

LESSON 19: Subtract Mixed Fractions - Like Denominators

[OBJECTIVE]

The student will subtract mixed fractions with like denominators.

[PREREQUISITE SKILLS]

subtracting fractions with like denominators

[MATERIALS]

Student pages **S181–S189**

Transparencies **T568, T570, T572, T574, T576, and T578**

2 sets of overhead fraction strips

Fraction Kits 1–3

Colored pencils

Foldable from Lesson 15

[ESSENTIAL QUESTIONS]

1. How does building with concrete materials help us understand fractions?
2. How does drawing fractions as pictures help our understanding of mixed fractions?
3. How can we subtract mixed fractions with like denominators?

[WORDS FOR WORD WALL]

improper fraction, mixed fraction, numerator, denominator, minuend, subtrahend, difference, simplest form

[GROUPING]

Cooperative Pairs (CP), Whole Group (WG), Individual (I)

*For Cooperative Pairs (CP) activities, assign the roles of Partner A and Partner B to students. This allows each student to be responsible for designated tasks within the lesson.

[LEVELS OF TEACHER SUPPORT]

Modeling (M), Guided Practice (GP), Independent Practice (IP)

[MULTIPLE REPRESENTATIONS]

SOLVE, Verbal Description, Pictorial Representation, Concrete Representation, Graphic Organizer

LESSON 19: Subtract Mixed Fractions - Like Denominators

[WARM-UP] (5 minutes – IP, CP, WG) S181 (Answers on T567.)

- Have students turn to S181 in their books to begin the Warm-Up. Students will work with legal trading, improper fractions, and mixed fractions. Monitor students to see if any of them need help during the Warm-Up. Give students 3 minutes to complete the problems and then spend 2 minutes reviewing the answers as a class. **{Verbal Description, Pictorial Representation, Concrete Representation}**

[HOMEWORK] (5 minutes)

Take time to go over the homework from the previous night.

[LESSON] (60 minutes – M, GP, IP, CP, WG, I)**SOLVE Problem****(3 minutes – GP, WG) T568, S182 (Answers on T569.)**

Have students turn to S182 in their books, and place T568 on the overhead. The first problem is a SOLVE problem. You are only going to complete the S step with students at this point. Tell students that during the lesson they will learn how to subtract mixed fractions. They will use this knowledge to complete this SOLVE problem at the end of the lesson. **{SOLVE, Graphic Organizer}**

Subtract Mixed Fractions – Concrete**(10 minutes – M, GP, IP, CP, WG) T568, S182 (Answers on T569.)**

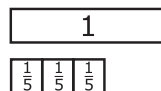
5 minutes – GP, M, WG, CP: Have students turn to S182 in their books, and place T568 on the overhead. Have students work in partners. Assign the roles of Partner A and Partner B. Each partner will need Fraction Kits 1-3. Use two sets of overhead fraction strips and the following activity to help students investigate subtracting mixed fractions. **{Concrete Representation, Verbal Description, Graphic Organizer}**

LESSON 19: Subtract Mixed Fractions - Like Denominators

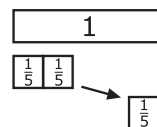
MODELING

Subtract Mixed Fractions – Concrete

Step 1: Direct students’ attention to Problem 1. Ask the students in each pair to work together to show $1\frac{3}{5}$ as shown below. Model on the overhead using the overhead fraction strips.

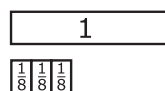


- Partner A, explain how to show subtraction of $\frac{1}{5}$. (Take away a $\frac{1}{5}$ fraction strip.)
- Partner B, identify what fraction the model shows after subtracting $\frac{1}{5}$. ($1\frac{2}{5}$) Record.

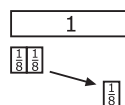


Point out that the **difference** cannot be traded for fewer fraction strips, so the difference is in **simplest form**.

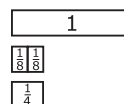
Step 2: Direct students’ attention to Problem 2. Ask the students in each pair to work together to show $1\frac{3}{8}$ as shown below. Model on the overhead using the overhead fraction strips.



- Partner A, explain how to subtract $\frac{1}{8}$. (Take away a $\frac{1}{8}$ fraction strip.)
- Partner B, identify what fraction the model shows after subtracting $\frac{1}{8}$. ($1\frac{2}{8}$)



Model with students how to legally trade $\frac{2}{8}$ for $\frac{1}{4}$ and record the difference of $1\frac{1}{4}$ for Problem 2.



LESSON 19: Subtract Mixed Fractions - Like Denominators

3 minutes – IP, CP:

Have students complete Problems 3 and 4 on S182 with their partners using their fraction kits. **{Concrete Representation, Verbal Description, Graphic Organizer}**

2 minutes – WG:

Have students come back together as a class and share their results. Students should be able to justify differences using their fraction strips. **{Concrete Representation, Verbal Description, Graphic Organizer}**

Subtract Mixed Fractions – Concrete to Pictorial (9 minutes – M, GP, IP, WG, CP)
T570, T572, S183, S184 (Answers on T571, T573.)

4 minutes – M, WG, GP, CP: Have students turn to S183 in their books, and place T570 on the overhead. Pass out the colored pencils. Have students continue to work in partners. Each partner will need to share his/her own fraction kits. Use two sets of overhead fraction strips and the following activity to help students investigate subtracting mixed fractions pictorially. **{Verbal Description, Concrete Representation, Pictorial Representation, Graphic Organizer}**

LESSON 19: Subtract Mixed Fractions - Like Denominators

MODELING

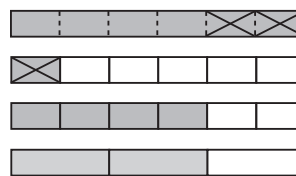
Subtract Mixed Fractions – Concrete to Pictorial

Step 1: Direct students’ attention to Problem 1. Model how to build $1\frac{1}{6}$ using the fraction strips. Shade in $1\frac{1}{6}$ on the first two fraction bars, using blue for the whole and orange for the sixths, as students shade.

- Partner A, determine if the **mixed fraction** (minuend) and the fraction (subtrahend) have a common denominator. (Yes.)
- Partner B, model how to legally trade the whole unit strip for sixths as you model on the overhead.
- Model how to pictorially trade the whole unit strip in the problem for sixths by drawing lines to divide the first fraction strip into sixths as shown below.



- Partner A, predict how you could model the subtraction. (Cross out the **subtrahend** of $\frac{3}{6}$ on the **minuend** of $\frac{7}{6}$ for a difference of $\frac{4}{6}$.) Have students shade the third strip to show the difference of $\frac{4}{6}$.
- Partner B, determine if there is a legal trade for fraction strips in another color. (Yes, they can trade four sixths for two thirds.) On the fourth strip, show the fraction in simplest form.



3 minutes – IP, CP: Have students complete Problems 2–4 on S183 and S184 with a partner, using fraction strips and recording. **{Verbal Description, Concrete Representation, Pictorial Representation, Graphic Organizer}**

2 minutes – WG: Have students come back together as a class and share their results. Students should be able to justify differences using their fraction strips. **{Verbal Description, Concrete Representation, Pictorial Representation, Graphic Organizer}**

LESSON 19: Subtract Mixed Fractions - Like Denominators

Subtract Mixed Fractions – Pictorial to Abstract (11 minutes – M, GP, IP, WG, CP)
T574, S185 (Answers on T575.)

5 minutes – M, WG, GP, CP: Have students turn to S185 in their books, and place T574 on the overhead. Have students continue to work in partners. Each partner will need to share his/her fraction kits. Use two sets of overhead fraction strips and the following activity to help students investigate subtracting mixed fractions, moving from the pictorial to the abstract. **{Verbal Description, Concrete Representation, Pictorial Representation, Graphic Organizer}**

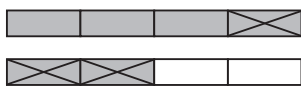
MODELING

Subtracting Mixed Fractions – Pictorial to Abstract

Step 1: Direct students' attention to Problem 1.

- Partner A, model how to build $1\frac{2}{4}$ using the fraction strips. Draw a picture of the concrete model under Problem 1 as students draw.
- Partner B, model how to legally trade the fraction strips in the minuend to show an **improper fraction**. Draw a picture of this result in the second column next to Problem 1 as students draw.

Step 2: In the third column, model how to cross out the subtrahend of $\frac{3}{4}$ from the minuend of $\frac{6}{4}$ to find the difference of $\frac{3}{4}$ as shown below.



- Partner A, explain how to write the problem numerically in the last column. $(1\frac{2}{4} - \frac{3}{4})$ Record.
- Partner B, explain how to write the problem using an improper fraction. $(\frac{6}{4} - \frac{3}{4})$ Record.
- Partner A, identify the difference. $(\frac{3}{4})$ Record.

LESSON 19: Subtract Mixed Fractions - Like Denominators

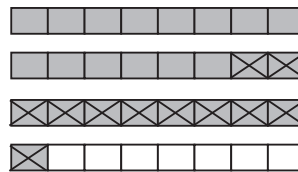
Step 3: Direct students’ attention to Problem 2. Complete Problem 2 with students without using concrete models. Tell students that this problem has two mixed fractions, rather than one mixed fraction and a fraction.

Draw a picture under Problem 2 to represent the mixed fraction minuend as students record.

Step 4: Model how to legally trade, changing the mixed fractions to improper fractions in the second column.

In the third column, model how to cross out the second fraction from the first fraction as shown below. Record the answer as students record. Model how to change the improper fraction to a mixed fraction and record as students record.

- Partner A, explain how to write the problem numerically in the last column. $(3\frac{1}{8} - 1\frac{3}{8})$ Record.
- Partner B, write the problem with improper fractions. $(\frac{25}{8} - \frac{11}{8})$ Record.



- Now have students complete the subtraction. $(\frac{14}{8})$ Record. Rewrite it as a mixed number and simplify $(1\frac{6}{8} = 1\frac{3}{4})$ Record.

4 minutes – IP, CP:

Have students complete Problems 3–4 on S185 with a partner. Students may use fraction strips if necessary. **{Verbal Description, Pictorial Representation, Graphic Organizer}**

2 minutes – WG:

Have students come back together as a class and share their results. Students should be able to justify their differences using fraction strips. **{Pictorial Representation, Verbal Description, Graphic Organizer}**

LESSON 19: Subtract Mixed Fractions - Like Denominators

Subtract Mixed Fractions Without Models(15 minutes – M, GP, IP, WG, CP)
T576, S186 (Answers on T577.)

8 minutes – M, GP, CP, WG: Have students turn to S186 in their books, and place T576 on the overhead. Use the following activity to help students subtract mixed fractions with like denominators without models. Some students may need to draw pictures. {**Verbal Description, Graphic Organizer**}

MODELING**Subtracting Mixed Fractions Without Models**

Direct students' attention to Problem 1.

- Partner A, determine what the problem asks us. (What is $3\frac{3}{8} - 1\frac{5}{8}$?)
- Partner B, determine if the fractions have a common **denominator**. (Yes.) Record.
- Partner A, identify the minuend as an improper fraction. ($\frac{27}{8}$) Record.
- Partner B, identify the subtrahend as an improper fraction. ($\frac{13}{8}$) Record.
- Partner A, determine the difference by subtracting the **numerators**. ($\frac{14}{8}$) Record.
- Partner B, identify the value as a mixed fraction. ($1\frac{6}{8}$) Record.
- Partner A, determine if we need to simplify this fraction. (Yes.) Simplify and record in simplest form. (Use the fraction strips if students need clarification.)
- Partner B, identify the answer in simplest form. ($1\frac{3}{4}$) Record.

5 minutes – IP, CP: Have students work with partners to complete Problems 2–6 on S186. They may use their fraction strips to check or legally trade the solutions for strips in other colors (simplify). {**Verbal Description, Graphic Organizer**}

2 minutes – WG: Have students come back together as a class and share their results. Students should be able to justify their differences using pictorial models. {**Verbal Description, Graphic Organizer**}

LESSON 19: Subtract Mixed Fractions - Like Denominators

Fraction Foldable**(5 minutes – M, GP, WG)**

Use the following activity to help students continue working on the fraction foldable.
{Verbal Description, Graphic Organizer}

MODELING**Fraction Foldable**

Step 1: Have students take out their Fraction Foldable.

Step 2: Create a transparency to model for students what should be written on each page.

Step 3: On page 5 of the Fractions Foldable, model for students how to label the section – Subtract Mixed Fractions with Like Denominators. Discuss with students what they have to do to subtract mixed numbers with like denominators, and then write the information in the appropriate section. Use your foldable to reference what you want written in the student foldable.

LESSON 19: Subtract Mixed Fractions - Like Denominators

SOLVE Problem**(5 minutes – GP, WG) T578, S187 (Answers on T579.)**

Have students turn to S187 in their books, and place T578 on the overhead. Remind students that the SOLVE problem is the same one from the beginning of the lesson. Complete the SOLVE problem with your students. Ask them for possible connections from the SOLVE problem to the lesson. (Students will be working with subtraction of mixed fractions.) **{SOLVE, Verbal Description, Graphic Organizer}**

If time permits...**(10 minutes – IP, I) S188 (Answers on T580.)**

Have students complete Problems 1–8 on S188.

[CLOSURE] (2 minutes)

To wrap up the lesson, go back to the essential questions and discuss them with students.

- How does building with concrete materials help us understand fractions? (*Using concrete materials helps us see and touch the fractions.*)
- How does drawing fractions as pictures help our understanding of mixed fractions? (*Using pictures helps us see the mixed fractions.*)
- How can we subtract mixed fractions with like denominators? (*Change mixed fractions to improper fractions to find the difference. Change the difference into a mixed fraction and simplify if needed.*)

[HOMEWORK] Assign S189 for homework. (Answers on T581.)

[QUIZ ANSWERS] T582 – T583

1. **D** 2. **C** 3. **C** 4. **D** 5. **B** 6. **C** 7. **A** 8. **C** 9. **D** 10. **C**

The quiz can be used at any time as extra homework or to see how students progress with subtracting mixed fractions with like denominators.

LESSON 19: Subtract Mixed Fractions - Like Denominators

Here is the key to **S181**.

Warm-Up

Directions: Work with your partner to find legal trades for the fraction strips below. Use your fraction kits and draw the legal trades.

1.



LEGAL TRADE

Answers will vary.

2.



Directions: Change the following mixed fractions to improper fractions.

3. $4\frac{5}{6} = \frac{29}{6}$

4. $3\frac{3}{8} = \frac{27}{8}$

Directions: Change the following improper fractions to mixed fractions.

5. $\frac{27}{5} = 5\frac{2}{5}$

6. $\frac{22}{4} = 5\frac{2}{4} = 5\frac{1}{2}$

LESSON 19: Subtract Mixed Fractions - Like Denominators

TRANSPARENCY MASTER for S182

Directions: Complete the following SOLVE problem with your teacher. You will only complete the S step.

Alex and Tomas are training for a walk-a-thon. They will compete next week. Alex walked $1\frac{9}{10}$ of a mile yesterday, and Tomas walked $\frac{3}{10}$ of a mile. How much farther did Alex walk than Tomas?

S Underline the question.

This problem is asking me to find _____
_____.

Directions: Complete this page with your teacher and partner.

1.

Problem: $1\frac{3}{5} - \frac{1}{5}$



Think about this:
Are the denominators the same?



What is the difference in simplest form?

3.

Problem: $2\frac{3}{4} - \frac{2}{4}$



Think about this:
Are the denominators the same?



What is the difference in simplest form?

2.

Problem: $1\frac{3}{8} - \frac{1}{8}$



Think about this:
Are the denominators the same?



What is the difference in simplest form?

4.

Problem: $3\frac{2}{5} - \frac{1}{5}$



Think about this:
Are the denominators the same?



What is the difference in simplest form?

LESSON 19: Subtract Mixed Fractions - Like Denominators

Here is the key to **S182**.

Directions: Complete the following SOLVE problem with your teacher. You will only complete the S step.

Alex and Tomas are training for a walk-a-thon. They will compete next week. Alex walked $1\frac{9}{10}$ of a mile yesterday, and Tomas walked $\frac{3}{10}$ of a mile. How much farther did Alex walk than Tomas?

S Underline the question.
This problem is asking me to find **the difference between the distance Alex and Tomas walked.**

Directions: Complete this page with your teacher and partner.

1.

Problem: $1\frac{3}{5} - \frac{1}{5}$

Think about this:
Are the denominators the same?
Yes

What is the difference in simplest form? $1\frac{2}{5}$

2.

Problem: $1\frac{3}{8} - \frac{1}{8}$

Think about this:
Are the denominators the same?
Yes

What is the difference in simplest form? $1\frac{1}{4}$

3.

Problem: $2\frac{3}{4} - \frac{2}{4}$

Think about this:
Are the denominators the same?
Yes

What is the difference in simplest form? $2\frac{1}{4}$

4.

Problem: $3\frac{2}{5} - \frac{1}{5}$

Think about this:
Are the denominators the same?
Yes

What is the difference in simplest form? $3\frac{1}{5}$

LESSON 19: Subtract Mixed Fractions - Like Denominators

TRANSPARENCY MASTER for S183

Directions: Complete this page with your teacher and partner.

1. Problem: $1\frac{1}{6} - \frac{3}{6} =$

Mixed fraction to improper fraction

Rewrite the number sentence and subtract.

Is the difference an improper fraction?
Change to a mixed fraction.

Simplify.

2. Problem: $1\frac{1}{3} - \frac{1}{3} =$

Mixed fraction to improper fraction

Rewrite the number sentence and subtract.

Is the difference an improper fraction?
Change to a mixed fraction.

Simplify.

LESSON 19: Subtract Mixed Fractions - Like Denominators

Here is the key to **S183**.

Directions: Complete this page with your teacher and partner.

1. Problem: $1\frac{1}{6} - \frac{3}{6} = \frac{4}{6} = \frac{2}{3}$

Mixed fraction to improper fraction
 $1\frac{1}{6} = \frac{7}{6}$

Rewrite the number sentence and subtract. $\frac{7}{6} - \frac{3}{6} = \frac{4}{6}$

Is the difference an improper fraction?
No
 Change to a mixed fraction.

Simplify.
 $\frac{4}{6} = \frac{2}{3}$

2. Problem: $1\frac{1}{3} - \frac{1}{3} = 1$

Mixed fraction to improper fraction
 $1\frac{1}{3} = \frac{4}{3}$

Rewrite the number sentence and subtract. $\frac{4}{3} - \frac{1}{3} = \frac{3}{3}$

Is the difference an improper fraction?
Yes
 Change to a mixed fraction.

Simplify.
 $\frac{3}{3} = 1$

LESSON 19: Subtract Mixed Fractions - Like Denominators

TRANSPARENCY MASTER for S184

Directions: Complete this page with your partner.

3.

Problem: $1\frac{5}{10} - \frac{3}{10} =$

Mixed fraction to improper fraction

Rewrite the number sentence and subtract.

Is the difference an improper fraction?
Change to a mixed fraction.

Simplify.

4.

Problem: $1\frac{2}{4} - \frac{1}{4} =$

Mixed fraction to improper fraction

Rewrite the number sentence and subtract.

Is the difference an improper fraction?
Change to a mixed fraction.

Simplify.

LESSON 19: Subtract Mixed Fractions - Like Denominators

Here is the key to **S184**.

Directions: Complete this page with your partner.

3. Problem: $1\frac{5}{10} - \frac{3}{10} = 1\frac{2}{10} = 1\frac{1}{5}$

Mixed fraction to improper fraction
 $\frac{15}{10}$

Rewrite number sentence and subtract. $\frac{15}{10} - \frac{3}{10} = \frac{12}{10}$

Is the difference an improper fraction?
Yes
Change to a mixed fraction. $1\frac{2}{10}$

Simplify.
 $1\frac{2}{10} = 1\frac{1}{5}$

4. Problem: $1\frac{2}{4} - \frac{1}{4} = 1\frac{1}{4}$

Mixed fraction to improper fraction
 $\frac{6}{4}$

Rewrite number sentence and subtract. $\frac{6}{4} - \frac{1}{4} = \frac{5}{4}$

Is the difference an improper fraction?
Yes
Change to a mixed fraction. $1\frac{1}{4}$

Simplify.
 $1\frac{1}{4}$

LESSON 19: Subtract Mixed Fractions - Like Denominators

TRANSPARENCY MASTER for S185


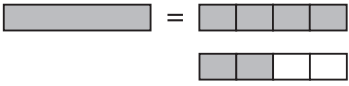
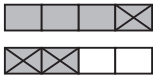
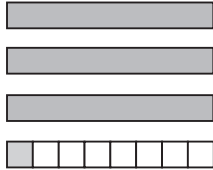
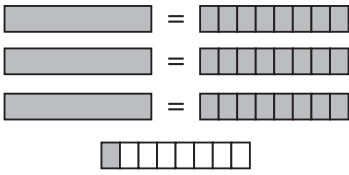
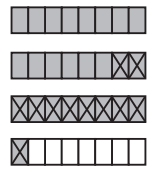

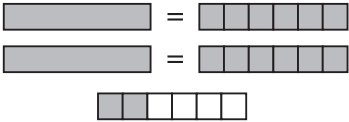
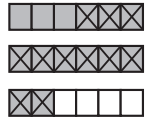
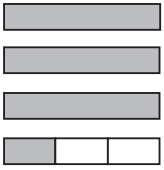
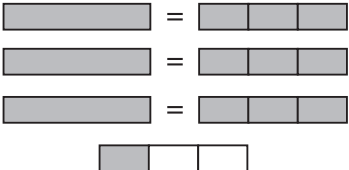
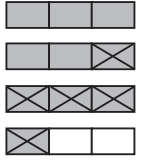
Directions: Complete this page with your teacher and partner.

	Legally trade, if needed, changing mixed fraction(s) to improper fractions with common denominators.	Subtract subtrahend from minuend by crossing out subtrahend on minuend.	Write numerically what you have in the previous column. Change the improper fraction differences to mixed fractions.
1. $1\frac{2}{4} - \frac{3}{4} =$			
2. $3\frac{1}{8} - 1\frac{3}{8} =$			
3. $2\frac{2}{6} - 1\frac{5}{6} =$			
4. $3\frac{1}{3} - 1\frac{2}{3} =$			

LESSON 19: Subtract Mixed Fractions - Like Denominators

Here is the key to **S185**.

Directions: Complete this page with your teacher and partner.

	Legally trade, if needed, changing mixed fraction(s) to improper fractions with common denominators.	Subtract subtrahend from minuend by crossing out subtrahend on minuend.	Write numerically what you have in the previous column. Change the improper fraction differences to mixed fractions.
<p>1. $1\frac{2}{4} - \frac{3}{4} =$</p> 			<p>$1\frac{2}{4} - \frac{3}{4} =$ $\frac{6}{4} - \frac{3}{4} = \frac{3}{4}$</p>
<p>2. $3\frac{1}{8} - 1\frac{3}{8} =$</p> 			<p>$3\frac{1}{8} - 1\frac{3}{8} =$ $\frac{25}{8} - \frac{11}{8} = \frac{14}{8} =$ $1\frac{6}{8} = 1\frac{3}{4}$</p>
<p>3. $2\frac{2}{6} - 1\frac{5}{6} =$</p> 			<p>$2\frac{2}{6} - 1\frac{5}{6} =$ $\frac{14}{6} - \frac{11}{6} =$ $\frac{3}{6} = \frac{1}{2}$</p>
<p>4. $3\frac{1}{3} - 1\frac{2}{3} =$</p> 			<p>$3\frac{1}{3} - 1\frac{2}{3} =$ $\frac{10}{3} - \frac{5}{3} = \frac{5}{3} = 1\frac{2}{3}$</p>

LESSON 19: Subtract Mixed Fractions - Like Denominators

TRANSPARENCY MASTER for S186

Directions: Complete this page with your teacher and partner.

<p>1. $3\frac{3}{8}$ $- 1\frac{5}{8}$ <hr style="width: 10%; margin-left: 0;"/></p> <p>Are denominators common? Minuend as improper fraction: Subtrahend as improper fraction: Rewrite the number sentence with the difference as an improper fraction. Difference as a mixed fraction.</p>	<p>4. $2\frac{1}{8}$ $- \frac{3}{8}$ <hr style="width: 10%; margin-left: 0;"/></p> <p>Are denominators common? Minuend as improper fraction: Subtrahend as improper fraction: Rewrite the number sentence with the difference as an improper fraction. Difference as a mixed fraction.</p>
<p>2. $4\frac{1}{3}$ $- 1\frac{2}{3}$ <hr style="width: 10%; margin-left: 0;"/></p> <p>Are denominators common? Minuend as improper fraction: Subtrahend as improper fraction: Rewrite the number sentence with the difference as an improper fraction. Difference as a mixed fraction.</p>	<p>5. $4\frac{3}{6} - 2\frac{4}{6} =$</p> <p>Are denominators common? Minuend as improper fraction: Subtrahend as improper fraction: Rewrite the number sentence with the difference as an improper fraction. Difference as a mixed fraction.</p>
<p>3. $6\frac{2}{5} - 3\frac{4}{5} =$</p> <p>Are denominators common? Minuend as improper fraction: Subtrahend as improper fraction: Rewrite the number sentence with the difference as an improper fraction. Difference as a mixed fraction.</p>	<p>6. $2\frac{1}{3} - 1\frac{2}{3} =$</p> <p>Are denominators common? Minuend as improper fraction: Subtrahend as improper fraction: Rewrite the number sentence with the difference as an improper fraction. Difference as a mixed fraction.</p>

LESSON 19: Subtract Mixed Fractions - Like Denominators

Here is the key to **S186**.

Directions: Complete this page with your teacher and partner.

<p>1. $3\frac{3}{8}$ $- 1\frac{5}{8}$ <hr style="width: 10%; margin-left: 0;"/></p> <p>Are denominators common? Yes</p> <p>Minuend as improper fraction: $\frac{27}{8}$</p> <p>Subtrahend as improper fraction: $\frac{13}{8}$</p> <p>Rewrite the number sentence with the difference as an improper fraction.</p> $\frac{27}{8} - \frac{13}{8} = \frac{14}{8}$ <p>Difference as a mixed fraction. $1\frac{6}{8} = 1\frac{3}{4}$</p>	<p>4. $2\frac{1}{8}$ $- \frac{3}{8}$ <hr style="width: 10%; margin-left: 0;"/></p> <p>Are denominators common? Yes</p> <p>Minuend as improper fraction: $\frac{17}{8}$</p> <p>Subtrahend as improper fraction: N/A</p> <p>Rewrite the number sentence with the difference as an improper fraction.</p> $\frac{17}{8} - \frac{3}{8} = \frac{14}{8}$ <p>Difference as a mixed fraction. $1\frac{6}{8} = 1\frac{3}{4}$</p>
<p>2. $4\frac{1}{3}$ $- 1\frac{2}{3}$ <hr style="width: 10%; margin-left: 0;"/></p> <p>Are denominators common? Yes</p> <p>Minuend as improper fraction: $\frac{13}{3}$</p> <p>Subtrahend as improper fraction: $\frac{5}{3}$</p> <p>Rewrite the number sentence with the difference as an improper fraction.</p> $\frac{13}{3} - \frac{5}{3} = \frac{8}{3}$ <p>Difference as a mixed fraction. $2\frac{2}{3}$</p>	<p>5. $4\frac{3}{6} - 2\frac{4}{6} =$</p> <p>Are denominators common? Yes</p> <p>Minuend as improper fraction: $\frac{27}{6}$</p> <p>Subtrahend as improper fraction: $\frac{16}{6}$</p> <p>Rewrite the number sentence with the difference as an improper fraction.</p> $\frac{27}{6} - \frac{16}{6} = \frac{11}{6}$ <p>Difference as a mixed fraction. $1\frac{5}{6}$</p>
<p>3. $6\frac{2}{5} - 3\frac{4}{5} =$</p> <p>Are denominators common? Yes</p> <p>Minuend as improper fraction: $\frac{32}{5}$</p> <p>Subtrahend as improper fraction: $\frac{19}{5}$</p> <p>Rewrite the number sentence with the difference as an improper fraction.</p> $\frac{32}{5} - \frac{19}{5} = \frac{13}{5}$ <p>Difference as a mixed fraction. $2\frac{3}{5}$</p>	<p>6. $2\frac{1}{3} - 1\frac{2}{3} =$</p> <p>Are denominators common? Yes</p> <p>Minuend as improper fraction: $\frac{7}{3}$</p> <p>Subtrahend as improper fraction: $\frac{5}{3}$</p> <p>Rewrite the number sentence with the difference as an improper fraction.</p> $\frac{7}{3} - \frac{5}{3} = \frac{2}{3}$ <p>Difference as a mixed fraction. N/A</p>

LESSON 19: Subtract Mixed Fractions - Like Denominators

TRANSPARENCY MASTER for S187

Directions: Complete the following SOLVE problem with your teacher.

Alex and Tomas are training for a walk-a-thon. They will compete next week. Alex walked $1\frac{9}{10}$ of a mile yesterday, and Tomas walked $\frac{3}{10}$ of a mile. How much farther did Alex walk than Tomas?

S Underline the question.

This problem is asking me to find _____

_____.

O Identify the facts.

Eliminate the unnecessary facts.

List the necessary facts.

L Choose an operation or operations.

Write in words what your plan of action will be.

V Estimate your answer.

Carry out your plan.

E Does your answer make sense? (Compare your answer to the question.)

Is your answer reasonable? (Compare your answer to the estimate.)

Is your answer accurate? (Check your work.)

Write your answer in a complete sentence.

LESSON 19: Subtract Mixed Fractions - Like Denominators

Here is the key to **S187**.

Directions: Complete the following SOLVE problem with your teacher.

Alex and Tomas are training for a walk-a-thon. | They will compete next week. | Alex walked $1\frac{9}{10}$ of a mile yesterday, | and Tomas walked $\frac{3}{10}$ of a mile. | How much farther did Alex walk than Tomas?

S Underline the question.

This problem is asking me to find **the difference between the distance Alex and Tomas walked.**

O Identify the facts.

Eliminate the unnecessary facts.

List the necessary facts. **Alex walked $1\frac{9}{10}$ of a mile, Tomas walked $\frac{3}{10}$ of a mile**

L Choose an operation or operations. **Subtraction**

Write in words what your plan of action will be. **Subtract the distance walked by Tomas from the distance walked by Alex. Simplify the difference if necessary.**

V Estimate your answer. **About 1 mile**

Carry out your plan.

$$1\frac{9}{10} - \frac{3}{10} = \frac{19}{10} - \frac{3}{10} = \frac{16}{10} = 1\frac{6}{10} = 1\frac{3}{5} \text{ miles}$$

E Does your answer make sense? (Compare your answer to the question.) **Yes, because we are looking for how much farther Alex walked than Tomas.**

Is your answer reasonable? (Compare your answer to the estimate.) **Yes, because it is close to our estimate of about 1 mile.**

Is your answer accurate? (Check your work.) **Yes.**

Write your answer in a complete sentence. **Alex walked $1\frac{3}{5}$ miles farther than Tomas.**

LESSON 19: Subtract Mixed Fractions - Like Denominators

Here is the key to **S188**.

Directions: Complete each mixed fraction problem. Simplify all differences.

$$1. 2\frac{8}{10} - 1\frac{1}{10} = 1\frac{7}{10}$$

$$2. 5\frac{3}{4} - 2\frac{1}{4} = 3\frac{2}{4} = 3\frac{1}{2}$$

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

$$4. 4\frac{3}{8} - 2\frac{4}{8} = 1\frac{7}{8}$$

$$5. 3\frac{4}{5} - 1\frac{1}{5} = 2\frac{3}{5}$$

$$6. 3\frac{2}{6} - 1\frac{4}{6} = 1\frac{4}{6} = 1\frac{2}{3}$$

$$7. 3\frac{7}{12} - 1\frac{3}{12} = 2\frac{4}{12} = 2\frac{1}{3}$$

$$8. 5\frac{1}{2} - 3\frac{1}{2} = 2$$

LESSON 19: Subtract Mixed Fractions - Like Denominators

Here is the key to **S189**.

Homework

Name _____ Date _____

Directions: Complete each mixed fraction problem. Simplify all differences.

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

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

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

4. $3\frac{4}{5} - 1\frac{2}{5} = 2\frac{2}{5}$

5. $4\frac{2}{12} - 2\frac{5}{12} = 1\frac{9}{12} = 1\frac{3}{4}$

6. $2\frac{3}{4} - 1\frac{1}{4} = 1\frac{2}{4} = 1\frac{1}{2}$

7. $3\frac{4}{10} - 1\frac{5}{10} = 1\frac{9}{10}$

8. $3\frac{5}{6} - 1\frac{1}{6} = 2\frac{4}{6} = 2\frac{2}{3}$

9. $5\frac{2}{3} - 3\frac{1}{3} = 2\frac{1}{3}$

10. $10\frac{8}{12} - 2\frac{3}{12} = 8\frac{5}{12}$

LESSON 19: Subtract Mixed fractions - Like Denominators

Name _____

Date _____

Quiz

Subtract. Simplify all differences.

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

- A. $1\frac{1}{6}$
- B. $1\frac{2}{3}$
- C. $2\frac{1}{6}$
- D. $2\frac{1}{3}$

2. $4\frac{5}{12} - 1\frac{3}{12} =$

- A. $2\frac{1}{3}$
- B. $2\frac{5}{6}$
- C. $3\frac{1}{6}$
- D. $3\frac{1}{2}$

3. $3\frac{9}{10} - 1\frac{8}{10} =$

- A. $1\frac{9}{10}$
- B. 2
- C. $2\frac{1}{10}$
- D. $2\frac{1}{2}$

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

- A. $\frac{3}{8}$
- B. $1\frac{1}{4}$
- C. $1\frac{3}{4}$
- D. $2\frac{1}{4}$

5. $4\frac{2}{3} - 2\frac{1}{3} =$

- A. $1\frac{1}{3}$
- B. $2\frac{1}{3}$
- C. $2\frac{1}{2}$
- D. $3\frac{1}{3}$

6. $6\frac{1}{2} - 3 =$

- A. $2\frac{1}{2}$
- B. 3
- C. $3\frac{1}{2}$
- D. $6\frac{1}{6}$

LESSON 19: Subtract Mixed fractions - Like Denominators

7. $3\frac{2}{5} - 2\frac{1}{5} =$

- A. $1\frac{1}{5}$
- B. $1\frac{1}{2}$
- C. $2\frac{1}{5}$
- D. $2\frac{1}{2}$

8. $3\frac{8}{10} - 2\frac{4}{10} =$

- A. $\frac{1}{10}$
- B. $\frac{1}{2}$
- C. $1\frac{2}{5}$
- D. $1\frac{1}{2}$

9. $5\frac{7}{8} - 2\frac{3}{8} =$

- A. 1
- B. $1\frac{1}{8}$
- C. $2\frac{1}{2}$
- D. $3\frac{1}{2}$

10. $2\frac{2}{6} - 1\frac{1}{6} =$

- A. $\frac{1}{2}$
- B. $1\frac{1}{12}$
- C. $1\frac{1}{6}$
- D. $1\frac{1}{2}$