

Name _____

Add and Subtract Parts of a Whole

Justin has $\frac{3}{8}$ pound of cheddar cheese and $\frac{2}{8}$ pound of brick cheese.
How much cheese does he have in all?

Step 1 Use fraction strips to model the problem. Use three $\frac{1}{8}$ -strips to represent $\frac{3}{8}$ pound of cheddar cheese.

Step 2 Join two more $\frac{1}{8}$ -strips to represent the amount of brick cheese.

Step 3 Count the number of $\frac{1}{8}$ -strips. There are five $\frac{1}{8}$ -strips. Write the amount as a fraction. Justin has $\frac{5}{8}$ pound of cheese.

$$\frac{3}{8} + \frac{2}{8} = \frac{5}{8}$$

Step 4 Use the model to write an equation.

Suppose Justin eats $\frac{1}{8}$ pound of cheese. How much cheese is left?

Step 1 Use five $\frac{1}{8}$ -strips to represent the $\frac{5}{8}$ pound of cheese.

Step 2 Remove one $\frac{1}{8}$ -strip to show the amount eaten.

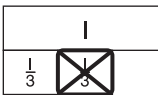
Step 3 Count the number of $\frac{1}{8}$ -strips left. There are four $\frac{1}{8}$ fraction strips. There is $\frac{4}{8}$ pound left.

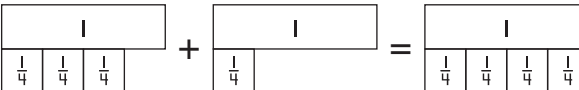
$$\frac{5}{8} - \frac{1}{8} = \frac{4}{8}$$

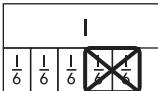
Step 4 Write an equation for the model.

Use the model to write an equation.

1. 

2. 

3. 

4. 

Fraction Fun

Solve each problem.

1. Gina ate $\frac{1}{6}$ of an apple pie. Greg ate $\frac{1}{2}$ of the same pie. How much of the apple pie was left?


2. So far, John has run $\frac{1}{4}$ of the way to school and walked $\frac{3}{8}$ of the way. What fraction of the distance to school does John have left?

3. Ann, Nan, and Jan snacked on a plate of fruit slices while doing their homework. Ann ate $\frac{1}{5}$ of the fruit slices, Nan ate $\frac{2}{5}$ of the fruit slices, and Jan ate $\frac{1}{5}$ of the fruit slices. What fraction of the fruit slices are left on the plate?

4. While watching a movie, Ned, Fred, and Jed shared a bowl of popcorn. Ned ate $\frac{1}{2}$ of the popcorn, Fred ate $\frac{1}{4}$ of the popcorn, and Jed ate $\frac{1}{8}$ of the popcorn. What fraction of the bowl of popcorn is left?

5. In a grid of squares, Alice colored $\frac{3}{4}$ of the squares blue. She colored $\frac{1}{8}$ of the squares red. She colored the rest of the squares yellow. What fraction of the squares did Alice color yellow?

6. Pierre bounced a ball for $\frac{1}{3}$ of his recess time. He threw the ball in the air and caught it $\frac{3}{6}$ of the time. He carried the ball the rest of the time. For what fraction of his recess time did he carry the ball?

7.  Write Math How did you solve Problem 6? **Explain.**

Name _____

Write Fractions as Sums

A **unit fraction** tells the part of the whole that 1 piece represents.

A unit fraction always has a numerator of 1.

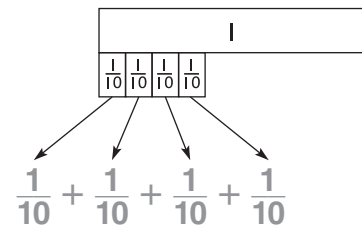
Bryan has $\frac{4}{10}$ pound of clay for making clay figures. He wants to use $\frac{1}{10}$ pound of clay for each figure. How many clay figures can he make?

Use fraction strips to write $\frac{4}{10}$ as a sum of unit fractions.

Step 1 Represent $\frac{4}{10}$ with fraction strips.

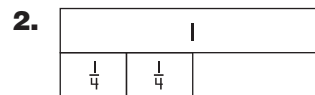
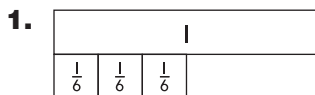
Step 2 Each $\frac{1}{10}$ is a unit fraction. Write a $\frac{1}{10}$ addend for each $\frac{1}{10}$ -strip you used to show $\frac{4}{10}$.

Step 3 Count the number of addends. The number of addends represents the number of clay figures Bryan can make.



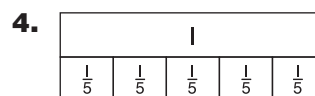
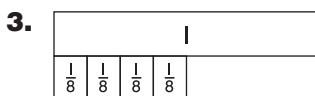
So, Bryan can make 4 clay figures.

Write the fraction as the sum of unit fractions.



$$\frac{3}{6} = \underline{\quad} + \underline{\quad} + \underline{\quad}$$

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



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

$$\frac{5}{5} = \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad}$$

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Mixed-Up Sums

Match each fraction on the left with an addition problem on the right.

1. $\frac{7}{8}$

$\frac{3}{8} + \frac{2}{8} + \frac{1}{8}$

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

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

3. $\frac{4}{8}$

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

4. $\frac{9}{10}$

$\frac{1}{8} + \frac{5}{8} + \frac{1}{8}$

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

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

6. $\frac{7}{10}$

$\frac{1}{8} + \frac{1}{8} + \frac{2}{8}$

7. **Stretch Your Thinking** Write another possible sum for Exercise 4.

8. **Stretch Your Thinking** Write another possible sum for Exercise 5. Use $\frac{1}{4}$ for one of the addends. Explain how you found your answer.

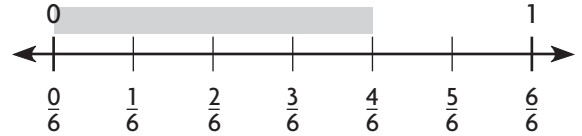
Name _____

Add Fractions Using Models

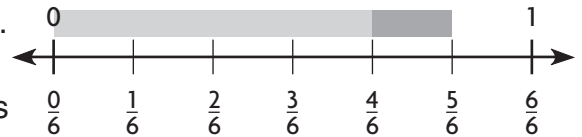
Fractions with like denominators have the same denominator. You can add fractions with like denominators using a number line.

Model $\frac{4}{6} + \frac{1}{6}$.

Step 1 Draw a number line labeled with sixths. Model the fraction $\frac{4}{6}$ by starting at 0 and shading 4 sixths.



Step 2 Add the fraction $\frac{1}{6}$ by shading 1 more sixth.



Step 3 How many sixths are there in all? 5 sixths

Write the number of sixths as a fraction.

$$5 \text{ sixths} = \frac{5}{6} \qquad \frac{4}{6} + \frac{1}{6} = \frac{5}{6}$$

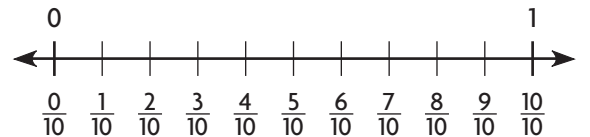
1. Model $\frac{1}{5} + \frac{4}{5}$.

$$\frac{1}{5} + \frac{4}{5} = \underline{\hspace{2cm}}$$

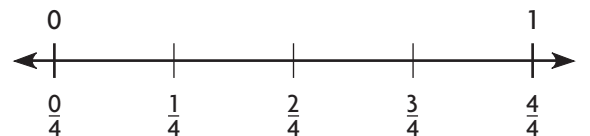


Find the sum. Use a model to help.

2. $\frac{2}{10} + \frac{4}{10}$



3. $\frac{1}{4} + \frac{1}{4}$



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Sum Fractions!

Find the two fractions that have the sum shown. Use each fraction only once. Use fraction strips to help.

1. The sum is $\frac{7}{8}$.

$\frac{1}{8}$	$\frac{2}{8}$	$\frac{3}{8}$	$\frac{5}{8}$	$\frac{7}{8}$
---------------	---------------	---------------	---------------	---------------

2. The sum is $\frac{5}{6}$.

$\frac{1}{6}$	$\frac{2}{6}$	$\frac{3}{6}$	$\frac{5}{6}$	$\frac{8}{6}$
---------------	---------------	---------------	---------------	---------------

3. The sum is $\frac{9}{12}$.

$\frac{1}{12}$	$\frac{2}{12}$	$\frac{3}{12}$	$\frac{5}{12}$	$\frac{8}{12}$
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4. The sum is $\frac{6}{10}$.

$\frac{1}{10}$	$\frac{2}{10}$	$\frac{3}{10}$	$\frac{4}{10}$	$\frac{6}{10}$
----------------	----------------	----------------	----------------	----------------


5. The sum is $\frac{4}{4}$.

$\frac{1}{4}$	$\frac{2}{4}$	$\frac{3}{4}$	$\frac{5}{4}$	$\frac{7}{4}$
---------------	---------------	---------------	---------------	---------------

6. The sum is 1.

$\frac{1}{5}$	$\frac{2}{5}$	$\frac{3}{5}$	$\frac{5}{5}$	$\frac{6}{5}$
---------------	---------------	---------------	---------------	---------------

7. **Stretch Your Thinking** Suppose you could use a fraction more than once. What other answer could you find for Exercise 5? Which other exercise would have more than one answer?

8.  **Write Math** Write a fraction sum problem similar to the ones above.

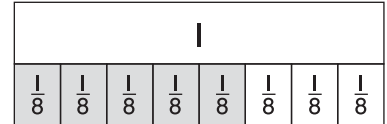
Name _____

Subtract Fractions Using Models

You can subtract fractions with like denominators using fraction strips.

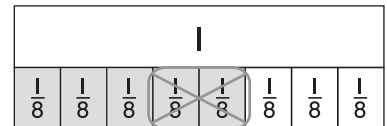
Model $\frac{5}{8} - \frac{2}{8}$.

Step 1 Shade the eighths you start with.
Shade 5 eighths.



Step 2 Subtract $\frac{2}{8}$.

Think: How many eighths are taken away?
Cross out 2 of the shaded eighths.



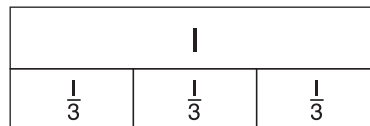
Step 3 Count the shaded eighths that remain.
There are 3 eighths remaining.

Step 4 Write the number of eighths that remain as a fraction.

$$3 \text{ eighths} = \frac{3}{8} \qquad \frac{5}{8} - \frac{2}{8} = \frac{3}{8}$$

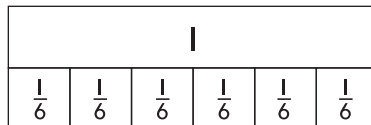
1. Model $\frac{3}{3} - \frac{2}{3}$.

$$\frac{3}{3} - \frac{2}{3} = \underline{\hspace{2cm}}$$

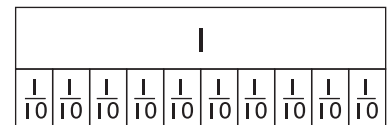


Subtract. Use fraction strips to help.

2. $\frac{5}{6} - \frac{1}{6}$



3. $\frac{6}{10} - \frac{3}{10}$



$$\frac{5}{6} - \frac{1}{6} = \underline{\hspace{2cm}}$$

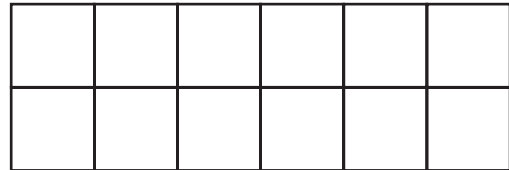
$$\frac{6}{10} - \frac{3}{10} = \underline{\hspace{2cm}}$$

Name _____

Fraction Food

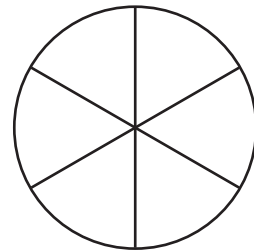
The Foodly family just finished dinner. Help them determine how much food is left. Shade the models to help.

1. The lasagna was cut into 12 equal pieces. The Foodly family ate 7 pieces of lasagna. What fraction of the lasagna is left?



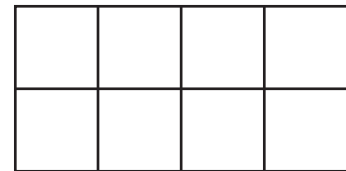
_____ twelfths – _____ twelfths = _____ twelfths or _____

2. The green bean casserole was divided into 6 equal servings. The Foodly family ate 5 servings. What fraction of the casserole is left?



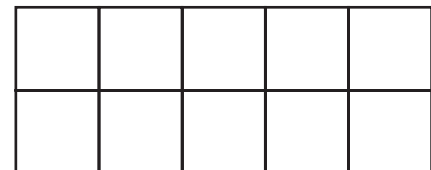
_____ sixths – _____ sixths = _____ sixth or _____

3. The gelatin salad was cut into 8 equal servings. The Foodly family ate 6 servings of the salad. What fraction of the gelatin salad is left?



_____ eighths – _____ eighths = _____ eighths or _____

4. The pumpkin bread was cut into 10 equal pieces. The Foodly family ate 5 pieces. What fraction of the pumpkin bread is left?



_____ tenths – _____ tenths = _____ tenths or _____

5. **Stretch Your Thinking** The Foodly family had 2 pans of cornbread. Each pan was cut into 5 equal pieces. They ate only 2 pieces. What fraction of the pans of cornbread is left? Draw a model to help.

Name _____

Add and Subtract Fractions

You can find and record the sums and the differences of fractions.

Add. $\frac{2}{6} + \frac{4}{6}$

Step 1 Model it.



Step 2 Think: How many sixths are there in all?

There are **6** sixths.

6 sixths = $\frac{6}{6}$

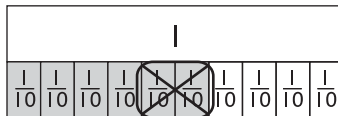
Step 3 Record it.

Write the sum as an addition equation.

$\frac{2}{6} + \frac{4}{6} = \frac{6}{6}$

Subtract. $\frac{6}{10} - \frac{2}{10}$

Step 1 Model it.



Step 2 Think: There are 6 tenths. I take away 2 tenths. How many tenths are left?

There are **4** tenths left.

4 tenths = $\frac{4}{10}$

Step 3 Record it.

Write the difference as a subtraction equation.

$\frac{6}{10} - \frac{2}{10} = \frac{4}{10}$

Find the sum or difference.

1. 7 eighth-size parts – 4 eighth-size parts = _____

$\frac{7}{8} - \frac{4}{8} =$ _____

2. $\frac{11}{12} - \frac{4}{12} =$ _____

3. $\frac{2}{10} + \frac{2}{10} =$ _____

4. $\frac{6}{8} - \frac{4}{8} =$ _____

5. $\frac{2}{4} + \frac{2}{4} =$ _____

6. $\frac{4}{5} - \frac{3}{5} =$ _____

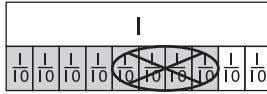
7. $\frac{1}{3} + \frac{2}{3} =$ _____

Name _____

Fraction Equations

Record the equation shown by the model. Write the answer in simplest form.

1.



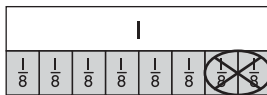
X

2.



H

3.



S

4.



I

5.



T

To answer the riddle, write the letter above its answer.

Why did all the fractions think $\frac{1}{6}$ was special?

Because it had a $\frac{3}{4}$ $\frac{11}{12}$ $\frac{2}{5}$ 1 $\frac{5}{6}$ sense!

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Rename Fractions and Mixed Numbers

A **mixed number** is made up of a whole number and a fraction. You can use multiplication and addition to rename a mixed number as a fraction greater than 1.

Rename $2\frac{5}{6}$ as a fraction.

First, multiply the denominator, or the number of parts in the whole, by the whole number.

$$6 \times 2 = 12$$

Then, add the numerator to your product.

$$12 + 5 = 17$$

$$\text{So, } 2\frac{5}{6} = \frac{17}{6}.$$

$$2 \frac{5}{6} = \frac{17}{6}$$

total number of parts
number of parts in the whole

You can use division to write a fraction greater than 1 as a mixed number.

Rename $\frac{16}{3}$ as a mixed number.

To rename $\frac{16}{3}$ as a mixed number, divide the numerator by the denominator.

Use the quotient and remainder to write a mixed number.

$$\text{So, } \frac{16}{3} = 5\frac{1}{3}.$$

$$\begin{array}{r} 5 \\ 3 \overline{)16} \\ \underline{-15} \\ 1 \end{array}$$

Write the mixed number as a fraction.

1. $3\frac{2}{3} =$ _____

2. $4\frac{3}{5} =$ _____

3. $4\frac{3}{8} =$ _____

4. $2\frac{1}{6} =$ _____

Write the fraction as a mixed number.

5. $\frac{32}{5} =$ _____

6. $\frac{19}{3} =$ _____

7. $\frac{15}{4} =$ _____

8. $\frac{51}{10} =$ _____

Name _____

The Rename Game

Find the missing number.

1. $51 \frac{\square}{5} = \frac{256}{5}$


2. $72 \frac{\square}{3} = \frac{218}{3}$

3. $\square \frac{1}{2} = \frac{422}{4}$

4. $\square \frac{1}{4} = \frac{506}{8}$

5. $102 \frac{5}{12} = \frac{\square}{12}$

6. $37 \frac{1}{3} = \frac{224}{\square}$

7.  **Write Math** Tell how you rename fractions greater than 1 as mixed numbers and mixed numbers as fractions greater than 1.

8. **Stretch Your Thinking** Is it possible for two fractions greater than 1 that have different numerators and denominators to be renamed as the same mixed number? Give an example.

Name _____

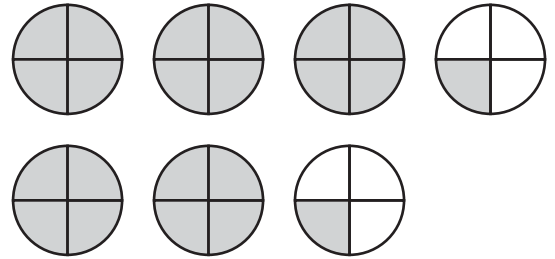
Add and Subtract Mixed Numbers

Find the sum. $3\frac{1}{4} + 2\frac{1}{4}$

Add the whole number and fraction parts.

- Add the whole numbers: $3 + 2 = 5$
- Add the fractions: $\frac{1}{4} + \frac{1}{4} = \frac{2}{4}$

Write the sum as a mixed number, so the fractional part is less than 1. $3\frac{1}{4} + 2\frac{1}{4} = 5\frac{2}{4}$

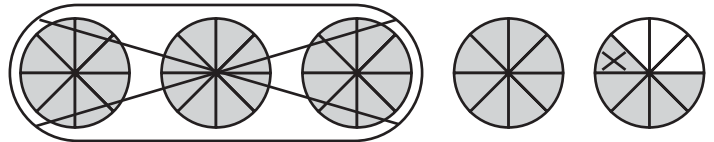


Find the difference. $4\frac{5}{8} - 3\frac{1}{8}$

Subtract the fraction and the whole number parts.

- Subtract the fractions: $\frac{5}{8} - \frac{1}{8} = \frac{4}{8}$
- Subtract the whole numbers: $4 - 3 = 1$

$$4\frac{5}{8} - 3\frac{1}{8} = 1\frac{4}{8}$$



Find the sum or difference.

$$\begin{array}{r} 1. \quad 3\frac{4}{5} \\ + 4\frac{3}{5} \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 7\frac{2}{3} \\ - 3\frac{1}{3} \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 4\frac{7}{12} \\ + 6\frac{5}{12} \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 12\frac{3}{4} \\ - 6\frac{1}{4} \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 2\frac{3}{8} \\ + 8\frac{1}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 11\frac{9}{10} \\ - 3\frac{7}{10} \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 7\frac{3}{5} \\ + 4\frac{3}{5} \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 8\frac{3}{6} \\ - 3\frac{1}{6} \\ \hline \end{array}$$

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Finding Mixed Numbers

Solve each problem.

1. Find two mixed numbers so that the sum is $8\frac{4}{8}$ and the difference is $2\frac{2}{8}$.

2. Find two mixed numbers so that the sum is $7\frac{2}{4}$ and the difference is 5.

3. Find two mixed numbers so that the sum is $7\frac{2}{8}$ and the difference is $2\frac{4}{8}$.

4. Find two mixed numbers so that the sum is $21\frac{1}{6}$ and the difference is $4\frac{3}{6}$.

5. Find two mixed numbers so that the sum is $15\frac{3}{10}$ and the difference is $8\frac{5}{10}$.

6. Find two mixed numbers so that the sum is 16 and the difference is 5.

7. **Stretch Your Thinking** Find three mixed numbers so that the sum is 18 and the difference between the greatest number and the least number is $5\frac{1}{5}$.

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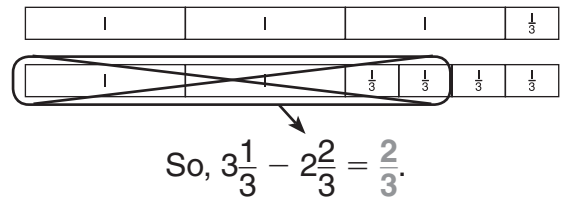
Subtraction with Renaming

Fraction strips can help you subtract mixed numbers or subtract a mixed number from a whole number.

Find the difference. $3\frac{1}{3} - 2\frac{2}{3}$

Step 1 Model the number you are subtracting from, $3\frac{1}{3}$.

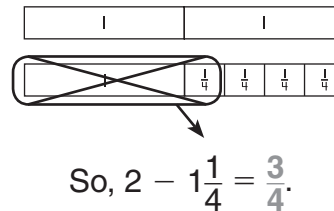
Step 2 Because you cannot subtract $\frac{2}{3}$ from $\frac{1}{3}$ without renaming, change one of the 1 strips to three $\frac{1}{3}$ strips. Then subtract by crossing out two wholes and two $\frac{1}{3}$ strips.



Find the difference. $2 - 1\frac{1}{4}$

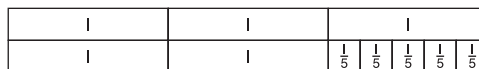
Step 1 Model the number you are subtracting from, 2.

Step 2 Because you cannot subtract $\frac{1}{4}$ from 1 without renaming, change one of the 1 strips to four $\frac{1}{4}$ strips. Then subtract by crossing out one whole and one $\frac{1}{4}$ strip.



Find the difference.

1. $3 - 2\frac{2}{5} =$ _____



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



3.
$$\begin{array}{r} 3\frac{3}{5} \\ - 2\frac{4}{5} \\ \hline \end{array}$$

4.
$$\begin{array}{r} 3\frac{1}{12} \\ - 2\frac{11}{12} \\ \hline \end{array}$$

5.
$$\begin{array}{r} 4\frac{5}{8} \\ - 2\frac{7}{8} \\ \hline \end{array}$$

Name _____

Leftovers

The fraction strips shown represent the whole number 33.
Subtract the numbers below from 33 by shading the
fraction strips. The fraction $\frac{3}{4}$ is shown as an example.

$\frac{3}{4}$

$3\frac{9}{16}$

$1\frac{7}{8}$

$2\frac{4}{5}$

$1\frac{7}{10}$

$\frac{5}{6}$

$1\frac{1}{3}$

$\frac{5}{12}$

$1\frac{3}{8}$

$1\frac{3}{5}$

$2\frac{1}{2}$

$1\frac{2}{3}$

$\frac{1}{6}$

$\frac{5}{16}$

$1\frac{3}{10}$

$\frac{5}{8}$

$\frac{7}{12}$

$1\frac{5}{6}$

$1\frac{2}{3}$

$\frac{3}{4}$

$1\frac{3}{5}$

$\frac{1}{3}$

$\frac{1}{6}$

$\frac{1}{10}$

$1\frac{9}{10}$

$\frac{1}{4}$

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

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

$\frac{1}{5}$ $\frac{1}{5}$ $\frac{1}{5}$ $\frac{1}{5}$ $\frac{1}{5}$

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

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

$\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$

$\frac{1}{5}$ $\frac{1}{5}$ $\frac{1}{5}$ $\frac{1}{5}$ $\frac{1}{5}$

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

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

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

1. List the leftover fractions in the fraction strips.

2. What is the difference represented by the leftover fractions?

3. **Stretch Your Thinking** How can you model subtracting $\frac{1}{5}$ if you have only $\frac{1}{10}$ fraction strips?

Name _____

Algebra • Fractions and Properties of Addition

Properties of addition can help you group and order addends so you can use mental math to find sums.

The **Commutative Property of Addition** states that when the order of two addends is changed, the sum is the same. $6 + 3 = 3 + 6$

The **Associative Property of Addition** states that when the grouping of addends is changed, the sum is the same. $(3 + 6) + 4 = 3 + (6 + 4)$

Use the properties and mental math to add $10\frac{3}{8} + 4\frac{7}{8} + 6\frac{5}{8}$.

Step 1 Look for fractions that combine to make 1. $10\frac{3}{8} + 4\frac{7}{8} + 6\frac{5}{8}$

Step 2 Use the Commutative Property to order the addends so that the fractions with a sum of 1 are together. $10\frac{3}{8} + 4\frac{7}{8} + 6\frac{5}{8} = 10\frac{3}{8} + 6\frac{5}{8} + 4\frac{7}{8}$

Step 3 Use the Associative Property to group the addends that you can add mentally. $= (10\frac{3}{8} + 6\frac{5}{8}) + 4\frac{7}{8}$

Step 4 Add the grouped numbers and then add the other mixed number. $= (17) + 4\frac{7}{8}$

Step 5 Write the sum. $= 21\frac{7}{8}$

Use the properties and mental math to find the sum.

1. $(3\frac{1}{5} + 1\frac{2}{5}) + 4\frac{4}{5}$

2. $(5\frac{7}{10} + 1\frac{4}{10}) + 6\frac{3}{10}$

3. $7\frac{3}{4} + (5 + 3\frac{1}{4})$

4. $(2\frac{5}{12} + 3\frac{11}{12}) + 1\frac{7}{12}$

5. $4\frac{7}{8} + (6\frac{3}{8} + \frac{1}{8})$

6. $9\frac{2}{6} + (4\frac{1}{6} + 7\frac{4}{6})$

Name _____

Mixing Properties


Use addition properties to help you solve each problem.

1. Robyn cut a length of ribbon into four pieces to wrap four gifts. The lengths she cut were $16\frac{7}{12}$ inches, $10\frac{3}{12}$ inches, $4\frac{9}{12}$ inches, and $10\frac{2}{12}$ inches. If she used the whole ribbon, how long was her ribbon?

2. Emily enjoys riding her bike. During a five-day biking trip, she rode $8\frac{1}{8}$ miles, $4\frac{3}{8}$ miles, $5\frac{4}{8}$ miles, $2\frac{7}{8}$ miles, and $6\frac{1}{8}$ miles. How many miles in all did she ride during the trip?

3. Ben's family likes bananas. On Monday, they ate $1\frac{3}{4}$ pounds of bananas. On Tuesday, they ate $2\frac{2}{4}$ pounds. On Wednesday, they ate $2\frac{1}{4}$ pounds. On Thursday, they ate $1\frac{2}{4}$ pounds. How many pounds of bananas did Ben's family eat during the four days?

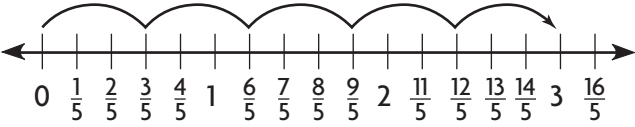
4. Ms. Cleary runs a catering business. She is buying fruit to make a large order for fruit salad. She buys $5\frac{3}{10}$ pounds of apples, $3\frac{4}{10}$ pounds of oranges, $2\frac{1}{10}$ pounds of bananas, $4\frac{3}{10}$ pounds of green grapes, and $5\frac{4}{10}$ pounds of red grapes. How many pounds of fruit did Ms. Cleary buy in all?

5.  **Write Math** **Explain** how you used the commutative and associative properties to help you add the mixed numbers.

Name _____

Problem Solving • Multistep Fraction Problems

Jeff runs $\frac{3}{5}$ mile each day. He wants to know how many days he has to run before the total number of miles he runs is a whole number.

Read the Problem	Solve the Problem
<p>What do I need to find?</p> <p>I need to find <u>how many days Jeff needs to run $\frac{3}{5}$ mile</u> until the total number of miles he runs is a whole number.</p>	<p>Describe how to act it out. Use a number line.</p>  <p>Day 1: $\frac{3}{5}$ mile</p> <p>Day 2: $\frac{6}{5}$ mile $\frac{3}{5} + \frac{3}{5} = \frac{6}{5}$ 1 whole mile and $\frac{1}{5}$ mile more</p> <p>Day 3: $\frac{9}{5}$ mile $\frac{3}{5} + \frac{3}{5} + \frac{3}{5} = \frac{9}{5}$ 1 whole mile and $\frac{4}{5}$ mile more</p> <p>Day 4: $\frac{12}{5}$ mile $\frac{3}{5} + \frac{3}{5} + \frac{3}{5} + \frac{3}{5} = \frac{12}{5}$ 2 whole miles and $\frac{2}{5}$ mile more</p> <p>Day 5: $\frac{15}{5}$ mile $\frac{3}{5} + \frac{3}{5} + \frac{3}{5} + \frac{3}{5} + \frac{3}{5} = \frac{15}{5}$ 3 whole miles</p> <p>So, Jeff will run <u>3</u> miles in <u>5</u> days.</p>
<p>What information do I need to use?</p> <p>Jeff runs <u>$\frac{3}{5}$</u> mile a day. He wants the distance run to be a <u>whole number</u>.</p>	
<p>How will I use the information?</p> <p>I can use a number line and <u>patterns</u> to <u>act out</u> the problem.</p>	

- Lena runs $\frac{2}{3}$ mile each day. She wants to know how many days she has to run before she has run a whole number of miles.

- Mack is repackaging $\frac{6}{8}$ -pound bags of birdseed into 1-pound bags of birdseed. What is the least number of $\frac{6}{8}$ -pound bags of birdseed he needs in order to fill 1-pound bags without leftovers?

Name _____

Problem Solving with Fractions

Solve each problem.

1. Cornelia cut equal lengths of ribbon each $\frac{7}{10}$ feet long. The ribbon was $3\frac{1}{2}$ feet long. How many pieces did Cornelia cut?

2. Tim walks $\frac{2}{3}$ mile to school each day. He walks the same distance home. How far does he walk to and from school during a regular school week (5 days)?

3. At a class pizza party, each pizza ordered had $\frac{2}{8}$ of the pizza left over after the party. In all, $1\frac{1}{2}$ pizzas were left over. How many pizzas were ordered?

4. A teacher had 10 pounds of raisins. He has 16 students. He gave each student $\frac{3}{5}$ pound. The teacher kept the leftover raisins for himself. How much did he keep for himself?

5. **Stretch Your Thinking** Explain how you solved Exercise 4.
