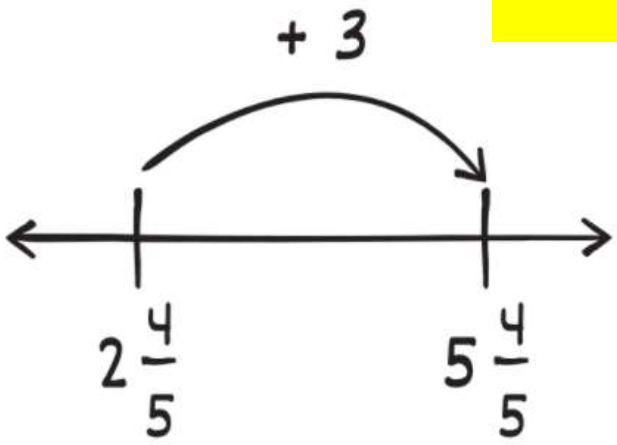
Why? *The sum is between 5 and 6. I know 2 + 3 = 5, and 4/5 is less than 1. So, the* ***sum is greater than 5 and less than 6.***

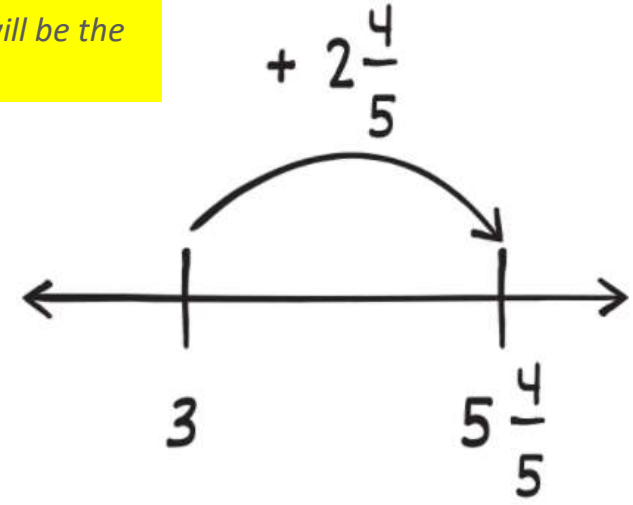
$$2\frac{4}{5} + 3$$

Look at the number lines. What is the sum?

NOTICE: *We can start with either addend and the sum will be the same.*

The sum is ***5*** *4/5*

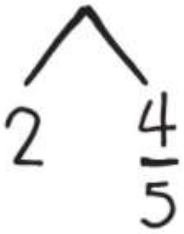




LEARN (30-min) **Add with Mixed Numbers**

What understanding of addition with whole numbers is visible in these methods?
How do you know?

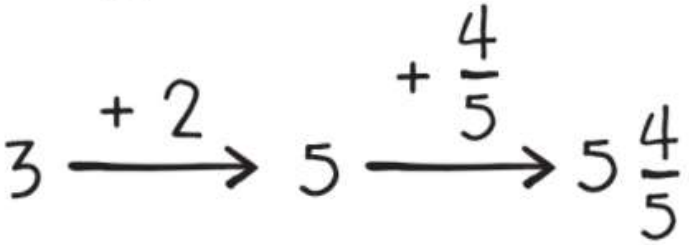
$2\frac{4}{5} + 3$



$2 + 3 = 5$

$5 + \frac{4}{5} = 5\frac{4}{5}$

$2\frac{4}{5} + 3$



We see here that we can add in different ways.
We can use number lines, number bonds, or the arrow way.
We can rely on what we know about how to add whole numbers
and how to add fractions to help us add mixed numbers.

LEARN (30-min) **Add with Mixed Numbers**

LEARN BOOK: PAGE 89

$$12\frac{12}{30} + 3\frac{1}{5} = \_\_\_\_\_$$

Before we find the sum, let's ask ourselves:

Between which two WHOLE numbers is the sum? Why?

*The sum is between 15 and 16. I know 12 + 3 = 15, and both fractions are less than ½. So, the **sum is greater than 15 and less than 16.***

Are we ready to add the fractions the way they are right now? Why?

No, because the fractions have different units.

Are the units related or unrelated?

*The units are **RELATED** because 30 is a multiple of 5 and 5 is a factor of 30.*

$$12\frac{12}{30} + 3\frac{1}{5} = \_\_\_\_\_$$

$$\frac{1}{5} = \frac{?}{30}$$

$$12\frac{12}{30} + 3\frac{6}{30} = 15\frac{18}{30}$$

$$12\frac{12}{30} + 3\frac{1}{5} = \_\_\_\_\_$$

$$\frac{12}{30} = \frac{?}{5}$$

$$12\frac{2}{5} + 3\frac{1}{5} = 15\frac{3}{5}$$

LEARN (30-min)

Make the Next Whole Number to Add

LEARN BOOK: PAGE 89

$$2\frac{3}{4} + 8\frac{7}{8} = \underline{11\frac{5}{8}}$$

Before we find the sum, let's ask ourselves:

Between which two WHOLE numbers is the sum?

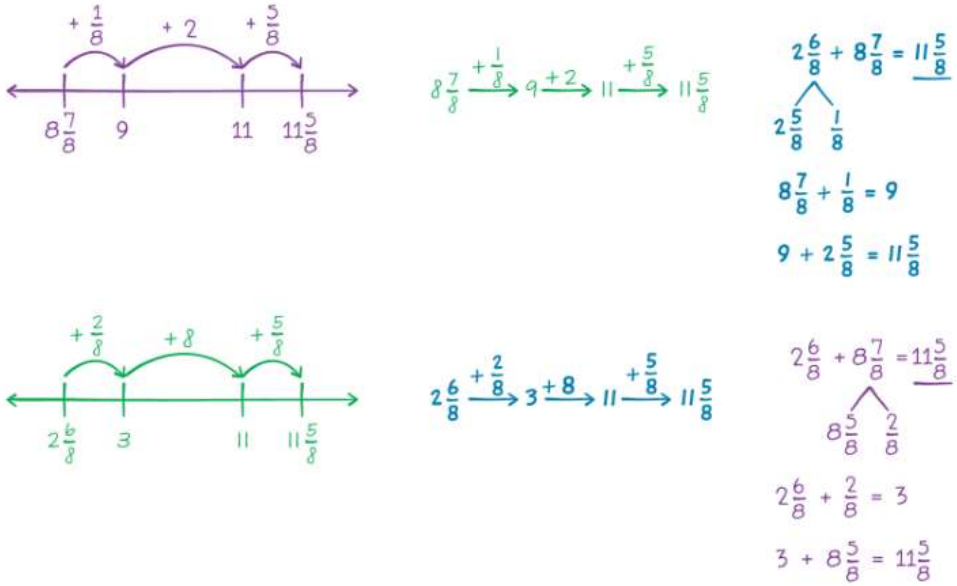
Why? *The sum is **between 11 and 12**. I know 8 7/8 is about 9 and 2 3/4 is about 3, and 9 + 3 = 12. The actual sum is a little less than 12 because 8 7/8 is less than 9, and 2 ¾ is less than 3.*

Are we ready to add the fractions the way they are right now? Why?

No, because the fractions have different units.

Are the units related or unrelated?

*The units are **RELATED** because 8 is a multiple of 4 and 4 is a factor of 8.*



What do you notice about this work?

Why do you think we can call these methods "making the next whole number"?

$$2\frac{6}{8} + 8\frac{7}{8} = 10\frac{13}{8}$$

LAND (10-min)

Exit Ticket

10

1. Add. Use the arrow way or a number bond to help you make the next whole number.

$4\frac{1}{2} + 6\frac{5}{8} = 4$ ____ $+ 6\frac{5}{8} =$ ____

2. Add. Show your work.

$3\frac{2}{5} + 2\frac{2}{15} =$ ____

Exit Ticket – PAGE 95

Small Group Time:

Problem Set Pages 91 -94

Homework:

Page 69 APPLY BOOK