Name _____

Write Fractions as Sums

Essential Question How can you write a fraction as a sum of fractions with the same denominators?

Unlock the Problem Real World

Emilio cut a sandwich into 8 equal pieces and ate 1 piece. He has $\frac{7}{8}$ of the sandwich left. Emilio put each remaining piece on a snack plate. How many snack plates did he use? What part of the sandwich did he put on each plate?

Each piece of the sandwich is $\frac{1}{8}$ of the whole. $\frac{1}{8}$ is called a **unit fraction** because it tells the part of the whole that 1 piece represents. A unit fraction always has a numerator of 1.

Example 1 Write $\frac{7}{8}$ as a sum of unit fractions.

1

$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$
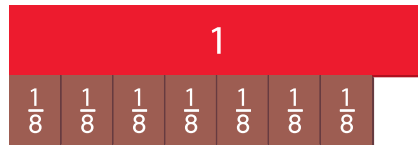
$\frac{7}{8} =$ _____ + _____ + _____ + _____ + _____ + _____ + _____

The number of addends represents the number of plates used.

The unit fractions represent the part of the sandwich on each plate.

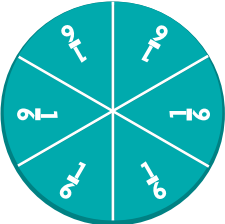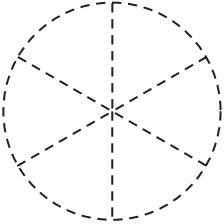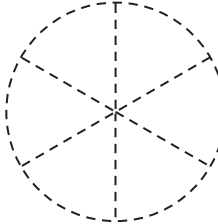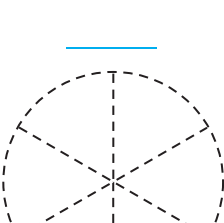So, Emilio used _____ plates. He put _____ of a sandwich on each plate.
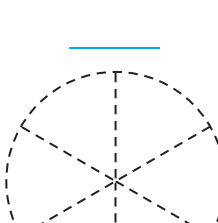
1. What if Emilio ate 3 pieces of the sandwich instead of 1 piece? How many snack plates would he need? What part of the sandwich would be on each plate? Explain.

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🔑 **Example 2** Write a fraction as a sum.

Kevin and Isabel are going to share a whole pizza. The pizza is cut into 6 equal slices. They will put the slices on two separate dishes. What part of the whole pizza could be on each dish?

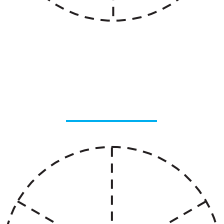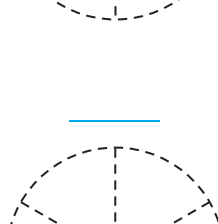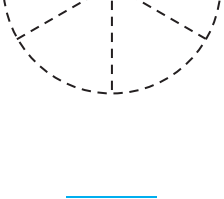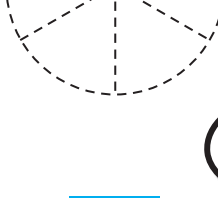Shade the models to show three different ways Kevin and Isabel could share the pizza. Write an equation for each model.

Think: $\frac{6}{6}$ = 1 whole pizza.

$$= \underline{\qquad} \quad + \quad \underline{\qquad}$$

$$= \underline{\qquad} \quad + \quad \underline{\qquad}$$

$$= \underline{\qquad} \quad + \quad \underline{\qquad}$$

$$= \underline{\qquad} \quad + \quad \underline{\qquad}$$

$$= \underline{\qquad} \quad + \quad \underline{\qquad}$$

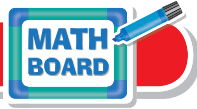$$= \underline{\qquad} \quad + \quad \underline{\qquad}$$

Math Talk

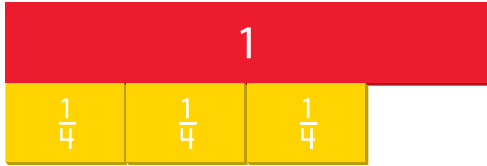**MATHEMATICAL PRACTICES** ⑧

Use Repeated Reasoning
If there were 8 dishes, could $\frac{1}{6}$ of the whole pizza be on each dish? Explain.

2. What if 3 friends share the pizza and they put the pizza slices on three separate dishes? What part of the pizza could be on each dish? Write equations to support your answer.
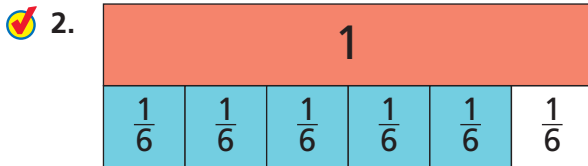
_____

_____

Name _____

1. Write $\frac{3}{4}$ as a sum of unit fractions.

1

$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$

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

Write the fraction as a sum of unit fractions.

2.

1

$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$

$\frac{5}{6} =$ _____

3.

1

$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{3}$

$\frac{2}{3} =$ _____
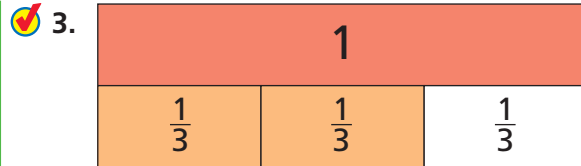
Math Talk MATHEMATICAL PRACTICES **2**

Use Reasoning How is the numerator in $\frac{5}{6}$ related to the number of addends in the sum of its unit fractions?

On Your Own

Write the fraction as a sum of unit fractions.

4. $\frac{4}{12} =$ _____

5. $\frac{6}{8} =$ _____

Write the fraction as a sum of fractions three different ways.

6. $\frac{8}{10}$

_____

_____

_____

7. $\frac{6}{6}$

_____

_____

_____

8. **MATHEMATICAL PRACTICE ❸** **Compare Representations** How many different ways can you write a fraction that has a numerator of 2 as a sum of fractions? Explain.

_____

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Unlock the Problem Real World

9. **THINK SMARTER** Holly's garden is divided into 5 equal sections. She will fence the garden into 3 areas by grouping some equal sections together. What part of the garden could each fenced area be?

a. What information do you need to use?

_____

_____

b. How can writing an equation help you solve the problem? _____

_____

_____

c. How can drawing a model help you write an equation?

_____

_____

d. Show how you can solve the problem.

e. Complete the sentence.

The garden can be fenced into _____,

_____, and _____ parts or _____,

_____, and _____ parts.

10. **GO DEEPER** Leena walked $\frac{2}{3}$ of a mile. What is $\frac{2}{3}$ written as a sum of unit fractions with a denominator of 9?

_____

11. **THINK SMARTER** Ellie's mom sells toys. She sold $\frac{7}{10}$ of the toys. Select a way $\frac{7}{10}$ can be written as a sum of fractions. Mark all that apply.

Ⓐ $\frac{4}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10}$

Ⓑ $\frac{4}{10} + \frac{3}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10}$

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

Name _____

Write Fractions as Sums

Write the fraction as a sum of unit fractions.

1. $\dfrac{4}{5} = \underline{\dfrac{1}{5} + \dfrac{1}{5} + \dfrac{1}{5} + \dfrac{1}{5}}$

Think: Add $\frac{1}{5}$ four times.

2. $\dfrac{3}{8} = $ _____

3. $\dfrac{6}{12} = $ _____

4. $\dfrac{4}{4} = $ _____

_____

Write the fraction as a sum of fractions three different ways.

5. $\dfrac{7}{10}$

_____

_____

_____

6. $\dfrac{6}{6}$

_____

_____

_____

Problem Solving **Real World**

7. Petra is asked to color $\frac{6}{6}$ of her grid. She must use 3 colors: blue, red, and pink. There must be more blue sections than red sections or pink sections. What are the different ways Petra can color the sections of her grid and follow all the rules?

_____

_____

_____

8. **WRITE** ▸ *Math* Write $\frac{9}{12}$ as a sum of unit fractions.

_____

_____

_____

Lesson Check

1. Jorge wants to write $\frac{4}{5}$ as a sum of unit fractions. What should he write?

2. What fraction is equivalent to the expression $\frac{4}{8} + \frac{2}{8} + \frac{1}{8}$?

Spiral Review

3. An apple is cut into 6 equal slices. Nancy eats 2 of the slices. What fraction of the apple is left?

4. Which of these numbers is a prime number: 1, 11, 21, 51?

5. A teacher has a bag of 100 unit cubes. She gives an equal number of cubes to each of the 7 groups in her class. She gives each group as many cubes as she can. How many unit cubes are left over?

6. Jessie sorted the coins in her bank. She made 7 stacks of 6 dimes and 8 stacks of 5 nickels. She then found 1 dime and 1 nickel. How many dimes and nickels does Jessie have in all?

**FOR MORE PRACTICE
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Personal Math Trainer**