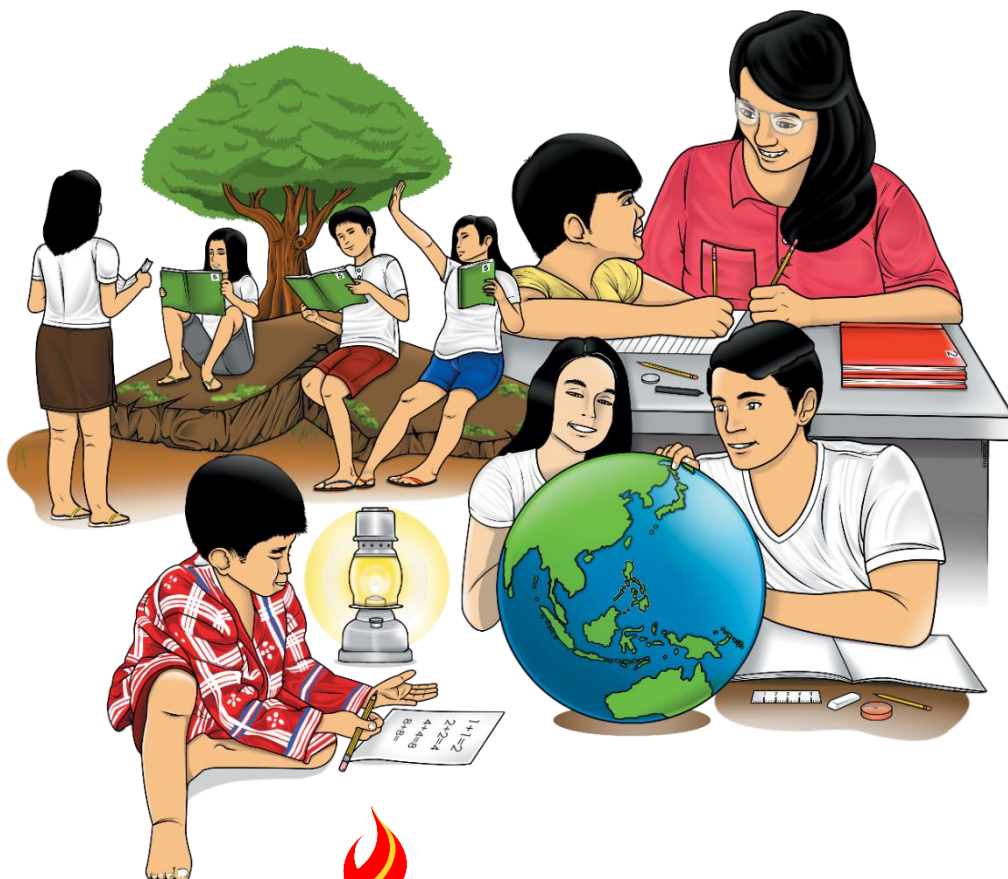


Mathematics

Quarter 1 – Module 2: Subtracting Simple Fractions and Mixed Numbers Without and With Regrouping



Mathematics – Grade 6
Alternative Delivery Mode

Quarter 1 – Module 2: Subtracting Simple Fractions and Mixed Numbers Without and with Regrouping
First Edition, 2020

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Quarter 1 – Module 2: Subtracting Simple Fractions and Mixed Numbers Without and With Regrouping

Introductory Message

For the facilitator:

Welcome to the Mathematics 6 Alternative Delivery Mode (ADM) Module on Subtracting Simple Fractions and Mixed Numbers Without and with Regrouping!

This module was collaboratively designed, developed and reviewed by educators both from public and private institutions to assist you, the teacher or facilitator in helping the learners meet the standards set by the K to 12 Curriculum while overcoming their personal, social, and economic constraints in schooling.

This learning resource hopes to engage the learners into guided and independent learning activities at their own pace and time. Furthermore, this also aims to help learners acquire the needed 21st century skills while taking into consideration their needs and circumstances.

In addition to the material in the main text, you will also see this box in the body of the module:



Notes to the Teacher

This contains helpful tips or strategies that will help you in guiding the learners.

As a facilitator, you are expected to orient the learners on how to use this module. You also need to keep track of the learners' progress while allowing them to manage their own learning. Furthermore, you are expected to encourage and assist the learners as they do the tasks included in the module.

For the learner:

Welcome to the Mathematics 6 Alternative Delivery Mode (ADM) Module on Subtracting Simple Fractions and Mixed Numbers Without and with Regrouping!

This module was designed to provide you with fun and meaningful opportunities for guided and independent learning at your own pace and time. You will be enabled to process the contents of the learning resource while being an active learner.

This module has the following parts and corresponding icons:



What I Need to Know

This will give you an idea of the skills or competencies you are expected to learn in the module.



What I Know

This part includes an activity that aims to check what you already know about the lesson to take. If you get all the answers correct (100%), you may decide to skip this module.



What's In

This is a brief drill or review to help you link the current lesson with the previous one.



What's New

In this portion, the new lesson will be introduced to you in various ways; a story, a song, a poem, a problem opener, an activity or a situation.



What is It

This section provides a brief discussion of the lesson. This aims to help you discover and understand new concepts and skills.



What's More

This comprises activities for independent practice to solidify your understanding and skills of the topic. You may check the answers to the exercises using the Answer Key at the end of the module.



What I Have Learned

This includes questions or blank sentence/paragraph to be filled into process what you learned from the lesson.



What I Can Do

This section provides an activity which will help you transfer your new knowledge or skill into real life situations or concerns.



Assessment

This is a task which aims to evaluate your level of mastery in achieving the learning competency.



Additional Activities

In this portion, another activity will be given to you to enrich your knowledge or skill of the lesson learned.



Answer Key

This contains answers to all activities in the module.

At the end of this module you will also find:

References

This is a list of all sources used in developing this module.

The following are some reminders in using this module:

1. Use the module with care. Do not put unnecessary mark/s on any part of the module. Use a separate sheet of paper in answering the exercises.
2. Don't forget to answer *What I Know* before moving on to the other activities included in the module.
3. Read the instruction carefully before doing each task.
4. Observe honesty and integrity in doing the tasks and checking your answers.
5. Finish the task at hand before proceeding to the next.
6. Return this module to your teacher/facilitator once you are through with it.

If you encounter any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator. Always bear in mind that you are not alone.

We hope that through this material, you will experience meaningful learning and gain deep understanding of the relevant competencies. You can do it!



What I Need to Know

This module was designed and written with you in mind. It is here to help you master subtraction of fractions and mixed numbers. The scope of this module permits it to be used in many different learning situations. The language used recognizes the diverse vocabulary level of students. The lessons are arranged to follow the standard sequence of the course. But the order in which you read them can be changed to correspond with the textbook you are now using.

The module is divided into three lessons, namely:

- Lesson 1. Subtraction of simple fractions without regrouping
- Lesson 2. Subtraction of simple fractions from mixed numbers without regrouping
- Lesson 3. Subtraction of simple fractions from mixed numbers with regrouping

After going through this module, you are expected to:

1. subtract simple fractions without regrouping; **(M6NS-Ia-86)**
2. subtract simple fractions from mixed numbers without regrouping; **(M6NS-Ia-86)**
3. subtract simple fractions from mixed numbers with regrouping; **(M6NS-Ia-86)** and
4. solve routine and non-routine problems involving addition and/or subtraction of fractions using appropriate problem-solving strategies and tools. **(M6NS-Ia-87.3)**



What I Know

Subtract the following fractions and express your answer to lowest term, if possible. Write your answers on your answer sheet.

$$1) \frac{3}{5} - \frac{1}{7} = \boxed{}$$

$$2) \frac{8}{10} - \frac{3}{5} = \boxed{}$$

$$3) \frac{3}{4} - \frac{2}{12} = \boxed{}$$

$$4) \frac{7}{8} - \frac{1}{4} = \boxed{}$$

$$5) \frac{11}{12} - \frac{1}{3} = \boxed{}$$

$$6) \frac{8}{10} - \frac{2}{5} = \boxed{}$$

$$7) \frac{10}{12} - \frac{2}{3} = \boxed{}$$

$$8) \frac{2}{3} - \frac{2}{8} = \boxed{}$$

$$9) \frac{1}{2} - \frac{3}{20} = \boxed{}$$

$$10) \frac{2}{3} - \frac{5}{9} = \boxed{}$$

Lesson**1****Subtracting Simple Fractions Without Regrouping**

You have learned how to add simple fractions in the past lesson. Now, you will learn how to subtract simple fractions without regrouping.

***What's In***

Give the Least Common Denominator (LCD) of the following pairs of dissimilar fractions. Write the answer on your answer sheet.

1) $\frac{3}{4}$ and $\frac{2}{3}$

4) $\frac{1}{6}$ and $\frac{3}{5}$

2) $\frac{1}{3}$ and $\frac{1}{2}$

5) $\frac{1}{8}$ and $\frac{3}{4}$

3) $\frac{1}{8}$ and $\frac{5}{6}$

***What's New***

Look at the problem situation below.

Estelle has $\frac{3}{4}$ meter of linen cloth. She used $\frac{2}{3}$ meter for one placemat. What part of the linen cloth was left?

Solution: To find what part of linen cloth was left, we subtract $\frac{2}{3}$ from $\frac{3}{4}$.



What is It

Find: $\frac{3}{4} - \frac{2}{3} = N$

$$\begin{array}{r} \frac{3}{4} = \frac{\square}{12} \leftarrow \text{LCD} \\ - \frac{2}{3} = \frac{\square}{12} \leftarrow \text{LCD} \\ \hline \end{array}$$

$(12 \div 4) \times 3 = 9 \leftarrow$
 $(12 \div 3) \times 2 = 8 \leftarrow$

$$\begin{array}{r} \frac{3}{4} = \frac{9}{12} \\ - \frac{2}{3} = \frac{8}{12} \\ \hline \frac{1}{12} \end{array}$$

Step 1. Find the Least Common Denominator (LCD).

Step 2. Find the missing numerators.

To find the missing numerators, divide the LCD by the denominator of the given fraction. Multiply the quotient by the numerator.

Step 3. Write the equivalent forms. Subtract the numerators and use the Least Common Denominator (LCD) as denominators.

Therefore, $\frac{1}{12}$ meter of the linen cloth was left.

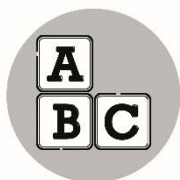
Here are some examples for you to study.

A. $\frac{2}{3} = \frac{6}{9}$

$$\begin{array}{r} \frac{2}{3} = \frac{6}{9} \\ - \frac{2}{9} = \frac{2}{9} \\ \hline \frac{4}{9} \end{array}$$

B. $\frac{5}{6} = \frac{25}{30}$

$$\begin{array}{r} \frac{5}{6} = \frac{25}{30} \\ - \frac{2}{5} = \frac{12}{30} \\ \hline \frac{13}{30} \end{array}$$



What's More

Complete each item. Write your answers on your answer sheet.

$$1) \quad \frac{3}{4} = \frac{\square}{12}$$

$$\begin{array}{r} - \frac{2}{3} = \frac{\square}{12} \\ \hline \frac{\square}{12} \end{array}$$

$$2) \quad \frac{5}{8} = \frac{\square}{40}$$

$$\begin{array}{r} - \frac{3}{5} = \frac{\square}{40} \\ \hline \frac{\square}{40} \end{array}$$

$$3) \quad \frac{2}{3} = \frac{\square}{9}$$

$$\begin{array}{r} - \frac{2}{9} = \frac{\square}{9} \\ \hline \frac{\square}{9} \end{array}$$

$$4) \quad \frac{3}{5} = \frac{\square}{20}$$

$$\begin{array}{r} - \frac{1}{4} = \frac{\square}{20} \\ \hline \frac{\square}{20} \end{array}$$

$$5) \quad \frac{3}{7} = \frac{\square}{35}$$

$$\begin{array}{r} - \frac{1}{5} = \frac{\square}{35} \\ \hline \frac{\square}{35} \end{array}$$



What I Have Learned

To subtract simple fractions:

- Find the Least Common Denominator (LCD).
- Rename the dissimilar fractions to their equivalent fractions using the LCD.
- Subtract the numerators. Then, write the difference over the common denominator.
- Express the answer in simplest form or lowest term, if needed.



What I Can Do

A. Subtract. Express your answer to simplest form or lowest term, if needed. Write your answers on your answer sheet.

$$\begin{array}{r} 1 \quad \frac{7}{9} \\ - \quad \frac{1}{3} \\ \hline \end{array}$$

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

$$\begin{array}{r} 3. \quad \frac{7}{9} \\ - \quad \frac{2}{5} \\ \hline \end{array}$$

B. Read and solve the following problems. Show your solutions and express your final answer to simplest form or lowest term. Write it on your answer sheet.

1. Carol bought $\frac{4}{5}$ kilogram of ground pork. She used $\frac{3}{4}$ kilogram to make siomai. How many kilograms of ground pork was left?

2. Emalyn decided to make $\frac{8}{10}$ liter of pineapple juice for her friends who were practicing a dance number for the school program. She served $\frac{7}{10}$ liter of juice. How much juice was left?



Assessment

Subtract the following fractions. Express your answer to simplest form or lowest term, if needed. Write your answers on your answer sheet.

$$\begin{array}{r} 1) \quad \frac{2}{9} = \\ - \quad \frac{1}{6} = \\ \hline \end{array}$$

$$\begin{array}{r} 2) \quad \frac{5}{7} = \\ - \quad \frac{1}{3} = \\ \hline \end{array}$$

$$\begin{array}{r} 3) \quad \frac{5}{9} = \\ - \quad \frac{1}{3} = \\ \hline \end{array}$$

$$\begin{array}{r} 4) \quad \frac{9}{16} = \\ - \quad \frac{1}{4} = \\ \hline \end{array}$$

$$\begin{array}{r} 5) \quad \frac{5}{7} = \\ - \quad \frac{2}{5} = \\ \hline \end{array}$$

$$\begin{array}{r} 6) \quad \frac{2}{3} = \\ - \quad \frac{1}{8} = \\ \hline \end{array}$$

$$\begin{array}{r} 7) \quad \frac{6}{10} = \\ - \quad \frac{1}{8} = \\ \hline \end{array}$$

$$\begin{array}{r} 8) \quad \frac{3}{4} = \\ - \quad \frac{2}{6} = \\ \hline \end{array}$$

$$\begin{array}{r} 9) \quad \frac{8}{20} = \\ - \quad \frac{1}{4} = \\ \hline \end{array}$$

$$\begin{array}{r} 10) \quad \frac{4}{7} = \\ - \quad \frac{1}{2} = \\ \hline \end{array}$$



Additional Activities

A. Subtract the following. Express your answer to simplest form or lowest term, if needed. Write your answers on your answer sheet.

$$\begin{array}{r} 1) \quad \frac{6}{10} \\ - \quad \frac{1}{5} \\ \hline \end{array}$$

$$\begin{array}{r} 4) \quad \frac{4}{5} \\ - \quad \frac{1}{3} \\ \hline \end{array}$$

$$\begin{array}{r} 2) \quad \frac{10}{15} \\ - \quad \frac{1}{2} \\ \hline \end{array}$$

$$\begin{array}{r} 5) \quad \frac{2}{3} \\ - \quad \frac{1}{2} \\ \hline \end{array}$$

$$\begin{array}{r} 3) \quad \frac{1}{2} \\ - \quad \frac{1}{8} \\ \hline \end{array}$$

B. Read and solve the following problem. Show your solutions on your answer sheet.

1. Shine added $\frac{5}{6}$ of a bag of soil to her flower box. Her friend Elvina added $\frac{11}{8}$ bags of soil to her flower box. How much more soil did Elvina add than Shine?

2. Airel's coffee shop sells small bags of powdered coffee. The bags come in sizes of $\frac{1}{2}$ kilogram and $\frac{3}{4}$ kilogram. How much more coffee does the bigger bag have?

3. Grace bought $\frac{7}{8}$ meter of white lace. She cut $\frac{1}{2}$ meter from it. How many meters was left?

4. John had $\frac{5}{6}$ meter of wire. He cut $\frac{2}{8}$ meter for his project in EPP. How much wire was left?

5. Jean had $\frac{3}{4}$ cup of brown sugar. She used $\frac{3}{8}$ cup to make a cake. How much sugar was left?



Answer Key

<p>What I Can Do</p> <p>A. $1. \frac{9}{4}$ $2. \frac{4}{1}$ $3. \frac{17}{45}$ B. $4. \frac{1}{20}$ $5. \frac{1}{10}$</p>	<p>What I Know</p> <p>$1. \frac{16}{35}$ $2. \frac{5}{1}$ $3. \frac{12}{7}$ $4. \frac{8}{5}$ $5. \frac{12}{7}$</p> <p>$6. \frac{5}{2}$ $7. \frac{6}{1}$ $8. \frac{12}{5}$ $9. \frac{20}{7}$ $10. \frac{1}{9}$</p>
<p>Assessment</p> <p>$1. \frac{18}{13}$ $2. \frac{21}{8}$ $3. \frac{9}{2}$ $4. \frac{16}{5}$ $5. \frac{11}{35}$</p> <p>$6. \frac{24}{13}$ $7. \frac{40}{19}$ $8. \frac{12}{5}$ $9. \frac{20}{3}$ $10. \frac{1}{14}$</p>	<p>What's In</p> <p>$1. 12$ $2. 6$ $3. 24$ $4. 30$ $5. 8$</p>
<p>Additional Activities</p> <p>A. $1. \frac{5}{2}$ $2. \frac{6}{1}$ $3. \frac{8}{3}$ $4. \frac{7}{15}$ $5. \frac{6}{1}$</p> <p>B. $1. \frac{24}{13}$ $2. \frac{4}{1}$ $3. \frac{8}{3}$ $4. \frac{12}{7}$ $5. \frac{8}{3}$</p>	<p>What's More</p> <p>$1. \frac{1}{12}$ $2. \frac{1}{40}$ $3. \frac{9}{4}$ $4. \frac{20}{7}$ $5. \frac{35}{8}$</p>



What I Know

Subtract the following fractions and express your answer to lowest term, if possible. Write your answers on your answer sheet.

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

2. $19\frac{2}{3} - \frac{5}{8} =$

3. $8\frac{9}{10} - \frac{2}{3} =$

4. $14\frac{4}{10} - \frac{1}{3} =$

5. $18\frac{1}{2} - \frac{2}{8} =$

6. $9\frac{7}{12} - \frac{1}{5} =$

7. $10\frac{7}{10} - \frac{4}{10} =$

8. $7\frac{5}{6} - \frac{3}{5} =$

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

10. $6\frac{2}{3} - \frac{3}{8} =$

Lesson

2

Subtracting Simple Fractions From Mixed Numbers Without Regrouping

You have learned how to subtract simple fractions without regrouping in the past lesson. Now, you will learn how to subtract simple fractions from mixed numbers without regrouping.



What's In

Give the Least Common Denominator (LCD) of the following pairs of dissimilar fractions. Write your answer on your answer sheet.

1) $\frac{2}{3}$ and $\frac{3}{8}$

4) $\frac{4}{5}$ and $\frac{2}{3}$

2) $\frac{6}{7}$ and $\frac{2}{6}$

5) $\frac{1}{8}$ and $\frac{3}{4}$

3) $\frac{4}{6}$ and $\frac{4}{8}$



What's New

Look at the problem situation below.

Ellen bought $1\frac{3}{4}$ kilograms of mangoes for her grandparents. They ate $\frac{1}{2}$ kilogram of it. How many kilograms of mangoes were left?

Solution: To find how many kilograms of mangoes was left, we subtract $\frac{1}{2}$ from

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



What is It

Find: $1\frac{3}{4} - \frac{1}{2} = N$

$$\begin{array}{r}
 1\frac{3}{4} = 1\frac{\boxed{}}{4} \leftarrow \text{LCD} \\
 - \quad \frac{1}{2} = \frac{\boxed{}}{4} \leftarrow \text{LCD} \\
 \hline
 \end{array}$$

$(4 \div 4) \times 3 = 3$ \leftarrow
 $(4 \div 2) \times 1 = 2$ \leftarrow

$$\begin{array}{r}
 1\frac{3}{4} = 1\frac{3}{4} \\
 - \quad \frac{1}{2} = \frac{2}{4} \\
 \hline
 1\frac{1}{4}
 \end{array}$$

Step 1. Find the Least Common Denominator (LCD).

Step 2. Find the missing numerators.

To find the missing numerators, divide the LCD by the denominator of the given fraction. Multiply the quotient by the numerator.

Step 3. Write the equivalent forms. Subtract the numerators; then bring down the whole number.

Therefore, $1\frac{1}{4}$ kilograms of the mangoes left.

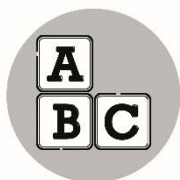
Here are some examples for you to study.

A.

$$\begin{array}{r}
 5\frac{3}{4} = 5\frac{3}{4} \\
 - \quad \frac{1}{2} = \frac{2}{4} \\
 \hline
 5\frac{1}{4}
 \end{array}$$

B.

$$\begin{array}{r}
 3\frac{1}{2} = 3\frac{3}{6} \\
 - \quad \frac{1}{3} = \frac{2}{6} \\
 \hline
 3\frac{1}{6}
 \end{array}$$



What's More

Complete the subtraction process. Write your answers on your answer sheet.

$$\begin{array}{r}
 1) \quad 2\frac{1}{2} = 2\frac{\square}{10} \\
 - \quad \frac{1}{5} = \frac{2}{10} \\
 \hline
 \quad \quad 2\frac{\square}{10}
 \end{array}$$

$$\begin{array}{r}
 2) \quad 10\frac{5}{8} = 10\frac{25}{40} \\
 - \quad \frac{3}{5} = \frac{\square}{40} \\
 \hline
 \quad \quad 10\frac{\square}{40}
 \end{array}$$

$$\begin{array}{r}
 3) \quad 5\frac{1}{2} = 5\frac{3}{6} \\
 - \quad \frac{1}{3} = \frac{\square}{6} \\
 \hline
 \quad \quad 5\frac{\square}{6}
 \end{array}$$

$$\begin{array}{r}
 4) \quad 18\frac{5}{8} = 18\frac{15}{24} \\
 - \quad \frac{1}{3} = \frac{\square}{24} \\
 \hline
 \quad \quad 18\frac{\square}{24}
 \end{array}$$

$$\begin{array}{r}
 5) \quad 12\frac{2}{3} = 12\frac{8}{12} \\
 - \quad \frac{1}{4} = \frac{\square}{12} \\
 \hline
 \quad \quad 12\frac{\square}{12}
 \end{array}$$



What I Have Learned

To subtract simple fractions from mixed number without regrouping:

- Find the Least Common Denominator (LCD).
- Rename the dissimilar fractions to their equivalent fractions using the LCD.
- Subtract the numerators. Then, write the difference over the common denominator.
- If the difference is an improper fraction, rename it as a mixed number.



What I Can Do

A. Subtract. Change your answer to the lowest term if needed. Write your answers on your answer sheet.

$$\begin{array}{r} 1) \quad 6 \frac{6}{9} = \\ - \quad \frac{1}{5} = \\ \hline \end{array}$$

$$\begin{array}{r} 2) \quad 10 \frac{8}{10} = \\ - \quad \frac{3}{9} = \\ \hline \end{array}$$

$$\begin{array}{r} 3) \quad 6 \frac{1}{4} = \\ - \quad \frac{2}{10} = \\ \hline \end{array}$$

B. Read and solve the following word problems. Show your solutions on your answer sheet.

1. Jerlin spent $2 \frac{8}{10}$ hours doing her Math homework and $\frac{2}{5}$ hour doing her English homework. How much time did Jerlin spend on doing her Math homework than in English homework?

2. Mother bought $1 \frac{1}{2}$ kilograms of ground pork. She used $\frac{3}{5}$ kilogram for her spaghetti. How many kilograms of pork was left?



Assessment

Solve the following. Write your answers on your answer sheet.

$$\begin{array}{r} 1) \quad 7 \frac{2}{3} = \\ - \quad \frac{2}{5} = \\ \hline \end{array}$$

$$\begin{array}{r} 2) \quad 9 \frac{6}{8} = \\ - \quad \frac{1}{4} = \\ \hline \end{array}$$

$$\begin{array}{r} 3) \quad 8 \frac{9}{10} = \\ - \quad \frac{2}{3} = \\ \hline \end{array}$$

$$\begin{array}{r} 4) \quad 2 \frac{9}{10} = \\ - \quad \frac{2}{5} = \\ \hline \end{array}$$

$$\begin{array}{r} 5) \quad 3 \frac{1}{2} = \\ - \quad \frac{2}{8} = \\ \hline \end{array}$$

$$\begin{array}{r} 6) \quad 9 \frac{7}{12} = \\ - \quad \frac{1}{5} = \\ \hline \end{array}$$

$$\begin{array}{r} 7) \quad 10 \frac{7}{10} = \\ - \quad \frac{4}{10} = \\ \hline \end{array}$$

$$\begin{array}{r} 8) \quad 5 \frac{5}{6} = \\ - \quad \frac{3}{5} = \\ \hline \end{array}$$

$$\begin{array}{r} 9) \quad 12 \frac{2}{5} = \\ - \quad \frac{1}{4} = \\ \hline \end{array}$$

$$\begin{array}{r} 10) \quad 3 \frac{2}{3} = \\ - \quad \frac{3}{8} = \\ \hline \end{array}$$



Additional Activities

A. Subtract the following fractions. Express your answer to simplest form or lowest term, if needed. Write your answers on your answer sheet.

$$\begin{array}{r} 1) \quad 10\frac{6}{7} \\ - \quad \frac{1}{3} \\ \hline \end{array}$$

$$\begin{array}{r} 4) \quad 11\frac{2}{3} \\ - \quad \frac{2}{5} \\ \hline \end{array}$$

$$\begin{array}{r} 2) \quad 1\frac{2}{3} \\ - \quad \frac{3}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 5) \quad 13\frac{1}{2} \\ - \quad \frac{1}{7} \\ \hline \end{array}$$

$$\begin{array}{r} 3) \quad 12\frac{4}{6} \\ - \quad \frac{4}{8} \\ \hline \end{array}$$

B. Read and solve the following problems. Show your solutions on your answer sheet.

1. Mother cooks food in $1\frac{3}{4}$ hours and prepares the children's snacks in $\frac{4}{6}$ of an hour. How much longer does she cook the food than prepare the children's snacks?

2. Mrs. Reyes finishes the laundry in $2\frac{3}{4}$ hours and cleans the house in $\frac{5}{8}$ of an hour. How much longer does she do the laundry than cleaning the house?

3. Michael practiced playing piano for $1\frac{6}{7}$ hours. He practiced playing the guitar for $\frac{4}{7}$ of an hour. How much longer did he practice playing piano than playing the guitar?

4. Aling Amalia has $2\frac{3}{4}$ meters of red cloth. She cut $\frac{3}{5}$ meter for her daughter's blouse. How many meters of cloth was left?

5. Jean bought $2\frac{9}{10}$ meters of white ribbon. She cut $\frac{3}{5}$ meter for her project. How many meters of ribbon were left?



Answer Key

<p>What I Can Do</p> <p>A.</p> <p>1. $6\frac{15}{7}$</p> <p>2. $10\frac{15}{7}$</p> <p>3. $6\frac{1}{20}$</p> <p>B.</p> <p>1. $2\frac{5}{2}$</p> <p>2. $\frac{9}{10}$</p>	<p>What I Know</p> <p>1. $2\frac{1}{12}$</p> <p>6. $9\frac{60}{23}$</p> <p>2. $19\frac{1}{24}$</p> <p>7. $10\frac{10}{3}$</p> <p>3. $8\frac{7}{30}$</p> <p>8. $7\frac{7}{30}$</p> <p>4. $14\frac{1}{15}$</p> <p>9. $2\frac{21}{1}$</p> <p>5. $18\frac{4}{7}$</p> <p>10. $6\frac{24}{7}$</p>
<p>Assessment</p> <p>1. $7\frac{15}{4}$</p> <p>2. $9\frac{2}{1}$</p> <p>3. $8\frac{30}{7}$</p> <p>4. $2\frac{1}{2}$</p> <p>5. $3\frac{4}{1}$</p> <p>6. $9\frac{60}{23}$</p> <p>7. $10\frac{10}{3}$</p> <p>8. $5\frac{30}{7}$</p> <p>9. $12\frac{20}{3}$</p> <p>10. $3\frac{24}{7}$</p>	<p>What's In</p> <p>1. 24</p> <p>2. 42</p> <p>3. 24</p> <p>4. 15</p> <p>5. 8</p>
<p>Additional Activities</p> <p>A.</p> <p>1. $10\frac{11}{21}$</p> <p>2. $1\frac{7}{24}$</p> <p>3. $12\frac{1}{6}$</p> <p>4. $11\frac{4}{15}$</p> <p>5. $13\frac{14}{5}$</p> <p>B.</p> <p>1. $1\frac{12}{1}$</p> <p>2. $2\frac{8}{1}$</p> <p>3. $1\frac{7}{2}$</p> <p>4. $2\frac{20}{3}$</p> <p>5. $2\frac{10}{3}$</p>	<p>What's More</p> <p>1. $2\frac{10}{3}$</p> <p>2. $10\frac{1}{40}$</p> <p>3. $5\frac{6}{1}$</p> <p>4. $18\frac{24}{7}$</p> <p>5. $12\frac{5}{12}$</p>



What I Know

Solve the following. Write the answers on your answer sheet.

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

2. $19\frac{2}{3} - \frac{6}{8} =$

3. $8\frac{3}{5} - \frac{6}{7} =$

4. $14\frac{1}{3} - \frac{4}{5} =$

5. $12\frac{1}{2} - \frac{7}{8} =$

6. $9\frac{7}{12} - \frac{4}{5} =$

7. $10\frac{6}{15} - \frac{4}{5} =$

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

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

10. $6\frac{2}{8} - \frac{2}{3} =$

Lesson**3****Subtracting Simple Fractions From Mixed Numbers With Regrouping**

You have learned how to subtract simple fractions from mixed numbers without regrouping in the past lesson. Now, you will learn how to subtract simple fractions from mixed numbers with regrouping.

***What's In***

Give the Least Common Denominator (LCD) of the following pairs of dissimilar fractions. Write the answers on your answer sheet.

1) $\frac{3}{5}$ and $\frac{6}{7}$

2) $\frac{1}{3}$ and $\frac{4}{5}$

3) $\frac{1}{2}$ and $\frac{7}{8}$

4) $\frac{7}{12}$ and $\frac{4}{5}$

5) $\frac{6}{15}$ and $\frac{4}{5}$

***What's New***

Look at the problem situation below.

Mrs. Santos bought $2\frac{1}{2}$ meters of material to make a dress and $\frac{3}{4}$ meter of the same material to make a blouse. How much more materials did she use for making a dress than a blouse?

Solution: To find how much more material did Mrs. Santos use for making a dress than a blouse, we subtract $\frac{3}{4}$ from $2\frac{1}{2}$.



What is It

Find: $2\frac{1}{2} - \frac{3}{4} = N$

Step 1. Change to similar fractions.

Find the Least Common Denominator (LCD).

$$\begin{array}{r} 2\frac{1}{2} \\ - \frac{3}{4} \\ \hline \end{array} = \begin{array}{r} 2\frac{2}{4} \\ - \frac{3}{4} \\ \hline \end{array}$$

$$\frac{3}{4} > \frac{2}{4}$$

You cannot subtract right away so, rename the fraction before performing the subtraction operation.

Step 2. If the fraction in the minuend is less than the subtrahend, rename the minuend as an equal mixed number with a fraction similar to that in the

subtrahend. To do so, regroup 1 from the whole number 2 and rename it as $(\frac{4}{4})$.

Then, add $\frac{4}{4}$ to $\frac{2}{4}$ to get $\frac{6}{4}$.

$$\begin{array}{r} 2\frac{1}{2} = 2\frac{2}{4} = \boxed{1 + \frac{4}{4}} + \frac{2}{4} \\ \quad \quad \quad \downarrow \quad \downarrow \\ 2\frac{1}{2} = 2\frac{2}{4} = 1\frac{6}{4} \\ - \quad - \quad - \\ \frac{3}{4} = \frac{3}{4} = \frac{3}{4} \\ \hline \end{array}$$

Step 3. Subtract the fractions and then the whole number and express your answer in simplest form, if needed.

$$\begin{array}{r} 2\frac{1}{2} = 2\frac{2}{4} = 1\frac{6}{4} \\ - \quad - \quad - \\ \frac{3}{4} = \frac{3}{4} = \frac{3}{4} \\ \hline 1\frac{3}{4} \end{array}$$

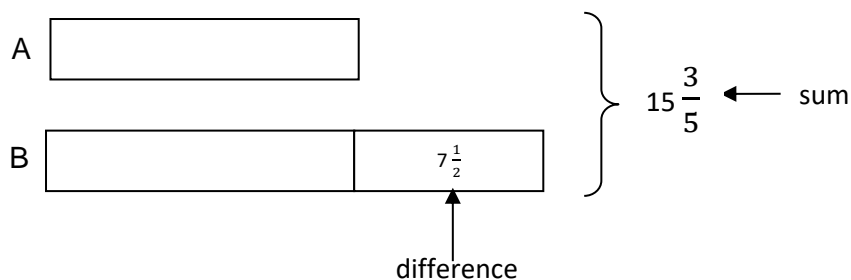
She used $1\frac{3}{4}$ meters more material for making a dress than a blouse.

Here is an example for you to study.

$$\begin{array}{r} 18\frac{1}{3} = 18\frac{2}{6} = 17\frac{8}{6} \\ - \frac{1}{2} = \frac{3}{6} = \frac{3}{6} \\ \hline 17\frac{5}{6} \end{array}$$

Now that you are already familiar with the steps on how to subtract fractions, try the following word problem.

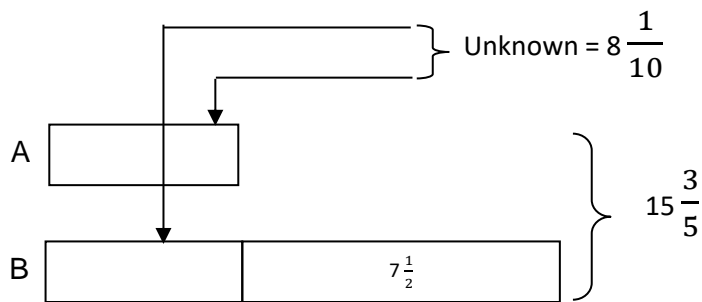
The sum of two fractions is $15\frac{3}{5}$. Their difference is $7\frac{1}{2}$. What are the two fractions?



In the illustration, the sum of 2 equal unknown units and the unit for difference which is $7\frac{1}{2}$ give you the total/sum of $15\frac{3}{5}$. If you take away the unit for difference which is $7\frac{1}{2}$, what will be left are 2 equal unknown units.

To solve for the 2 unknown units, subtract $7\frac{1}{2}$ from $15\frac{3}{5}$.

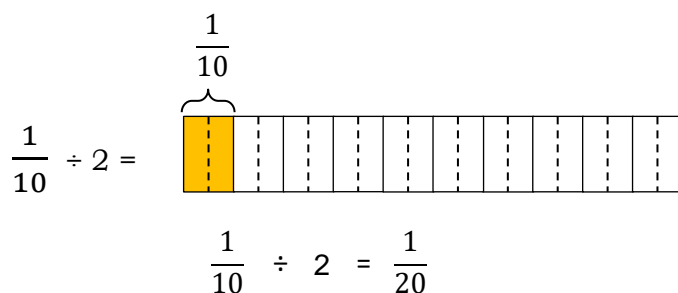
$$15\frac{3}{5} - 7\frac{1}{2} = 15\frac{6}{10} - 7\frac{5}{10} = 8\frac{1}{10}$$



Two equal unknown units are equal to $8\frac{1}{10}$. To solve for each of equal unknown, you have to divide $8\frac{1}{10}$ by 2.

$8\frac{1}{10} \div 2$ is also equal to $8 \div 2$ and $\frac{1}{10} \div 2$. Look at the solution below.

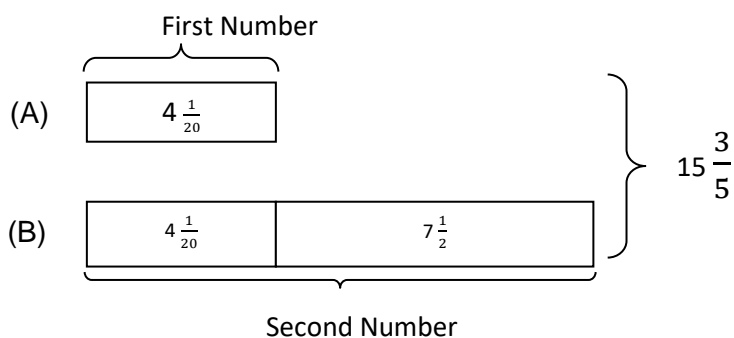
$$8 \div 2 = 4$$



That means,

$$8\frac{1}{10} \div 2 = 4\frac{1}{20}$$

So, each unknown unit is $4\frac{1}{20}$.



Finally, to find for the two numbers:

First Number - $4\frac{1}{20}$ = $4\frac{1}{20}$

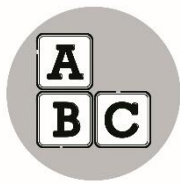
Second Number - $4\frac{1}{20} + 7\frac{1}{2} = 11\frac{11}{20}$

Therefore, the two numbers are $4\frac{1}{20}$ and $11\frac{1}{20}$

To check:

Sum: $4\frac{1}{20} + 11\frac{11}{20} = 15\frac{12}{20}$ or $15\frac{3}{5}$ (✓)

Difference: $11\frac{11}{20} - 4\frac{1}{20} = 7\frac{10}{20}$ or $7\frac{1}{2}$ (✓)



What's More

A. Complete the subtraction process. Write your answers on your answer sheet.

1) $24\frac{1}{3} = 24\frac{4}{12} = 23\frac{16}{12}$
 $- \frac{3}{4} = \frac{9}{12} = \frac{9}{12}$

2) $17\frac{2}{3} = 17\frac{\square}{12} = 16\frac{\square}{12}$
 $- \frac{3}{4} = \frac{9}{12} = \frac{\square}{12}$

3) $25\frac{1}{6} = 25\frac{4}{24} = 24\frac{\square}{24}$
 $- \frac{3}{8} = \frac{9}{24} = \frac{\square}{24}$

4) $87\frac{1}{2} = 87\frac{3}{6} = 86\frac{9}{6}$
 $- \frac{5}{6} = \frac{5}{6} = \frac{\square}{6}$

5) $2\frac{6}{10} = 2\frac{12}{20} = 1\frac{\square}{20}$
 $- \frac{3}{4} = \frac{15}{20} = \frac{\square}{20}$

B. Read and solve the following word problems. Show your solution on your answer sheet.

The sum of two fractions is $13\frac{3}{4}$. Their difference is $8\frac{1}{5}$. What are the fractions?



What I Have Learned

To subtract simple fractions from mixed number with regrouping:

- Write the fractions in one column. Then, find the Least Common Denominator (LCD).
- If the fraction in the minuend is less than the subtrahend, rename the minuend as an equal mixed number with a fraction similar to that in the subtrahend.
- Subtract the fractions and then the whole number.
- Express the answer in simplest form, if needed.



What I Can Do

A. Subtract the following and express your answer in lowest term if needed. Write the answers on your answer sheet.

$$\begin{array}{r} 1) \quad 16\frac{2}{9} = \\ - \quad \frac{2}{5} = \\ \hline \end{array}$$

$$\begin{array}{r} 2) \quad 12\frac{3}{10} = \\ - \quad \frac{4}{9} = \\ \hline \end{array}$$

$$\begin{array}{r} 3) \quad 26\frac{1}{4} = \\ - \quad \frac{5}{10} = \\ \hline \end{array}$$

B. Read and solve the following word problems. Show your solutions on your answer sheet.

1. Emy gave away $3\frac{1}{4}$ kilograms of sweet potatoes and $5\frac{1}{2}$ kilograms of corn to her neighbors. How many more kilograms of corn than potatoes did she give away?

2. The sum of two fractions is $19\frac{2}{5}$. Their difference is $11\frac{2}{3}$. What are the two fractions?



Assessment

A. Solve the following. Write your answers on your answer sheet.

$$\begin{array}{r} 1) \quad 5\frac{6}{10} = \\ - \quad \frac{7}{8} = \\ \hline \end{array}$$

$$\begin{array}{r} 6) \quad 9\frac{1}{5} = \\ - \quad \frac{5}{6} = \\ \hline \end{array}$$

$$\begin{array}{r} 2) \quad 3\frac{2}{12} = \\ - \quad \frac{4}{6} = \\ \hline \end{array}$$

$$\begin{array}{r} 7) \quad 10\frac{6}{15} = \\ - \quad \frac{4}{5} = \\ \hline \end{array}$$

$$\begin{array}{r} 3) \quad 6\frac{2}{5} = \\ - \quad \frac{2}{3} = \\ \hline \end{array}$$

$$\begin{array}{r} 8) \quad 7\frac{3}{5} = \\ - \quad \frac{5}{6} = \\ \hline \end{array}$$

$$\begin{array}{r} 4) \quad 14\frac{1}{3} = \\ - \quad \frac{4}{5} = \\ \hline \end{array}$$

$$\begin{array}{r} 9) \quad 2\frac{3}{7} = \\ - \quad \frac{2}{3} = \\ \hline \end{array}$$

$$\begin{array}{r} 5) \quad 5\frac{5}{10} = \\ - \quad \frac{5}{9} = \\ \hline \end{array}$$

$$\begin{array}{r} 10) \quad 3\frac{2}{3} = \\ - \quad \frac{7}{8} = \\ \hline \end{array}$$

B. Read and solve the following word problems. Show your solution on your answer sheet.

The sum of two fractions is $9\frac{1}{4}$. Their difference is $3\frac{1}{8}$. What are the two fractions?



Additional Activities

A. Subtract. Express your answer in lowest term if needed. Write your answers on your answer sheet.

$$1) \quad 19\frac{2}{3} =$$

$$- \quad \frac{6}{8} =$$

$$4) \quad 14\frac{1}{3} =$$

$$- \quad \frac{4}{5} =$$

$$2) \quad 8\frac{3}{5} =$$

$$- \quad \frac{3}{4} =$$

$$5) \quad 12\frac{1}{2} =$$

$$- \quad \frac{7}{8} =$$

$$3) \quad 8\frac{3}{5} =$$

$$- \quad \frac{6}{7} =$$

B. Read and solve the following problems. Show your solutions on your answer sheet.

1. An electrician has $3\frac{7}{16}$ cm of wire. He cuts $2\frac{5}{8}$ cm of wire for a job. How many centimeters of wire were left?

2. A piece of bamboo is $2\frac{1}{4}$ meters long. Jessie cuts $1\frac{1}{3}$ meters to be used for making some kites and another piece, $\frac{3}{4}$ meter long, to be given to his friend. How long is the remaining piece of bamboo?

3. A man sold $\frac{1}{5}$ of his land, and then sold again $\frac{2}{3}$ of what remained. He had $3\frac{1}{3}$ hectares left. How much land had he at first?

4. Every morning Troy jogs $1\frac{1}{4}$ km while Aron jogs $\frac{6}{7}$ km. How much longer did Troy jog than Aron?

5. The difference of the two fractions is $12\frac{1}{5}$. When these fractions are put together, will give you the sum of $18\frac{3}{10}$. What are the two fractions?



Answer Key

<p>What's More</p> <p>A. $1. 2\frac{3}{7}$ $2. 1\frac{16}{11}$ $3. 2\frac{24}{19}$ $4. 8\frac{6}{2}$ $5. 1\frac{17}{20}$</p> <p>B. $2\frac{31}{40}$ & $10\frac{39}{40}$</p>	<p>What's In</p> <p>1. 35 2. 15 3. 8 4. 60 5. 15</p>	<p>What I Know</p> <p>1. $7\frac{17}{20}$ 2. $18\frac{11}{12}$ 3. $7\frac{26}{35}$ 4. $13\frac{15}{8}$ 5. $11\frac{5}{5}$</p> <p>6. $8\frac{60}{47}$ 7. $9\frac{5}{3}$ 8. $7\frac{10}{7}$ 9. $1\frac{21}{16}$ 10. $5\frac{12}{7}$</p>
<p>Additional Activities</p> <p>A. 1. $18\frac{11}{12}$ 2. $7\frac{20}{7}$ 3. $7\frac{35}{26}$ 4. $13\frac{15}{8}$ 5. $11\frac{8}{5}$</p> <p>B. 1. $\frac{16}{13}$ 2. $\frac{6}{1}$ 3. $12\frac{2}{1}$ hectares 4. $\frac{28}{11}$ 5. $3\frac{20}{1}$ and $15\frac{1}{4}$</p>	<p>Assessment</p> <p>A. 1. $4\frac{29}{40}$ 2. $2\frac{2}{1}$ 3. $5\frac{15}{11}$ 4. $13\frac{15}{8}$ 5. $4\frac{18}{17}$</p> <p>B. $3\frac{16}{1}$ and $6\frac{16}{3}$ 6. $8\frac{11}{30}$ 7. $9\frac{5}{3}$ 8. $6\frac{30}{23}$ 9. $1\frac{21}{16}$ 10. $2\frac{24}{19}$</p>	<p>What I Can Do</p> <p>A. 1. $15\frac{37}{45}$ 2. $11\frac{90}{77}$ 3. $25\frac{4}{3}$</p> <p>B. 1. $2\frac{4}{1}$ 2. $3\frac{13}{15}$ and $15\frac{15}{8}$</p>

References:

- Most Essential Learning Competencies M6NSIa-86
- Soaring 21st Century Mathematics 6, pp. 62-78
- 21st Century Mathletes 6, pp. 2-15

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