Eureka Math

4th Grade
Module 5
Lesson 22

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Icons

Read, Draw, Write

Learning Target

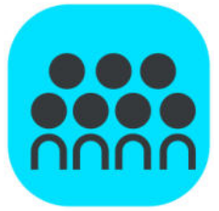
Personal White Board

Problem Set

Manipulatives Needed

Fluency

Think Pair Share



Whole Class

Individual

Partner

Small Group

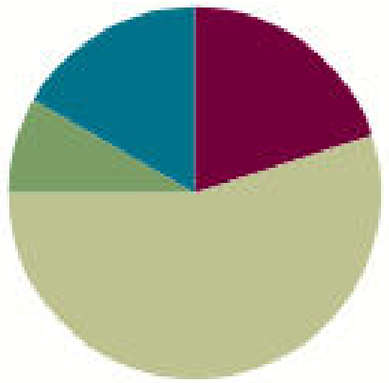
Small Group Time

Lesson 22

Objective: Add a fraction less than 1 to, or subtract a fraction less than 1 from, a whole number using decomposition and visual models.

Suggested Lesson Structure

Fluency Practice	(12 minutes)
Application Problem	(5 minutes)
Concept Development	(33 minutes)
Student Debrief	(10 minutes)
Total Time	**(60 minutes)**



Add a fraction less than 1 to, or subtract a fraction less than 1 from, a whole number using decomposition and visual models.

Sprint: add fractions

A

Number Correct: _____

Add Fractions

1.	$1 + 1 =$	
2.	$\frac{1}{5} + \frac{1}{5} =$	
3.	$2 + 1 =$	
4.	$\frac{2}{5} + \frac{1}{5} =$	
5.	$2 + 2 =$	
6.	$\frac{2}{5} + \frac{2}{5} =$	
7.	$3 + 2 =$	
8.	$\frac{3}{5} + \frac{2}{5} =$	fifths
9.	$\frac{5}{5} =$	

23.	$\frac{2}{5} + \frac{2}{5} + \frac{2}{5} =$	$1\frac{}{5}$
24.	$3 + 3 + 3 =$	
25.	$\frac{3}{8} + \frac{3}{8} + \frac{3}{8} =$	eighths
26.	$\frac{3}{8} + \frac{3}{8} + \frac{3}{8} =$	$1\frac{}{8}$
27.	$\frac{5}{8} + \frac{5}{8} + \frac{5}{8} =$	$1\frac{}{8}$
28.	$1 + 1 + 1 =$	
29.	$\frac{1}{2} + \frac{1}{2} + \frac{1}{2} =$	halves
30.	$\frac{1}{2} + \frac{1}{2} + \frac{1}{2} =$	$1\frac{}{2}$
31.	$4 + 4 + 4 =$	

Count by Equivalent fractions

- Count by twos to 20 starting at 0.

- Count by 2 tenths to 20 tenths starting at 0 tenths. Write as students count.

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

- Count by 2 tenths again.
- This time, when you come to the whole number, say the whole number.

Count by Equivalent fractions

- Say 12 tenths as a mixed number.
- Continue the process for 14/10, 16/10, 18/10
- Count by 2 tenths again. This time, convert to whole numbers and mixed numbers. (Write as students count.)

$\frac{0}{10}$	$\frac{2}{10}$	$\frac{4}{10}$	$\frac{6}{10}$	$\frac{8}{10}$	$\frac{10}{10}$	$\frac{12}{10}$	$\frac{14}{10}$	$\frac{16}{10}$	$\frac{18}{10}$	$\frac{20}{10}$
0	$\frac{2}{10}$	$\frac{4}{10}$	$\frac{6}{10}$	$\frac{8}{10}$	1	$\frac{12}{10}$	$\frac{14}{10}$	$\frac{16}{10}$	$\frac{18}{10}$	2
0	$\frac{2}{10}$	$\frac{4}{10}$	$\frac{6}{10}$	$\frac{8}{10}$	1	$1\frac{2}{10}$	$1\frac{4}{10}$	$1\frac{6}{10}$	$1\frac{8}{10}$	2

Application Problem

Winnie went shopping and spent ⅖ of the money that was on a gift card.

What fraction of the money was left on the card?

Draw a number line and a number bond to help show your thinking.

Add a fraction less than 1 to a whole number using a tape diagram.

Answer in mixed units:

2 meters + 5 centimeters is _____

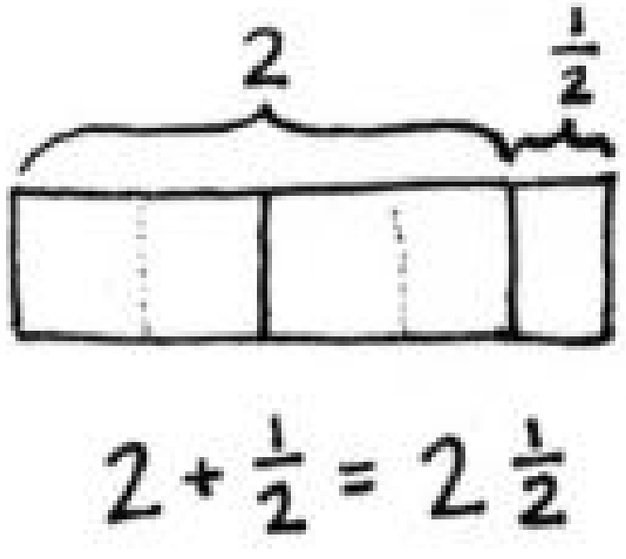
2 hours + 5 minutes is _____

2 ones + 5 eighths is _____

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

Draw a tape diagram to show ones. To know how large to draw ½, let's partition each whole number into 2 halves.

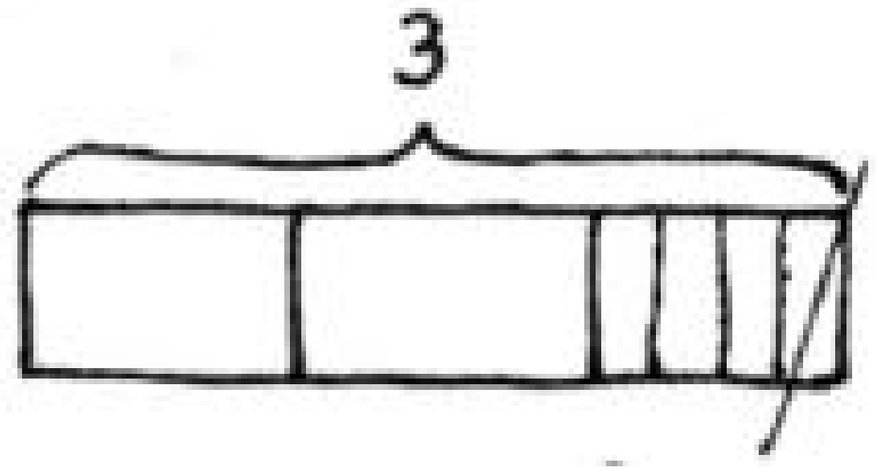
Partition the ones and extend your model to add ½. Say a number sentence that adds the whole number to the fraction.



Subtract a fraction less than 1 from a whole number using a tape diagram.

$$3 - \frac{1}{4}$$

Draw a tape diagram to represent 3, partitioned as 3 ones. Watch as I subtract ¼.



What is remaining? Say the complete subtraction sentence.

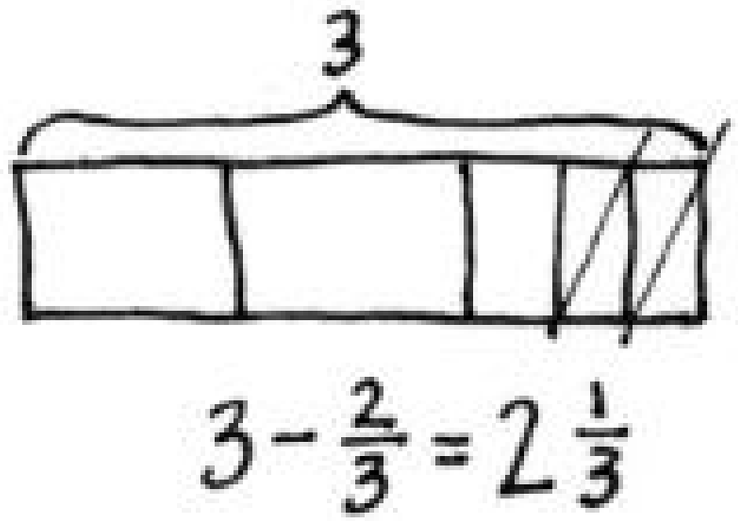
$$3 - \frac{1}{4} = 2\frac{3}{4}$$

Subtract a fraction less than 1 from a whole number using a tape diagram.

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

Draw a tape diagram with your partner. Discuss.

Say the entire number sentence.



What do you see happening to the number of ones when you subtract the fraction?

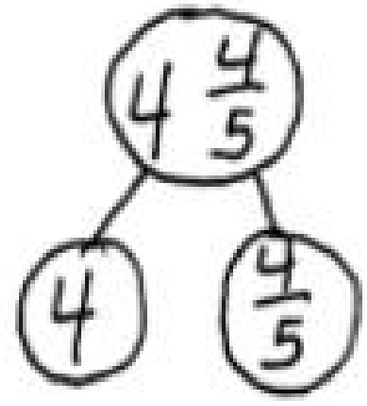
What relationship do you see between the fraction being subtracted and the fraction in the answer?

Given three related numbers, form fact family facts.

$4, \frac{4}{5}, 4\frac{4}{5}$

Write these 3 related numbers.

Draw a number bond to show the whole and the parts.



Write two addition facts and two subtraction facts that use the 3 numbers.

We can add and subtract ones and fractions just like we have always done. One number represnets the whole, and the other two numbers represent the parts.

Subtract a fraction less than 1 from a whole number using decomposition.

Write the expression 5 - ¼ . Discuss a strategy for solving this problem.

Draw a number bond for 5 decomposed into two parts, 4 and 4 fourths OR 4 and 1.

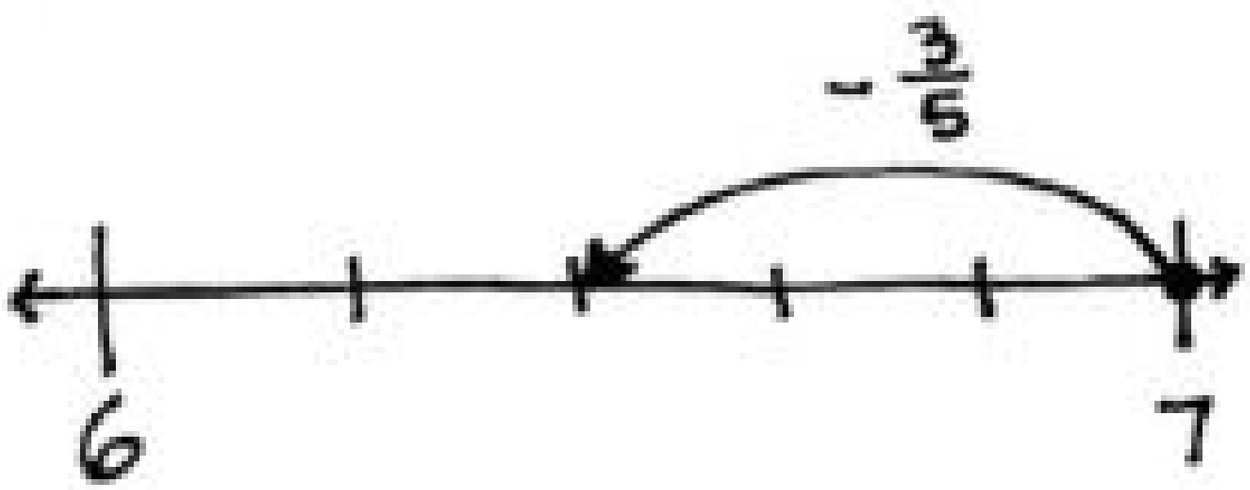
Construct a number line to represent 5 - ¼ with 4 and 5 as endpoints. We are subtracting from 4/4, so our answer will be more than 4 and less than 5.

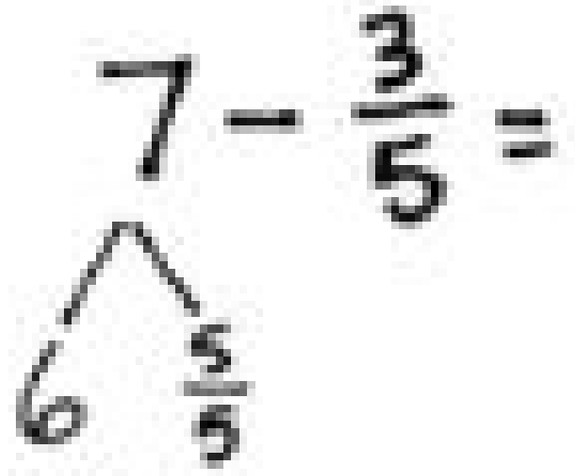
Draw an arrow to represent 5 - ¼. Write the number sentence under your number line.

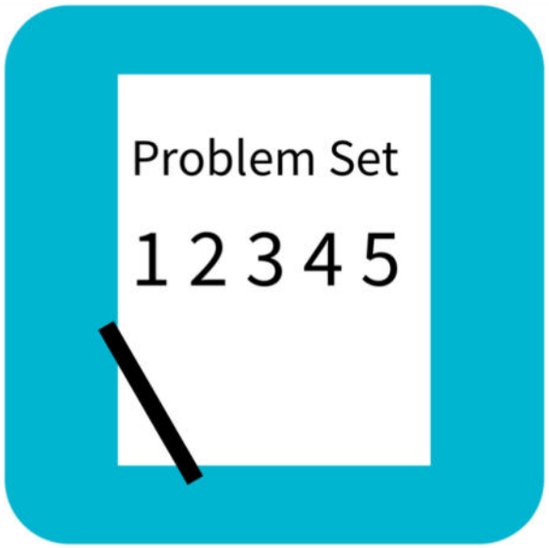
$$5-\frac{1}{4}=4\frac{3}{4}$$

Subtract a fraction less than 1 from a whole number using decomposition.

Subtract 7 - ⅗
Draw a number line and a number bond.
Solve.







Problem Set

Name _____ Date _____

1. Draw a tape diagram to match each number sentence. Then, complete the number sentence.

a. $3 + \frac{1}{3} =$ _____

b. $4 + \frac{3}{4} =$ _____

c. $3 - \frac{1}{4} =$ _____

d. $5 - \frac{2}{5} =$ _____

Debrief

- Why is it necessary to decompose the total into ones and a fraction before subtracting? How does that relate to a subtraction problem such as 74 – 28?
- How did knowing how to subtract a fraction from 1 prepare you for this lesson?
- Describe how the whole number is decomposed to subtract a fraction. Use Problem 3(b) to discuss.
- How were number lines and number bonds helpful in representing how to find the difference?
- How did the Application Problem connect to today's lesson?

Exit Ticket

Name _____ Date _____

Complete the subtraction sentences using number bonds. Draw a model if needed.

1. $6 - \frac{1}{5} =$ _____