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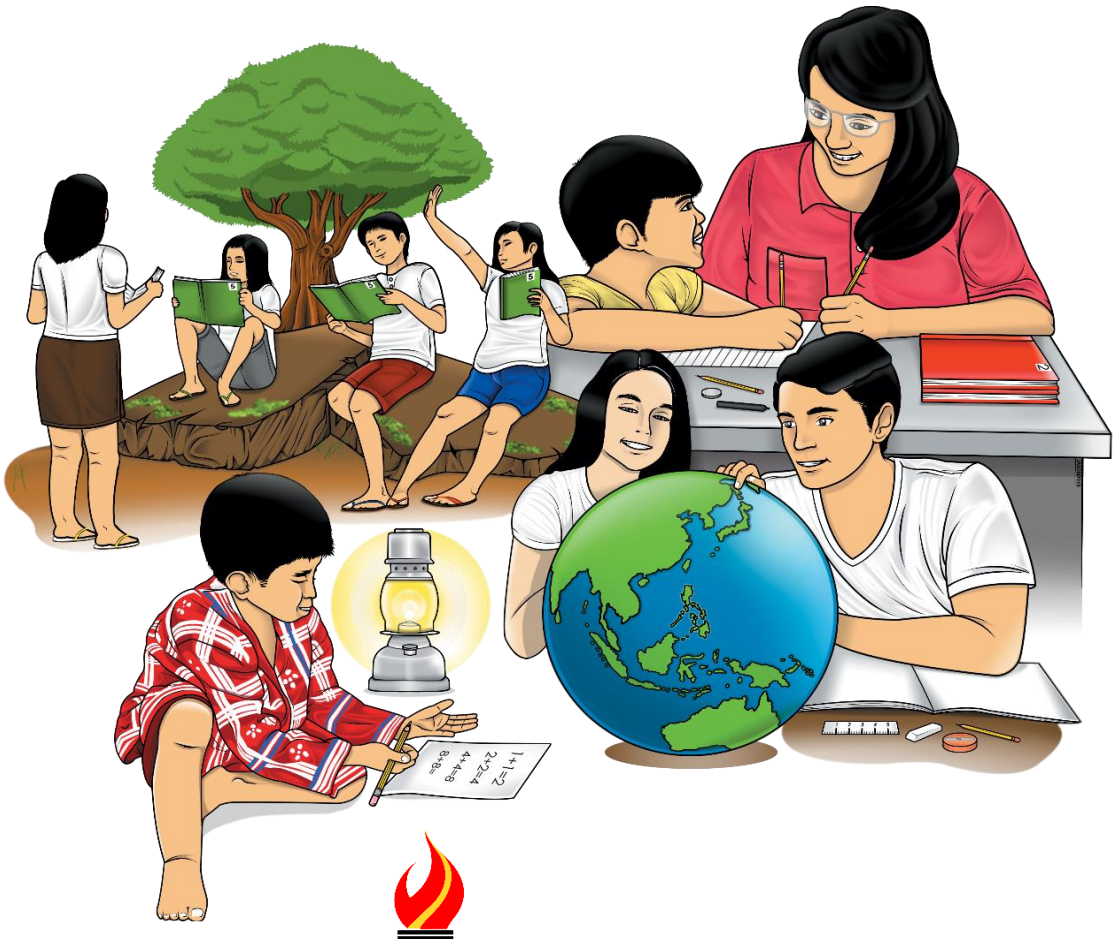
Mathematics

Quarter 2 – Module 7: Subtracting a Fraction from a Whole Number



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4

Mathematics
Quarter 2 – Module 7: Subtracting a Fraction from a Whole Number

DepED
DEPARTMENT OF EDUCATION

Introductory Message

This Self-Learning Module (SLM) is prepared so that you, our dear learners, can continue your studies and learn while at home. Activities, questions, directions, exercises, and discussions are carefully stated for you to understand each lesson.

Each SLM is composed of different parts. Each part shall guide you step-by-step as you discover and understand the lesson prepared for you.

Pre-tests are provided to measure your prior knowledge on lessons in each SLM. This will tell you if you need to proceed on completing this module or if you need to ask your facilitator or your teacher's assistance for better understanding of the lesson. At the end of each module, you need to answer the post-test to self-check your learning. Answer keys are provided for each activity and test. We trust that you will be honest in using these.

In addition to the material in the main text, Notes to the Teacher are also provided to our facilitators and parents for strategies and reminders on how they can best help you on your home-based learning.

Please use this module with care. Do not put unnecessary marks on any part of this SLM. Use a separate sheet of paper in answering the exercises and tests. And read the instructions carefully before performing each task.

If you have any questions in using this SLM or any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator.

Thank you.

What I Need to Know

This module was designed to assist you in learning about subtracting a fraction from a whole number.

In this lesson, you will learn the process of subtracting a fraction from a whole number. The learning activities allow you to explore and discover how you could do such.

After going through this module, you are expected to:

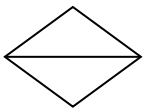
- visualize subtraction of a fraction from a whole number;
- subtract fraction from a whole number; and
- solve word problems involving visualizing subtraction of a fraction from a whole number.

What I Know

You need a sheet of paper for the activities.

I. Read the situation and answer the questions below. Copy the letter of the correct answer.

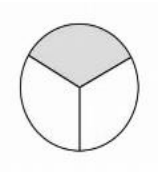
Rhoda baked a cake for her family. She decided to give $\frac{1}{4}$ of it to her cousin. What part of the cake was left for them?

1. What part of the cake was given to Rhoda's cousin?
   a. $\frac{1}{4}$ b. $\frac{1}{2}$ c. 1
2. Which is the correct number sentence for the problem?
   a. $1 + \frac{1}{4} = N$ b. $1 - \frac{1}{4} = N$ c. $1 \div \frac{1}{4} = N$
3. Which figure would represent $\frac{1}{4}$?
   a.  b.  c. 

II. Subtract the fraction from the whole number.

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

III. Select from the box the correct number sentence for the figures shown.

1.  2.  3.  4. 

$1 - \frac{1}{3} = N$	$1 - \frac{2}{4} = N$	$1 - \frac{3}{8} = N$	$1 - \frac{1}{2} = N$	$1 - \frac{5}{10} = N$

Check your answers using the ***Answer Key*** *on page 12.*

Thank you for your honesty in checking your answers! You can proceed with the lesson and exercises in this module.

What's In

Let us recall our previous lesson on fractions. Identify the fractions that are equal to one.

$\frac{4}{7}$	$\frac{20}{20}$	$\frac{3}{3}$	$\frac{1}{10}$	$\frac{9}{6}$	$\frac{15}{15}$	$\frac{7}{7}$	$\frac{11}{10}$	$\frac{100}{100}$

The answers are: $\frac{\mathbf{20}}{\mathbf{20}}$, $\frac{\mathbf{3}}{\mathbf{3}}$, $\frac{\mathbf{15}}{\mathbf{15}}$, $\frac{\mathbf{7}}{\mathbf{7}}$, $\frac{\mathbf{100}}{\mathbf{100}}$

Did you get it right? **Always remember that fractions with the same numerators and denominators are equal to 1 whole and these are also called improper fractions.**

What's New

Blanca bought one whole cheezy buko pie for the birthday celebration of her daughter Ave. It is one of Ave's favorite food. When Ave's brother saw the pie, he ate $\frac{1}{4}$ of it. What part was left for Ave?

Who bought one whole cheezy buko pie? Blanca
To whom will the pie be given? Ave
What was the occasion? Birthday celebration
Who ate a part of the pie? Ave's brother
What part was eaten? $\frac{1}{4}$

If you are Ave, will you get angry with your brother? Why?

How would you know the part of the pie left for Ave?

What is It

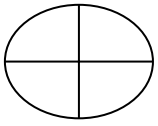
How would you subtract a fraction from a whole number?

First, change the whole number into improper fraction. Let us do it through an illustration.

There is one whole cheezy buko pie. Ave's brother ate $\frac{1}{4}$ of it.

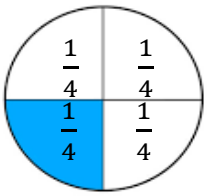
1 whole - $\frac{1}{4}$ ← numerator
← denominator

The denominator of the fraction tells into how many parts a whole is divided into. Since the denominator of the fraction is **4** then, we will divide the pie into 4 equal parts.



So, 1 whole changed to fraction is $\frac{4}{4}$.

In the previous lessons we have learned that an improper fraction whose numerator and denominator are the same is equal to 1 so, $\frac{4}{4} = 1$.



The shaded part of the circle which represents what Ave's brother ate is $\frac{1}{4}$ or 1 of the 4 equal parts. So, what was left for Ave? Based on the illustration, after subtracting one part of the pie, what was left for Ave was 3 parts (white part).

Using the fractions, the number sentence would be:

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

Subtract the numerators and just copy the denominator

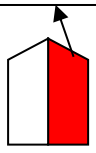
Therefore, $\frac{3}{4}$ part of the cake was left for Ave.

We were able to get the part of the pie left for Ave through illustration and subtracting $\frac{1}{4}$ from the whole number 1.

Did you understand the process? Yes? Great!

Here are some examples on visualizing and subtracting fraction from a whole number.

$1 - \frac{1}{2} = N$



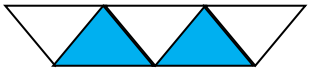
A figure would be divided into two equal parts since the denominator of the fraction is 2. Then, one part or $\frac{1}{2}$ will be shaded to represent subtraction. What part was left? Based on the figure, it is $\frac{1}{2}$.

Let us subtract by changing the whole number into fraction.

$$1 - \frac{1}{2} = N \rightarrow \frac{2}{2} - \frac{1}{2} = \frac{2-1}{2} = \frac{1}{2}$$

$1 - \frac{3}{4} = N$ → $\frac{4}{4} - \frac{3}{4} = \frac{4-3}{4} = \frac{1}{4}$

The shaded part is $\frac{3}{4}$. Then, the remaining part is $\frac{1}{4}$.

$1 - \frac{2}{5} = \_\_\_\_$ →  $\frac{5}{5} - \frac{2}{5} = \frac{3}{5}$

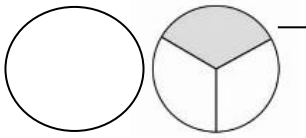
Since the denominator of the fraction is 5, then one whole will be divided into five equal parts. The colored part is 2 out of 5 parts, therefore, there are 3 parts remaining.

$1 - \frac{7}{8} = \_\_\_\_$ →  $\frac{8}{8} - \frac{7}{8} = \frac{1}{8}$

Just always remember that the denominator of the fraction to be subtracted will be used as the numerator and denominator of the 1 whole number changed to fraction.

Subtracting a fraction from a whole number that is more than one.

$2 - \frac{1}{3} = N$ Let us illustrate the number sentence. Only one whole will be changed into improper fraction with the same numerator and denominator.

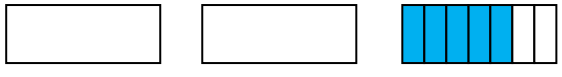


$\frac{1}{3}$

2 will become 1 $\frac{3}{3}$. Why? Because the fraction to be subtracted is $\frac{1}{3}$.

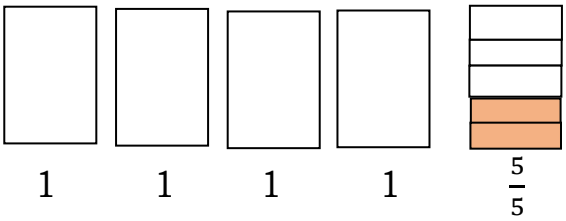
$1 \quad \frac{3}{3} \qquad 2 - \frac{1}{3} = N$ → **$1\frac{3}{3} - \frac{1}{3} = 1\frac{3-1}{3} = 1\frac{2}{3}$**

$3 - \frac{5}{7} = N$ →



1 1 $\frac{7}{7}$

$3 - \frac{5}{7} = N$ → **$2\frac{7}{7} - \frac{5}{7} = 2\frac{7-5}{7} = 2\frac{2}{7}$**

$5 - \frac{2}{5} = N$ 

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

$5 - \frac{2}{5} = N$ **$4\frac{5}{5} - \frac{2}{5} = 4\frac{5-2}{5} = 4\frac{3}{5}$**

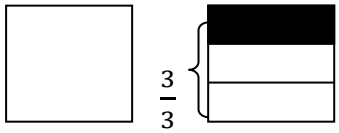
Did you get it kid? Is it clear?

Let's go to solving word problems.

Eufemia will bake her own bread. She bought 2 kilos of bread flour. She only used $\frac{1}{3}$ kilo of the flour for the trial. How much bread flour was not used?

Let us show the fractions using illustrations.

Two kilos of bread flour can be represented by the figure below. Notice that only one whole is divided into 3 parts because the fraction to be subtracted is only $\frac{1}{3}$.

1  $\frac{3}{3}$ → flour used

so, 2 kilos is converted into 1 and $\frac{3}{3}$

Looking at the illustrations, after taking away $\frac{1}{3}$, we can see that the remaining flour is $1\frac{2}{3}$ kilos.

Let us create a fraction for whole number 2 before subtracting.

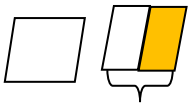
2 can be changed into $1\frac{3}{3}$ since the fraction to be subtracted is $\frac{1}{3}$.

$2 \rightarrow 1\frac{3}{3}$ **Subtract the numerators and copy the denominator of the fractions**

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

$1\frac{2}{3}$

Hannah has 2 slices of bread. She gave $\frac{1}{2}$ of 1 slice to her pet dog Shusie. What part of bread was left for her?

$2 - \frac{1}{2} =$ ____ ➡ 

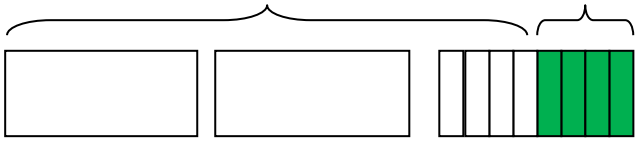
$1\frac{2}{2} - \frac{1}{2} = 1\frac{2-1}{2} = 1\frac{1}{2}$

$1 \quad \frac{2}{2}$

It is Linda's birthday. She cooked 3 rectangular platter of cassava cakes. She separated $\frac{4}{8}$ of 1 platter for her aunt's kids and serve the rest for her visitors. What part of the cassava cake has been served?

$3 - \frac{4}{8} = N$ ➡

For the visitors for her aunt's kids



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

➡ $2\frac{8}{8} - \frac{4}{8} = 2\frac{8-4}{8} = 2\frac{4}{8}$

Notice that the GCF of both the numerator and denominator in the fraction $\frac{4}{8}$ is 4, so we need to change it to lowest term.

$\frac{4}{8} \div \frac{4}{4} = \frac{1}{2}$ so the final answer is $2\frac{1}{2}$

Did you understand the lesson kids? If not, kindly study again the examples given.

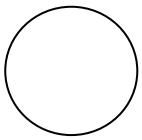
What's More

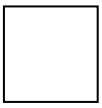
Are you ready now for an activity? Let us see how much you have learned the lesson.

Activity 1 – "Illustrate Me"

Solve the equation using illustrations. Give the correct answer.

1. $3 - \frac{3}{7} =$ _____ use 

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

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

Activity 2 - "Change Me"

Change the whole number into fraction and solve for the correct answer. Express your answer in lowest term.

4. $5 - \frac{1}{5} = N$

5. $4 - \frac{2}{9} = N$

Activity 3 – "Draw and Solve"

Twin brothers Mico and Dico prepared 3 rectangular plots in their garden. They planted upland kangkong in $\frac{6}{10}$ of 1 plot and the rest were planted with peanuts. What part of the plots was planted with peanuts?

Go to page 12 for the ***Answer Key***.

THANK YOU for your honesty in checking your answers. if you got it all correct, GREAT!!! You can already answer the assessment. If not, remember the procedure below and answer the next activity.

What I Have Learned

Let us remember:

In subtracting a fraction from a whole number, you need to:

1. Change the whole number to a fraction depending on the denominator of the fraction to be subtracted.
2. Subtract the numerators and copy the denominator.
3. Express the answer in lowest term.

Answer the problem below using illustrations and give the solution.

You and your father decided to paint the whole fence. Your father will paint $\frac{7}{10}$ of the whole fence. What part is left for you to paint?

What I Can Do

Mrs. Grandillo bought 1 kilo of pancit. She cooked only $\frac{1}{2}$ of it. How many kilos of pancit was left? Solve the problem using triangle as an illustration and show the solution and answer.

To check, go to page 12 for the ***Answer Key***. Take time to review the discussion in the previous pages as needed.

Assessment

I. Solve the following by changing the whole number into a fraction.

1. $1 - \frac{5}{8} = N$
2. $1 - \frac{1}{9} = N$
3. $4 - \frac{6}{7} = N$
4. $3 - \frac{3}{5} = N$
5. $2 - \frac{7}{10} = N$
6. $7 - \frac{1}{2} = N$

II. Solve the word problems. Illustrate and give the answer. (2 points for each problem – 1 for illustration and 1 for the right answer).

1. Mr. and Mrs. Lopez will make a vegetable garden in their 2 rectangular plots. They decided to use $\frac{3}{4}$ of one plot for *pechay* and the rest for lettuce. What part of the plots will be used for lettuce.

2. Donnah cooked pizza pie. She decided to have several flavors in it. One part was double cheeze. The second part was hawaiian, the third was ham and the last three parts were pepperoni flavor. What part of the whole pizza has pepperoni flavor?

Additional Activities

The three (3)laborers will make designs for a rectangular garden path. Each of them will make a different design. One will use ╲ as his design. The second one chooses ◇ while the third one is still thinking of what to use. What part of the rectangular garden path was represented by each design? Draw the path with the different designs. Help the third laborer with his design.

To check, go to page 13 for the ***Answer Key***.

Congratulations for reaching this part of the module. You can always review the previous pages of this module

Answer Key

What I Know

I. 1. a 2. b 3. b

II. 1. $1-\frac{5}{7}=\frac{7-5}{7}=\frac{2}{7}$ 2. $1-\frac{1}{4}=\frac{4-1}{4}=\frac{3}{4}$ 3. $2-\frac{4}{5}=1\frac{5-4}{5}=\mathbf{1\frac{1}{5}}$

III. 1. $1-\frac{1}{2}=$ N 2. $1-\frac{1}{3}=$ N 3. $1-\frac{5}{10}=$ N 4. $1-\frac{2}{4}=$ N

What I Can Do

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

What I Have Learned

$\frac{10}{10}-\frac{7}{10}=\frac{3}{10}$ the part of the fence that you will paint

WHAT'S MORE

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

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

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

II. 4. $5-\frac{1}{5}=4\frac{5}{5}-\frac{1}{5}=4\frac{4}{5}$ 5. $4-\frac{2}{9}=3\frac{9}{9}-\frac{2}{9}=3\frac{7}{9}$

III.

$2\frac{10}{10}-\frac{6}{10}=2\frac{10-6}{10}=2\frac{4}{10}$ or $2\frac{2}{5}$ plot planted with peanuts

ADDITIONAL ACTIVITIES
put any design you like
since there are only three parts then, each design is $\frac{1}{3}$ part
Assessment
1. $1 - \frac{5}{8} = \frac{8}{8} - \frac{5}{8} = \frac{8-5}{8} = \frac{3}{8}$
2. $1 - \frac{1}{9} = \frac{9}{9} - \frac{1}{9} = \frac{8}{9}$
3. $4 - \frac{6}{7} = 3\frac{7}{7} - \frac{6}{7} = 3\frac{1}{7}$
4. $3 - \frac{3}{5} = 2\frac{5}{5} - \frac{3}{5} = 2\frac{2}{5}$
5. $2 - \frac{7}{10} = 1\frac{10}{10} - \frac{7}{10} = 1\frac{3}{10}$
6. $7 - \frac{1}{2} = 6\frac{2}{2} - \frac{1}{2} = 6\frac{2-1}{2} = 6\frac{1}{2}$
II.
1. $1\frac{1}{4}$ part of plots was used for lettuce
ham
2. cheese
pepperoni
$\frac{3}{6}$ or $\frac{1}{2}$ of pizza has pepperoni flavor

References

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