



## What Is This Module About?

This module will deal with basic operations concerning fractions. Operations involving fractions are useful in our daily life. When you buy meat or other products from the market, the quantity is often expressed in fractions (e.g.,  $\frac{1}{2}$  kilo of beef,  $3\frac{1}{4}$  meters of cloth). Whenever you divide something into parts (e.g., a piece of land, a birthday cake, or an inheritance), fractions are involved.

This module is divided into 3 lessons:

Lesson 1 — *The Basics of Fractions*

Lesson 3 — *Comparing Fractions*

Lesson 2 — *Mixed Numbers, Proper and Improper Fractions*



## What Will You Learn From This Module?

After studying this module, you should be able to:

- ◆ express parts of a whole into fractions and vice versa;
- ◆ simplify fractions to the lowest terms;
- ◆ compare the quantity of fractions;
- ◆ identify and distinguish proper and improper fractions and mixed numbers; and
- ◆ convert mixed numbers to improper fractions and vice versa.



## Let's See What You Already Know

Before starting with the lessons of this module, take this simple test first. This will determine what you already know about the topic.

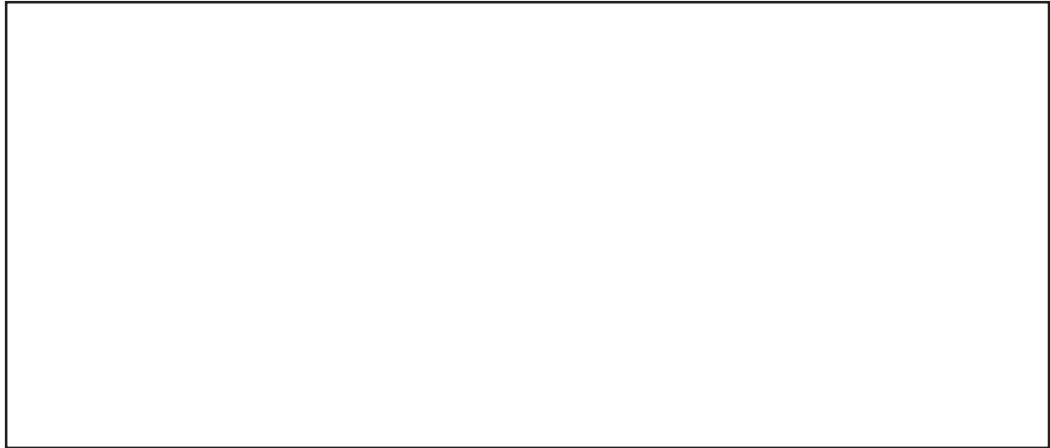
1. Simplify  $21/35$  to lowest terms.
2. A 10-hectare piece of land is divided among 3 sisters.  $2/10$  belongs to Merly,  $3/10$  belongs to Linda and  $5/10$  belongs to Susie.



- a. Divide the land according to the share of each sister.
  - b. Draw vertical lines over the portion of land that Merly gets.
  - c. Draw horizontal lines over the portion of land that Linda gets.
  - d. Draw slanted lines over the portion of land that Susie gets.
3. Three friends thought of putting up a *carinderia*. Niño provided  $5/12$  of the total capital, Billy provided  $4/15$  of the total capital and Danny provided  $19/60$  of the total capital.
    - a. Who among the three friends gave the largest share?
    - b. Who among the three friends gave the smallest share?



4. Aling Jenny was able to sell 190 pieces of eggs during the week. How many dozens of eggs was she able to sell?
- Express your answer in mixed fraction.
  - Convert the mixed number to an improper fraction.



Well, how was it? Do you think you fared well? Compare your answers with those in the *Answer Key* on pages 33–34 to find out.

If all your answers are correct, very good! This shows that you already know much about the topic in this module. You may still study the module to review what you already know. Who knows, you might learn a few more things as well!

If you got a low score, don't feel bad. This only means that this module is for you. It will help you understand some important concepts that you can apply in your daily life. If you study this module carefully, you will learn the answers to all the items in the test and a lot more. Are you ready?

You may now go to the next page to begin Lesson 1.

# LESSON 1

## The Basics of Fractions

When you measure a certain quantity like the meat you buy from the market, the length of an electrical wire you are going to use, or a certain portion of land, fractions are often used. In this way, fractions are important in measurements. This lesson will discuss what fractions are and how you can associate them to everyday measurements.

This lesson will also discuss how to simplify fractions. This skill of simplifying fractions will be used later in more advanced operations involving fractions.

After studying this lesson, you should be able to:

- ◆ tell what fractions are;
- ◆ express diagrams of parts of a whole into fractions and vice versa;  
and
- ◆ reduce fractions to its simplest form.



## Let's Try This

### Dividing Equally

Below are some situations where you need to divide something into equal parts. Look at each situation and help solve the problem.

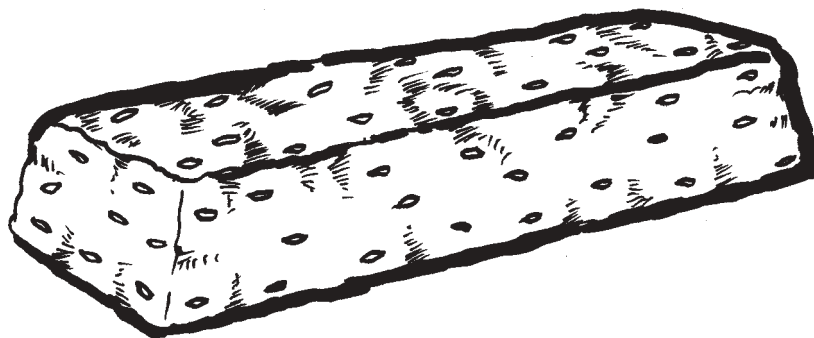
#### Situation 1

Aling Rosa brought home a pie for her 4 children. How will Aling Rosa divide the pie equally among her kids? Draw lines to divide the pie below equally among the 4 children.



#### Situation 2

Mang Cesar bought a chocolate bar for his family. If Mang Cesar will share the chocolate bar with his wife and son, how will he divide the chocolate bar equally? Draw lines to divide the chocolate equally among the three of them.

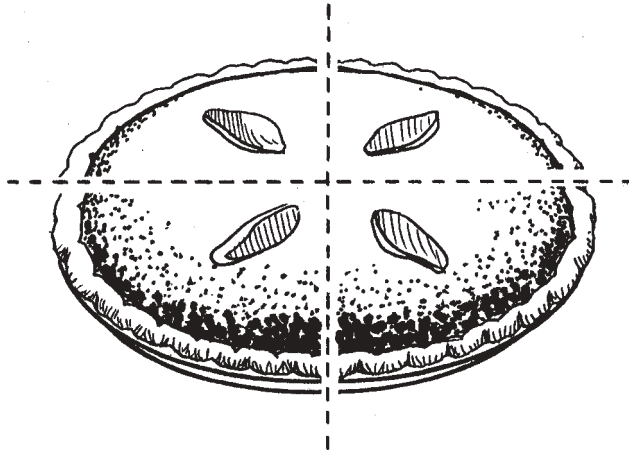




## Let's Study And Analyze

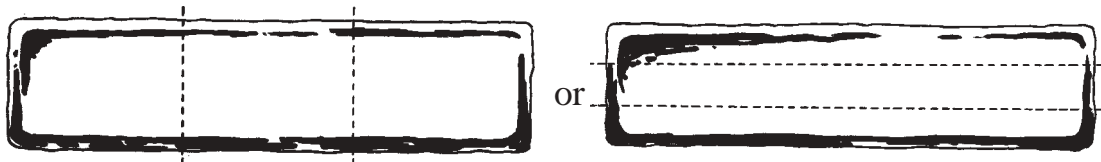
So were you able to divide the things above into equal parts? Let us look at them again:

1. Your answer in situation 1 should look like this:



The pie is divided into four equal parts. Each slice make up 1 out of four slices or 1 part out of 4. In fraction form, each slice is  $\frac{1}{4}$  (one fourth) of the whole pie.

2. Your answer in situation 2 should look like this:



The chocolate bar is divided equally into three. Each piece makes up one out of three parts. In fraction form, each part is  $\frac{1}{3}$  (one third) of the whole chocolate bar.

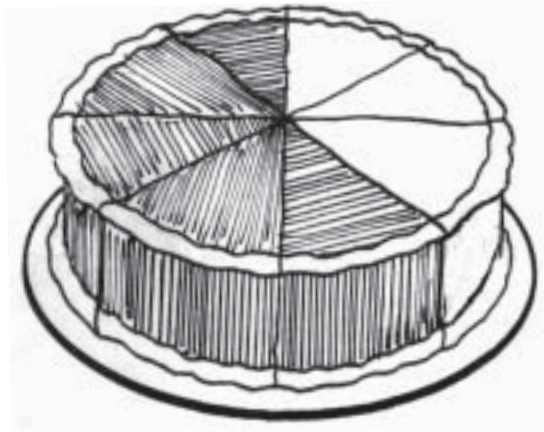


## Let's Try This

### How Much of the Whole?

Look at the illustrations below. You can see objects that are broken up into equal parts. Can you tell how much of the whole is shaded?

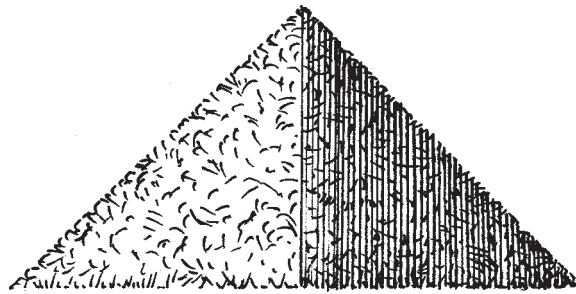
1. Eddie ate the shaded portion of the cake.



How many slices of cake did Eddie eat out of the whole number of slices? Express your answer as a fraction.

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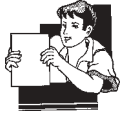
2. A triangular piece of land is divided equally between the two brothers, Gino and Lito. Lito owns the shaded portion of the land.



How much of the divided land is owned by Lito? Express your answer as a fraction.

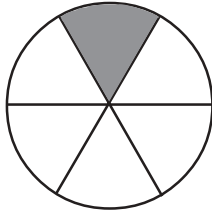
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Compare your answers with those found in the *Answer Key* on page 35.

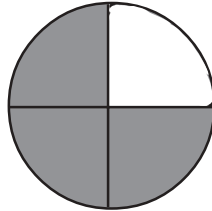


## Let's Learn

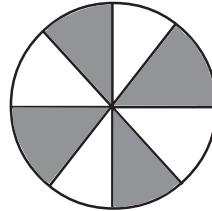
Fractions are used to express parts of a whole. Below are some examples of fractions representing the shaded parts of the whole.



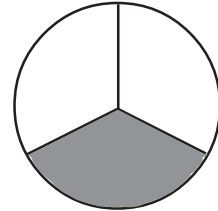
$\frac{1}{6}$



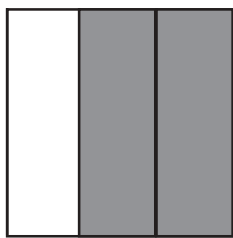
$\frac{3}{4}$



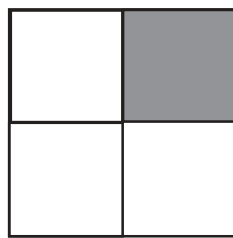
$\frac{4}{8}$



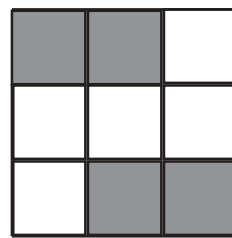
$\frac{1}{3}$



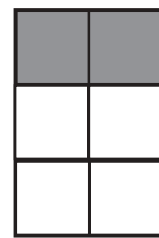
$\frac{2}{3}$



$\frac{1}{4}$



$\frac{4}{9}$

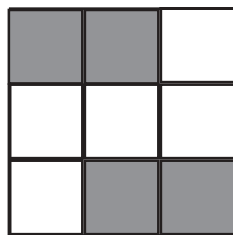


$\frac{2}{6}$

Fractions are composed of a **numerator** and a **denominator**:

$$\begin{array}{r} 3 \\ \hline 4 \end{array} \begin{array}{l} \longrightarrow \text{numerator} \\ \longrightarrow \text{denominator} \end{array}$$

The numerator represents how much of the whole is included or selected. It is placed on the upper portion of the fraction. The denominator represents the total number of parts in a whole. It is placed on the lower portion of the fraction. For example, look at the square below:



You can see that there are four parts which are shaded, therefore, the numerator should be 4. You can also see that the square is divided into 9 equal parts, therefore, the denominator should be 9. Expressing this in fraction form:

$$\begin{array}{r} 4 \\ \hline 9 \end{array} \begin{array}{l} \longrightarrow \text{numerator} \\ \longrightarrow \text{denominator} \end{array}$$



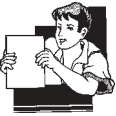


## Let's Try This



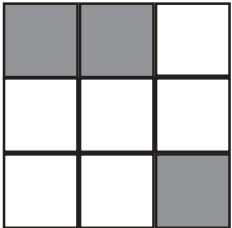
Write the numerator and denominator of the following fractions.

			<b>Numerator</b>	<b>Denominator</b>
1.	$7/8$	=	_____	_____
2.	$8/11$	=	_____	_____
3.	$2/13$	=	_____	_____

Compare your answers with those found in the *Answer Key* on page 35.



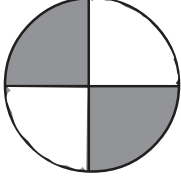
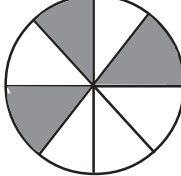
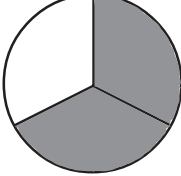

## Let's Learn

	The rectangle is divided into 4 equal parts. 3 of the parts are shaded. As a fraction, it is written as $3/4$ or three-fourth.
	The rectangle is divided into 6 equal parts. 5 parts are shaded. As a fraction, it is written as $5/6$ or five-sixths.
	The rectangle is divided into 9 equal parts. 3 parts are shaded. As a fraction, it is written as $3/9$ or three-ninths.



## Let's Try This

Express the following shaded parts in fractions, either in symbols or in words.

Illustration	Symbols
	
	$\frac{3}{8}$
	$\frac{2}{3}$
	

Compare your answers with those found in the *Answer Key* on page 35.



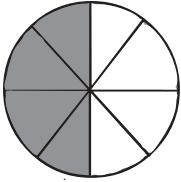
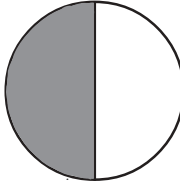
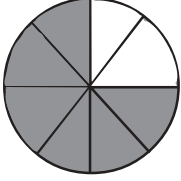
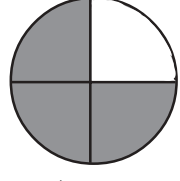
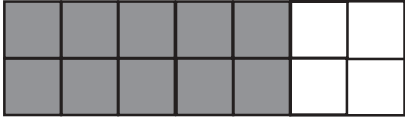



## Let's Think About This

If Aling Nelly bought  $\frac{2}{4}$  kilo of chicken while Aling Winnie bought  $\frac{1}{2}$  kilo of chicken. Who between the two bought more chicken?

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If you thought that they bought equal amounts of chicken, then you are right.  $\frac{2}{4}$  kilo is equal to  $\frac{1}{2}$  kilo.

Study the given fractions below and compare them with their equivalents.

Fraction	
 $\frac{4}{8}$	 $\frac{1}{2}$
 $\frac{6}{8}$	 $\frac{3}{4}$
 $\frac{10}{14}$	 $\frac{5}{7}$
 $\frac{4}{6}$	 $\frac{2}{3}$

You can see that the illustrations of the *fractions* in the first column are similar to the illustrations of their *equivalent fractions* in the second column. Comparing the illustrations between the first and second columns, we find that the areas of the shaded region are equal.

The fractions in the second column are expressed in their *lowest term*. How would you know if a fraction is expressed in its lowest term? Shown below is an example of how to reduce fractions to their lowest term.

**STEP 1** Determine the *greatest common factor (GCF)* of both numerator and denominator. To find the **GCF**, list the prime factors of the numerator and denominator and pair the common factors.

$$\begin{array}{l} \text{Numerator} \longrightarrow 2 = \textcircled{2} \\ \text{Denominator} \longrightarrow 4 = \textcircled{2} \times 2 \\ \text{GCF} = 2 \end{array}$$

**STEP 2** Divide the numerator and denominator by the GCF.

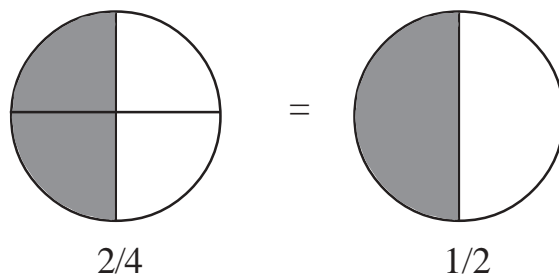
$$\begin{array}{l} \text{Numerator} \div \text{GCF} = \text{New Numerator} \\ 2 \div 2 = 1 \longrightarrow \text{New Numerator} \end{array}$$

$$\begin{array}{l} \text{Denominator} \div \text{GCF} = \text{New Denominator} \\ 4 \div 2 = 2 \longrightarrow \text{New Denominator} \end{array}$$

**STEP 3** The new numerator and denominator now form the fraction in lowest terms:

$$\frac{\text{New Numerator}}{\text{New Denominator}} = \boxed{\frac{1}{2}}$$

Therefore,  $2/4$  when simplified to its lowest term is  $1/2$ :



Let's try simplifying another fraction:  $12/16$

**STEP 1** Determine the GCF of 12 (numerator) and 16 (denominator). To find the GCF, list the prime factors of 12 and 16 and pair the common factors.

$$\begin{array}{l} \text{Numerator:} \quad 12 = \textcircled{2} \times \textcircled{2} \times 3 \\ \text{Denominator:} \quad 16 = \textcircled{2} \times \textcircled{2} \times 2 \times 2 \\ \text{GCF} = 2 \times 2 = 4 \end{array}$$

**STEP 2** Divide the numerator (12) and the denominator (16) by the GCF.

Numerator  $\div$  GCF = New Numerator

$$12 \div 4 = 3 \longrightarrow \text{New Numerator}$$

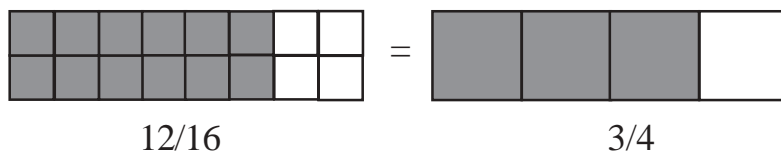
Denominator  $\div$  GCF = New Denominator

$$16 \div 4 = 4 \longrightarrow \text{New Denominator}$$

**STEP 3** The new numerator and the new denominator now form the fraction in lowest terms.

$$\frac{\text{New Numerator}}{\text{New Denominator}} = \boxed{\frac{3}{4}}$$

Therefore,  $12/16$  when simplified to its lowest term is  $3/4$ .



## Let's Review

Simplify the following fractions to the lowest terms.

1.  $8/18 =$  \_\_\_\_\_

2.  $5/35 =$  \_\_\_\_\_

Compare your answers with those found in the *Answer Key* on pages 36–37.



## Let's Remember

- ◆ Fractions are used to express parts of a whole.
- ◆ Fractions can be simplified to the lowest terms.



## Let's See What You Have Learned

1. Simplify the fractions to the lowest terms. After simplifying, write the fraction in words. (2 points each)

a.  $14/21 =$  \_\_\_\_\_

b.  $8/14 =$  \_\_\_\_\_

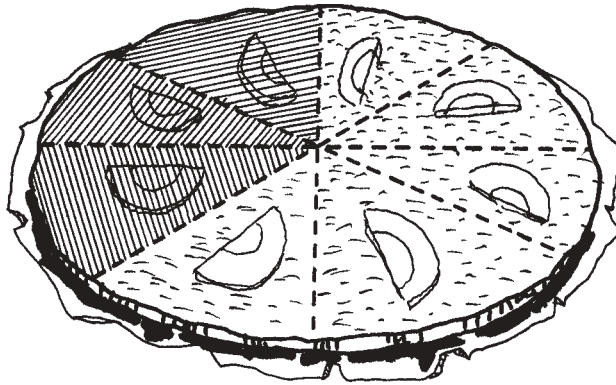
2. A piece of land is divided between Mang Anding and Mang Rey. The shaded portion represents the land Mang Rey owns.



What portion of the land does Mang Anding own? Express your answer in fractions. (1 point)

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3. Aling Dolores made *bibingka* for snacks.



She ate 3 slices. What portion of the whole bibingka did Aling Dolores eat? Express your answer in fractions. (1 point)

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4. A rectangular piece of land is to be divided among 3 brothers.  $\frac{1}{2}$  of the land belongs to Carlo. Rolly and Diego each get  $\frac{1}{4}$  of the land. Divide the land according to the share each brother gets.



- a. Draw vertical lines over the portion of land that Carlo gets.  
(1 point)
  - b. Draw horizontal lines over the portion of land Rolly gets.  
(1 point)
  - c. Draw slanted lines over the portion of land that Diego gets.  
(1 point)
5. What are fractions? (2 points)

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Compare your answers with those found in the *Answer Key* on pages 37–38.

If your test score is from:

0 – 5 You should study the whole lesson again

6 – 8 Review the parts of the module which you did not understand.

9 – 11 Excellent! You have understood the lesson well.

You may now turn to the next page for the second lesson.

## LESSON 2

# Comparing Fractions

In Lesson 1 you have learned how to represent parts of a whole, using fractions. Now you are ready to compare the quantity of fractions. Learning how to determine which fraction is smaller or bigger is an important skill. Some measurements are quantified using fractions like portions of land being divided among a certain number of people. Measurements of length and weight also often involve fractions.

After studying this lesson, you should be able to:

- ◆ convert fractions to decimal form;
- ◆ arrange fractions in order from highest to lowest and vice versa;
- ◆ compare which fraction is bigger or smaller from a given set of fractions; and
- ◆ solve word problems involving comparison among fractions.



## Let's Study and Analyze

Let us try converting fractions to decimal form. To do this, divide the numerator by the denominator and get the quotient.

### **EXAMPLE**

Convert  $\frac{3}{4}$  to decimal form.

Divide the numerator by the denominator:

$$\begin{array}{r} 3 \\ \hline 4 \end{array} \begin{array}{l} \longrightarrow \text{numerator} \\ \longrightarrow \text{denominator} \end{array}$$



$$\begin{array}{r} 0.75 \\ 4 \overline{)3.00} \\ \underline{28} \\ 20 \\ \underline{20} \\ 0 \end{array}$$

$\frac{3}{4}$  in decimal form is 0.75



## Let's Review

1. Convert  $\frac{3}{5}$  to decimal form.

2. Convert  $\frac{4}{5}$  to decimal form.

Compare your answers with those found in the *Answer Key* on page 38.



## Let's Solve This Problem

In Mang Roman's last will, it was stated that his land should be divided among his three children. Ben shall inherit  $\frac{3}{10}$  of the land; Dong shall inherit  $\frac{1}{5}$  of the land, while Carol shall inherit  $\frac{1}{2}$  of the land.

- Who among Mang Roman's children inherited the largest portion of the land?
- Who among the children inherited the smallest portion of the land?

*Solution:*

**STEP 1** Convert the fractions to decimal form

$\frac{3}{10}$	$\frac{1}{5}$	$\frac{1}{2}$
$\begin{array}{r} 0.3 \\ 10 \overline{)3.0} \\ \underline{3.0} \\ 0 \end{array}$	$\begin{array}{r} 0.2 \\ 5 \overline{)1.0} \\ \underline{1.0} \\ 0 \end{array}$	$\begin{array}{r} 0.5 \\ 2 \overline{)1.0} \\ \underline{1.0} \\ 0 \end{array}$

**STEP 2** Arrange the decimals from highest to lowest.

0.5; 0.3; 0.2

- $\frac{1}{2}$  or 0.5 is the highest. Therefore, Carol gets the largest portion of the land.
- $\frac{1}{5}$  or 0.2 is the lowest. Therefore, Dong gets the smallest portion of the land.



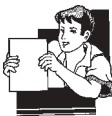
## Let's Review

1. Aling Nelly bought  $\frac{2}{3}$  kilo of beef while Aling Malou bought  $\frac{3}{5}$  kilo of beef and Aling Dolly bought  $\frac{7}{10}$  kilo of beef.
  - a. Who among the three bought the largest amount of beef?
  - b. Who among the three bought the least amount of beef?

2. Arrange the fractions below from the lowest to the highest.

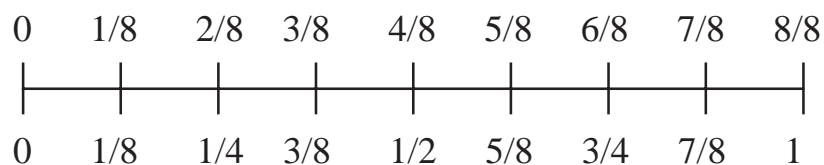
$\frac{2}{4}$  ;  $\frac{1}{6}$  ;  $\frac{3}{7}$  ;  $\frac{4}{9}$

Compare your answers with those found in the *Answer Key* on page 39.



## Let's Learn

Look at a portion of the ruler below. One inch is divided into 8 parts. The values on the upper part of the ruler represent the length in fraction form. The values below the gradations represent the equivalent fractions in lowest terms.



Fractions with the *same denominator* are called **similar fractions**. Comparing similar fractions is easy because you only need to look at the value of the numerator of each similar fraction. The higher the value of the numerator, the higher is the value of the fraction. Therefore,  $\frac{2}{8}$  is higher than  $\frac{1}{8}$ ,  $\frac{3}{8}$  is higher than  $\frac{2}{8}$ ,  $\frac{7}{8}$  is higher than  $\frac{5}{8}$  and so on.



## Let's Review

1. What are similar fractions?

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2. Arrange the fractions below from the highest to the lowest.

$\frac{5}{11}$  ;  $\frac{2}{11}$  ;  $\frac{11}{11}$  ;  $\frac{8}{11}$  ;  $\frac{3}{11}$

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Compare your answers with those found in the *Answer Key* on page 39.



## Let's Remember

- ◆ Similar fractions can be compared by looking at the value of their numerators; the higher the value of the numerator, the higher is the value of the fraction.
- ◆ To convert fractions to decimal form, divide the numerator of the fraction by its denominator.



## Let's See What You Have Learned

1. When Aling Gina passed away, she left ₱100,000 as inheritance for her three children. It was stated in her last will that Antonio shall receive  $\frac{7}{20}$  of the money while Jun shall receive  $\frac{13}{50}$  of the money and that Fe will receive  $\frac{39}{100}$  of the total money. Who among the children will receive the largest amount of money? Who among the children will receive the least amount of money? (6 points)

2. Arrange the following fractions from the highest to the lowest. (2 points each)

a.  $\frac{2}{3}$  ;  $\frac{3}{6}$  ;  $\frac{4}{5}$  ;  $\frac{5}{6}$

\_\_\_\_\_

b.  $\frac{1}{3}$  ;  $\frac{2}{4}$  ;  $\frac{5}{7}$  ;  $\frac{3}{5}$

\_\_\_\_\_

Compare your answers with those in the *Answer Key* on page 40.

If your test score is from:

0 – 4    You should study the whole lesson again.

5 – 7    Review the parts of the lesson which you did not understand.

8 – 10    Excellent! You have understood the lesson well.

Congratulations! You have finished studying the second lesson. You may now turn to the next page for the third lesson.

## LESSON 3

# Mixed Numbers, Proper and Improper Fractions

In this lesson, you will learn about the three different kinds of fractions. The fractions you have encountered from the two previous lessons are proper fractions. Learning about improper fractions and mixed numbers are also important because they are used in everyday measurements (i.e.,  $1\frac{1}{2}$  pounds,  $5\frac{3}{4}$  feet,  $5\frac{3}{4}$  kilos, etc.).

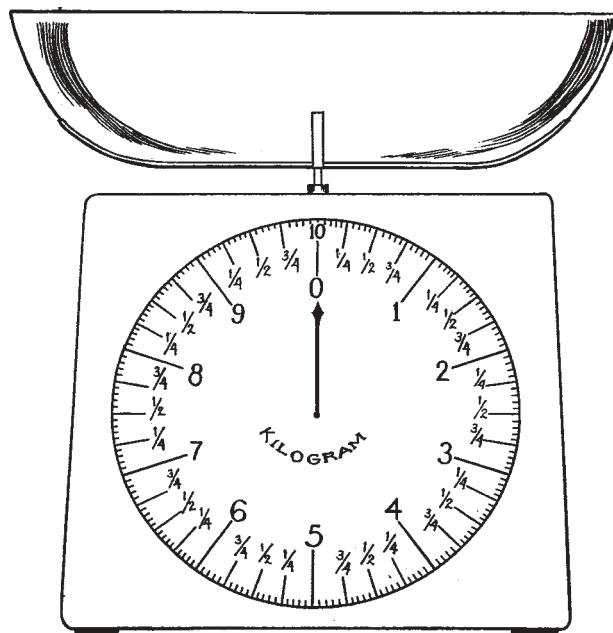
After studying this lesson, you should be able to:

- ◆ convert mixed numbers to improper fractions and vice versa and
- ◆ solve math problems involving mixed numbers, proper and improper fractions.

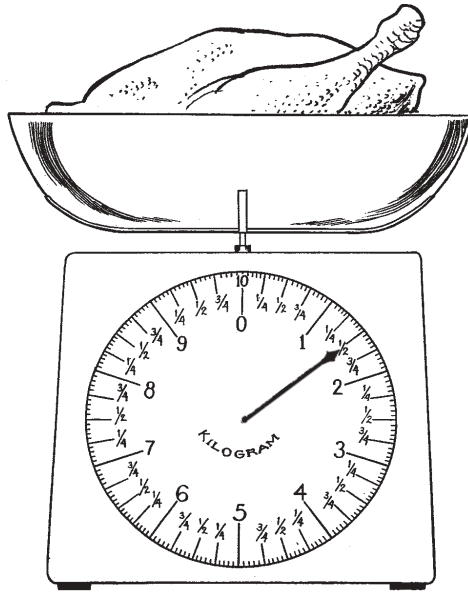


### Let's Study and Analyze

Look at the picture of a weighing scale below.



Notice that a kilo is divided into four parts:  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ , 1. So how do you measure things that weigh more than 1 kilo? Look at the example below.

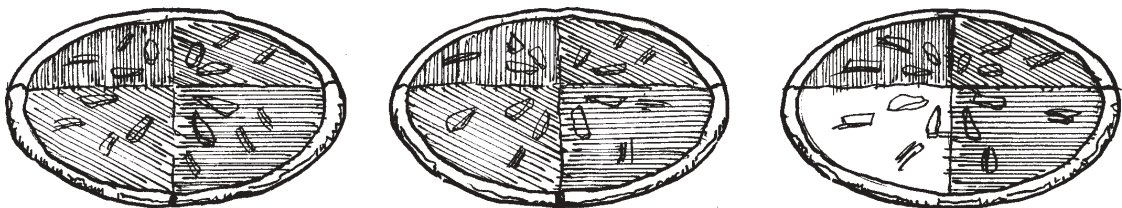


The weighing scale reads  $1 \frac{1}{2}$  kilos. Observe that the measurement value  $1 \frac{1}{2}$  involves a whole number (1) and a fraction ( $\frac{1}{2}$ ). Values that involve a whole number and a fraction are called mixed numbers.



## Let's Solve This Problem

Shown below is the amount of pizza that Mang Bong and his family consumed. The shaded portion represents the pizza that Mang Bong's family consumed.



How much pizza did Mang Bong's family consume? Express your answer in mixed number.

---

Compare your answer with that in the *Answer Key* on page 40.

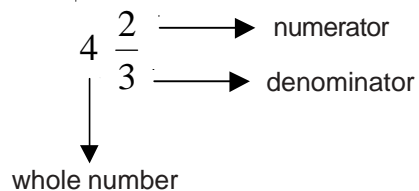


## Let's Study And Analyze

Let us now learn how to convert mixed numbers to improper fractions. Let us try to analyze the example below.

### **EXAMPLE**

Aling Maria's bakery consumed  $4 \frac{2}{3}$  dozen eggs. Express this quantity into an improper fraction.



**STEP 1** Multiply the whole number by the denominator.

$$\text{Whole number} \times \text{denominator} = 4 \times 3 = 12$$

**STEP 2** Add the product in step 1 with the numerator. The sum becomes the new numerator.

$$\begin{array}{l}
 \text{Product} + \text{numerator} = \text{new numerator} \\
 12 + 2 = 14
 \end{array}$$

**STEP 3** The improper fraction should consist of the new numerator and the original denominator.

$$\begin{array}{ccc}
 \text{new numerator} & \longrightarrow & \frac{14}{3} \\
 \text{denominator} & \longrightarrow & \\
 & & \text{improper fraction}
 \end{array}$$

As you can see, the whole number part is gone and only the fraction part remains.



## Let's Review

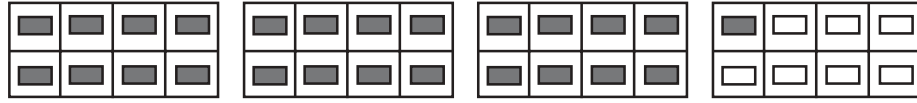
1. Convert the following mixed numbers to improper fractions.

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

b.  $5 \frac{4}{7}$  \_\_\_\_\_



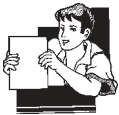
2. Nonoy ate 25 pieces of chocolates, indicated by the shaded rectangles.



- a. If each box contains 8 pieces of chocolates, how many boxes of chocolates did Nonoy consume? Express your answer in mixed number.

- b. Convert your answer in (a) from mixed fraction to improper fraction.

Compare your answers with those found in the *Answer Key* on pages 41–42.



## Let's Learn

**Proper fractions** are fractions whose numerators are smaller than their denominators, e.g.,  $\frac{3}{5}$ ,  $\frac{11}{15}$ ,  $\frac{4}{9}$ .

**Improper fractions** are fractions whose numerators are bigger than their denominators, e.g.,  $\frac{7}{5}$ ,  $\frac{13}{8}$ ,  $\frac{57}{29}$ .

**Mixed numbers** consist of a whole number and a fraction, e.g.,  $4\frac{1}{2}$ ,  $6\frac{7}{8}$ ,  $11\frac{5}{6}$ .





## Let's See What You Have Learned

Congratulations, you have reached the last part of the third lesson! All you have to do now is take a test. This will determine how much you have learned from what was taught in this lesson. Good luck!

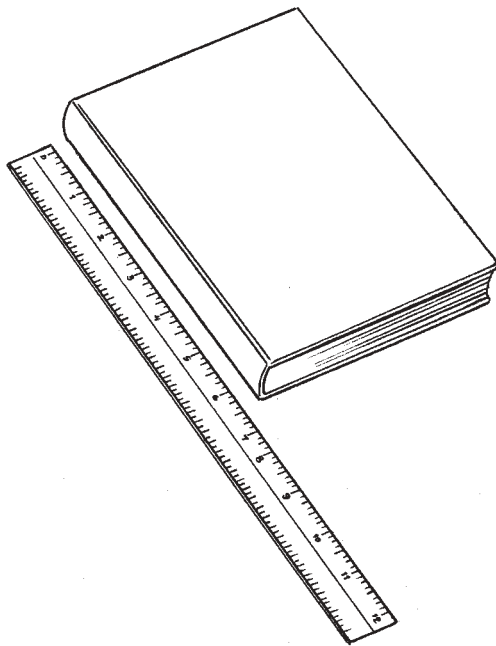
1. A sack of flour can hold 10 kilos.
  - a. How many sacks of flour are needed if the bakery would consume 43 kilos of flour? Express your answer in mixed numbers. (2 points)

- b. Convert the mixed numbers into improper fraction. (2 points)

2. Convert  $2\frac{5}{11}$  to an improper fraction. (2 points)

3. Convert  $\frac{43}{9}$  to a mixed numbers. (2 points)

4. The length of a book is being measured in inches.



- a. What is its length? (2 points)

\_\_\_\_\_

- b. Convert your answer in (a) to an improper fraction. (2 points)

Compare your answers with those found in the *Answer Key* on pages 43–45.

If your test score is from:

0 – 6 You have to study this lesson again.

7 – 9 Review the topics which you did not understand.

10 – 12 Excellent! You have understood the lesson well.



## Let's Sum Up

- ◆ Fractions are used to express parts of a whole.
- ◆ Fractions can be simplified to the lowest terms.
- ◆ Similar fractions can be compared by looking at the value of their numerators; the higher the value of the numerator, the higher is the value of the fraction.
- ◆ To convert fractions to decimal form, divide the numerator of the fraction by its denominator.
- ◆ *Proper fractions* are fractions whose numerators are smaller than their denominators.
- ◆ *Improper fractions* are fractions whose numerators are bigger than their denominators.
- ◆ *Mixed numbers* consist of a whole number and a fraction.



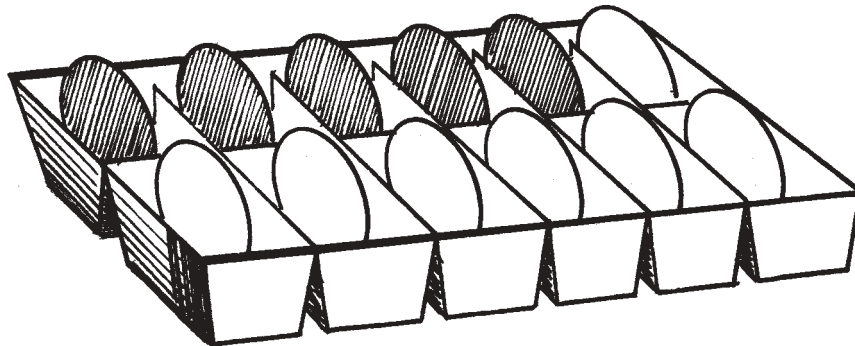
## What Have You Learned?

1. Simplify  $15/21$  to the lowest terms. (2 points)

2. A 6-hectare piece of land is divided among three brothers.  $\frac{3}{6}$  of the land belongs to Teban,  $\frac{2}{6}$  belongs to Andy and  $\frac{1}{6}$  belongs to Berto. Divide the land according to the share each brother gets.



- Draw vertical lines over the portion of land that Teban gets. (1 point)
  - Draw horizontal lines over the portion of land that Andy gets. (1 point)
  - Draw slanted lines over the portion of land that Berto gets. (1 point)
3. Aling Tina cooked omelet for breakfast. The tray has a dozen eggs.



The shaded portion represents the number of eggs Aling Tina used for cooking omelet. What portion of the eggs did she use? Express your answer in fractions. (1 point)

---

4. Arrange the following fractions from the lowest to the highest. (2 points)

$$\frac{7}{12} \quad \frac{3}{4} \quad \frac{8}{13} \quad \frac{2}{3}$$

---

5. Four friends thought of putting up a bakery. They needed money to start the business. Lito provided  $\frac{11}{50}$  of the total capital, Rolly provided  $\frac{9}{25}$  of the total capital, Max provided  $\frac{3}{20}$  of the total capital and Dong provided  $\frac{27}{100}$  of the total capital.
- Who among the four friends gave the largest amount? (2 points)
  - Who among the friends gave the smallest amount? (2 points)

6. Aling Marsha was making an inventory of the goods she was selling at her sari-sari store. During the week, she was able to sell 233 bottles of soft drink. If a case of soft drink can carry 24 bottles, how many cases of soft drink were consumed?
- Express your answer in mixed numbers. (2 points)

- Convert the mixed numbers to an improper fraction. (2 points)

Compare your answers with those found in the *Answer Key* on pages 45–47.

If your test score is from:

0 – 8 You should study the whole module again.

9 – 13 Review the parts of the module which you did not understand.

14 – 16 Excellent! You have understood the lessons of this module well.





# Answer Key

## A. Let's See What You Already Know (pages 2–3)

1. **STEP 1** Determine the GCF of 21 and 35. To find the GCF, list the prime factors of 21 and 35 and pair the common factors.

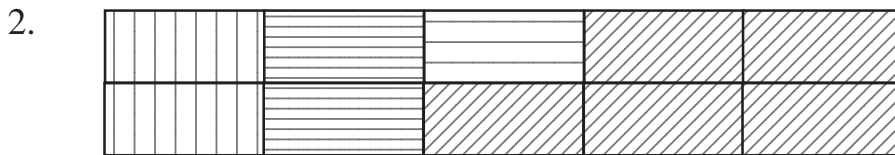
$$\begin{aligned} \text{Numerator: } & 21 = 3 \times \textcircled{7} \\ \text{Denominator: } & 35 = 5 \times \textcircled{7} \\ \text{GCF} & = 7 \end{aligned}$$

- STEP 2** Divide the numerator and the denominator by the GCF.

$$\begin{aligned} \text{New Numerator: } & 21 \div 7 = 3 \\ \text{New Denominator: } & 35 \div 7 = 5 \end{aligned}$$

- STEP 3** The new numerator and the new denominator now form the fraction in lowest terms.

$$\frac{\text{New Numerator}}{\text{New Denominator}} = \boxed{\frac{3}{5}}$$



3. **STEP 1** Convert the fractions to decimal form. Divide until three decimal places.

$\frac{5}{12}$	$\frac{4}{15}$	$\frac{19}{60}$
$\begin{array}{r} 0.416 \\ 12 \overline{)5.000} \\ \underline{48} \phantom{00} \\ 20 \phantom{00} \\ \underline{12} \phantom{00} \\ 80 \phantom{00} \\ \underline{72} \phantom{00} \\ 8 \phantom{00} \end{array}$	$\begin{array}{r} 0.266 \\ 15 \overline{)4.000} \\ \underline{30} \phantom{00} \\ 100 \phantom{00} \\ \underline{90} \phantom{00} \\ 100 \phantom{00} \\ \underline{90} \phantom{00} \\ 10 \phantom{00} \end{array}$	$\begin{array}{r} 0.316 \\ 60 \overline{)19.000} \\ \underline{18.0} \phantom{00} \\ 100 \phantom{00} \\ \underline{60} \phantom{00} \\ 400 \phantom{00} \\ \underline{360} \phantom{00} \\ 40 \phantom{00} \end{array}$

**STEP 2** Arrange the decimals from the highest to the lowest.

0.416; 0.316; 0.266

- a. 0.416 is the highest, therefore, Niño gave the largest share.
- b. 0.266 is the lowest, therefore, Billy gave the smallest share.

4. a. **STEP 1** Divide 190 by 12.

$$\begin{array}{r} \phantom{0}15 \text{ } \longrightarrow \text{quotient} \\ \text{divisor} \longleftarrow 12 \overline{)190} \\ \phantom{0}12 \\ \hline \phantom{0}70 \\ \phantom{0}60 \\ \hline \phantom{0}10 \longrightarrow \text{remainder} \end{array}$$

**STEP 2** Set the quotient (15) as the whole number. Set the remainder (10) as the numerator and the divisor (12) as the denominator.

$$15 \frac{10}{12} \text{ or } 15 \frac{5}{6}$$

b. Convert the mixed fraction to an improper fraction.

$$15 \frac{5}{6}$$

**STEP 1** Multiply the whole number by the denominator.

$$15 \times 6 = 90$$

**STEP 2** Add the product in step 1 with the numerator. The sum becomes the new numerator.

$$\text{New numerator: } 90 + 5 = 95$$

**STEP 3** The improper fraction should consist of the new numerator and the original denominator.

$$\frac{95}{6}$$

## B. Lesson 1

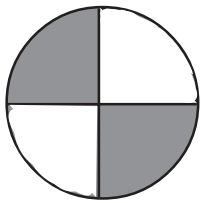
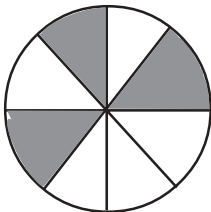
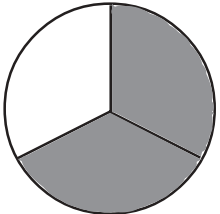

*Let's Try This (page 7)*

1.  $\frac{5}{8}$
2.  $\frac{1}{2}$

*Let's Try This (page 9)*

	Numerator	Denominator
1.	7	8
2.	8	11
3.	2	13

*Let's Try This (page 10)*

Illustration	Symbols
	$\frac{2}{4}$
	$\frac{3}{8}$
	$\frac{2}{3}$
	$\frac{1}{5}$

*Let's Review (page 13)*

1. **STEP 1** Determine the GCF of 8 (numerator) and 18 (denominator). To find the GCF, list the prime factors of 8 and 18 and pair the common factors.

$$\begin{aligned}\text{Numerator: } 8 &= (2) \times 2 \times 2 \\ \text{Denominator: } 18 &= (2) \times 3 \times 3 \\ \text{GCF} &= 2\end{aligned}$$

- STEP 2** Divide the numerator (8) and the denominator (18) by the GCF.

$$\begin{aligned}\text{Numerator} \div \text{GCF} &= \text{New Numerator} \\ 8 \div 2 = 4 &\longrightarrow \text{New Numerator}\end{aligned}$$

$$\begin{aligned}\text{Denominator} \div \text{GCF} &= \text{New Denominator} \\ 18 \div 2 = 9 &\longrightarrow \text{New Denominator}\end{aligned}$$

- STEP 3** The new numerator and the new denominator now form the fraction in lowest terms.

$$\frac{\text{New Numerator}}{\text{New Denominator}} = \boxed{\frac{4}{9}}$$

Therefore, 8/18 when simplified to its lowest term is 4/9.

2. **STEP 1** Determine the GCF of 5 (numerator) and 35 (denominator). To find the GCF, list the prime factors of 5 and 35 and pair the common factors.

$$\begin{aligned}\text{Numerator: } 5 &= (5) \\ \text{Denominator: } 35 &= (5) \times 7 \\ \text{GCF} &= 5\end{aligned}$$

- STEP 2** Divide the numerator (5) and the denominator (35) by the GCF.

$$\begin{aligned}\text{Numerator} \div \text{GCF} &= \text{New Numerator} \\ 5 \div 5 = 1 &\longrightarrow \text{New Numerator}\end{aligned}$$

$$\begin{aligned}\text{Denominator} \div \text{GCF} &= \text{New Denominator} \\ 35 \div 5 = 7 &\longrightarrow \text{New Denominator}\end{aligned}$$

**STEP 3** The new numerator and denominator now form the fraction in lowest terms.

$$\frac{\text{New Numerator}}{\text{New Denominator}} = \boxed{\frac{1}{7}}$$

Therefore,  $5/35$  when simplified to its lowest term is  $1/7$ .

*Let's See What You Have Learned (pages 14–15)*

1. a. **STEP 1** Determine the GCF of 14 (numerator) and 21 (denominator). To find the GCF, list the prime factors of 14 and 21 and pair the common factors.

$$\begin{array}{l} \text{Numerator:} \quad 14 = 2 \times \textcircled{7} \\ \text{Denominator:} \quad 21 = 3 \times \textcircled{7} \\ \text{GCF} = 7 \end{array}$$

- STEP 2** Divide the numerator (14) and the denominator (21) by the GCF.

$$\begin{array}{l} \text{Numerator} \div \text{GCF} = \text{New Numerator} \\ 14 \div 7 = 2 \longrightarrow \text{New Numerator} \end{array}$$

$$\begin{array}{l} \text{Denominator} \div \text{GCF} = \text{New Denominator} \\ 21 \div 7 = 3 \longrightarrow \text{New Denominator} \end{array}$$

- STEP 3** The new numerator and the new denominator now form the fraction in lowest terms.

$$\frac{\text{New Numerator}}{\text{New Denominator}} = \boxed{\frac{2}{3}} \text{ or two-thirds}$$

Therefore,  $14/21$  when simplified to its lowest term is  $2/3$ .

- b. **STEP 1** Determine the GCF of 8 (numerator) and 14 (denominator). To find the GCF, list the prime factors of 8 and 14 and pair the common factors.

$$\begin{array}{l} \text{Numerator:} \quad 8 = \textcircled{2} \times 2 \times 2 \\ \text{Denominator:} \quad 14 = \textcircled{2} \times 7 \\ \text{GCF} = 2 \end{array}$$

**STEP 2** Divide the numerator (8) and the denominator (14) by the GCF.

$$\begin{array}{l} \text{Numerator} \div \text{GCF} = \text{New Numerator} \\ 8 \div 2 = 4 \longrightarrow \text{New Numerator} \end{array}$$

$$\begin{array}{l} \text{Denominator} \div \text{GCF} = \text{New Denominator} \\ 14 \div 2 = 7 \longrightarrow \text{New Denominator} \end{array}$$

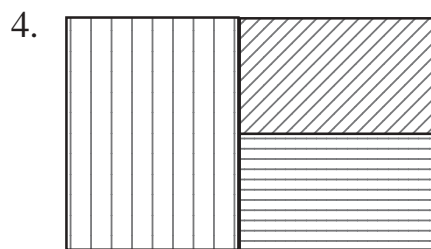
**STEP 3** The new numerator and the new denominator now form the fraction in lowest terms.

$$\frac{\text{New Numerator}}{\text{New Denominator}} = \boxed{\frac{4}{7}} \text{ or four-sevenths}$$

Therefore,  $8/14$  when simplified to its lowest term is  $4/7$ .

2.  $2/5$

3.  $3/8$



5. Fractions are used to express parts of a whole. Fractions are composed of a numerator and a denominator.

### C. Lesson 2

*Let's Review (page 17)*

1.  $3/5 = 0.6$

2.  $4/5 = 0.8$

$$\begin{array}{r} \text{quotient} \longrightarrow 0.6 \\ \text{denominator} \longleftarrow 5 \overline{)3.0} \\ \underline{30} \\ 0 \end{array}$$

numerator  $\longrightarrow$

$$\begin{array}{r} \text{quotient} \longrightarrow 0.8 \\ \text{denominator} \longleftarrow 5 \overline{)4.0} \\ \underline{40} \\ 0 \end{array}$$

numerator  $\longrightarrow$

*Let's Review (page 19)*

1. **STEP 1** Convert the fractions to decimal form (up to two decimal places)

$\frac{2}{3}$	$\frac{3}{5}$	$\frac{7}{10}$
$\begin{array}{r} 0.66 \\ 3 \overline{)2.00} \\ \underline{18} \\ 20 \\ \underline{18} \\ 2 \end{array}$	$\begin{array}{r} 0.6 \\ 5 \overline{)3.0} \\ \underline{30} \\ 0 \end{array}$	$\begin{array}{r} 0.7 \\ 10 \overline{)7.00} \\ \underline{700} \\ 0 \end{array}$

- STEP 2** Arrange the decimals from the highest to the lowest.  
0.7; 0.66; 0.6

- a.  $7/10$  or 0.7 is the highest, therefore, Aling Dolly bought the largest amount of beef.
- b.  $3/5$  or 0.6 is the lowest, therefore, Aling Malou bought the least amount of beef.
2. 0.5; 0.16; 0.42; 0.44

$\frac{2}{4}$	$\frac{1}{6}$	$\frac{3}{7}$	$\frac{4}{9}$
$\begin{array}{r} 0.5 \\ 4 \overline{)2.0} \\ \underline{20} \\ 0 \end{array}$	$\begin{array}{r} 0.16 \\ 6 \overline{)1.00} \\ \underline{60} \\ 40 \\ \underline{36} \\ 4 \end{array}$	$\begin{array}{r} 0.42 \\ 7 \overline{)3.00} \\ \underline{28} \\ 20 \\ \underline{14} \\ 6 \end{array}$	$\begin{array}{r} 0.44 \\ 9 \overline{)4.00} \\ \underline{36} \\ 40 \\ \underline{36} \\ 4 \end{array}$

*Let's Review (page 20)*

1. Similar fractions are fractions that have the same denominator.
2.  $11/11$ ;  $8/11$ ;  $5/11$ ;  $3/11$ ;  $2/11$

*Let's See What You Have Learned (page 21)*

1.

$\frac{7}{20}$	$\frac{13}{50}$	$\frac{39}{100}$
$\begin{array}{r} 0.35 \\ 20 \overline{)7.00} \\ \underline{60} \\ 100 \\ \underline{100} \\ 0 \end{array}$	$\begin{array}{r} 0.26 \\ 50 \overline{)13.00} \\ \underline{100} \\ 300 \\ \underline{300} \\ 0 \end{array}$	$\begin{array}{r} 0.39 \\ 100 \overline{)39.00} \\ \underline{300} \\ 900 \\ \underline{900} \\ 0 \end{array}$

2. a.  $5/6; 4/5; 2/3; 3/6$

$\frac{2}{3}$	$\frac{3}{6}$	$\frac{4}{5}$	$\frac{7}{6}$
$\begin{array}{r} 0.66 \\ 3 \overline{)2.00} \\ \underline{18} \\ 20 \\ \underline{18} \\ 2 \end{array}$	$\begin{array}{r} 0.5 \\ 6 \overline{)3.0} \\ \underline{30} \\ 0 \end{array}$	$\begin{array}{r} 0.8 \\ 5 \overline{)4.0} \\ \underline{30} \\ 0 \end{array}$	$\begin{array}{r} 0.83 \\ 6 \overline{)5.00} \\ \underline{48} \\ 20 \\ \underline{18} \\ 2 \end{array}$

b.  $5/7; 3/5; 2/4; 1/3$

$\frac{1}{3}$	$\frac{2}{4}$	$\frac{5}{7}$	$\frac{3}{5}$
$\begin{array}{r} 0.33 \\ 3 \overline{)1.00} \\ \underline{9} \\ 10 \\ \underline{9} \\ 1 \end{array}$	$\begin{array}{r} 0.5 \\ 4 \overline{)2.0} \\ \underline{20} \\ 0 \end{array}$	$\begin{array}{r} 0.7 \\ 7 \overline{)5.00} \\ \underline{49} \\ 10 \\ \underline{7} \\ 3 \end{array}$	$\begin{array}{r} 0.6 \\ 5 \overline{)3.0} \\ \underline{30} \\ 0 \end{array}$

### D. Lesson 3

*Let's Solve This Problem (page 23)*

$2\frac{3}{4}$



*Let's Review (pages 24–25)*

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

          ↓

whole number

          → numerator

          → denominator

**STEP 1** Multiply the whole number by the denominator.

$$\text{Whole number} \times \text{denominator} = 8 \times 6 = 48$$

**STEP 2** Add the product in step 1 with the numerator. The sum becomes the new numerator.

$$\text{Product} + \text{numerator} = \text{new numerator}$$

$$48 + 5 = 53$$

**STEP 3** The improper fraction should consist of the new numerator and the original denominator.

$$\left. \begin{array}{l} \text{new numerator} \longrightarrow 53 \\ \text{denominator} \longrightarrow 6 \end{array} \right] \text{improper fraction}$$

As you can see, the whole number part is gone and only the fraction part remains.

b)  $5 \frac{4}{7}$

          ↓

whole number

          → numerator

          → denominator

**STEP 1** Multiply the whole number by the denominator.

$$\text{Whole number} \times \text{denominator} = 5 \times 7 = 35$$

**STEP 2** Add the product in step 1 with the numerator. The sum becomes the new numerator.

$$\text{Product} + \text{numerator} = \text{new numerator}$$

$$35 + 4 = 39$$

**STEP 3** The improper fraction should consist of the new numerator and the original denominator.

$$\begin{array}{l} \text{new numerator} \longrightarrow \\ \text{denominator} \longrightarrow \end{array} \left. \begin{array}{l} 39 \\ 7 \end{array} \right] \text{improper fraction}$$

As you can see, the whole number part is gone and only the fraction part remains.

2. a.  $3 \frac{1}{8}$

b.  $3 \frac{1}{8}$

$\xrightarrow{\text{numerator}}$   
 $\xrightarrow{\text{denominator}}$

$\downarrow$   
 whole number

**STEP 1** Multiply the whole number by the denominator.

$$\text{Whole number} \times \text{denominator} = 3 \times 8 = 24$$

**STEP 2** Add the product in step 1 with the numerator. The sum becomes the new numerator.

$$\begin{aligned} \text{Product} + \text{numerator} &= \text{new numerator} \\ 24 + 1 &= 25 \end{aligned}$$

**STEP 3** The improper fraction should consist of the new numerator and the original denominator.

$$\begin{array}{l} \text{new numerator} \longrightarrow \\ \text{denominator} \longrightarrow \end{array} \left. \begin{array}{l} 25 \\ 8 \end{array} \right] \text{improper fraction}$$

As you can see, the whole number part is gone and only the fraction part remains.

*Let's Review (page 26)*

1. **STEP 1** Divide the numerator by the denominator.

$$\begin{array}{r} \text{divisor} \longleftarrow 7 \overline{)23} \\ \underline{21} \\ 2 \end{array}$$

$\xrightarrow{\text{quotient}}$   
 $\xrightarrow{\text{remainder}}$

**STEP 2** Set the quotient (3) as the whole number. Set the remainder (2) as the numerator and the divisor (7) as the denominator.

$$3 \frac{2}{7}$$

2. **STEP 1** Divide the numerator by the denominator.

$$\begin{array}{r} 3 \longrightarrow \text{quotient} \\ \text{divisor} \longleftarrow 3 \overline{)11} \\ \underline{9} \\ 2 \longrightarrow \text{remainder} \end{array}$$

- STEP 2** Set the quotient (3) as the whole number. Set the remainder (2) as the numerator and the divisor (3) as the denominator.

$$3 \frac{2}{3}$$

*Let's See What You Have Learned (pages 27–28)*

1. a. **STEP 1** Divide 43 kilos by 10 kilos.

$$\begin{array}{r} 4 \longrightarrow \text{quotient} \\ \text{divisor} \longleftarrow 10 \overline{)43} \\ \underline{40} \\ 3 \longrightarrow \text{remainder} \end{array}$$

- STEP 2** Set the quotient (4) as the whole number. Set the remainder (3) as the numerator and the divisor (10) as the denominator.

$$4 \frac{3}{10}$$

b.

$$\begin{array}{r} 4 \frac{3}{10} \\ \downarrow \\ \text{whole number} \end{array}$$

$\xrightarrow{\text{numerator}}$   
 $\xrightarrow{\text{denominator}}$

- STEP 1** Multiply the whole number by the denominator.

$$\text{Whole number} \times \text{denominator} = 4 \times 10 = 40$$

- STEP 2** Add the product in step 1 with the numerator. The sum becomes the new numerator.

$$\begin{array}{l} \text{Product} + \text{numerator} = \text{new numerator} \\ 40 + 3 = 43 \end{array}$$

**STEP 3** The improper fraction should consist of the new numerator and the original denominator.

$$\begin{array}{l} \text{new numerator} \longrightarrow \frac{43}{10} \\ \text{denominator} \longrightarrow \end{array} \Bigg] \text{improper fraction}$$

As you can see, the whole number part is gone and only the fraction part remains.

2.  $2 \frac{5}{11}$

$\xrightarrow{\text{numerator}}$   
 $\xrightarrow{\text{denominator}}$

$\downarrow$   
 whole number

**STEP 1** Multiply the whole number by the denominator.

$$\text{Whole number} \times \text{denominator} = 2 \times 11 = 22$$

**STEP 2** Add the product in step 1 with the numerator. The sum becomes the new numerator.

$$\begin{aligned} \text{Product} + \text{numerator} &= \text{new numerator} \\ 22 + 5 &= 27 \end{aligned}$$

**STEP 3** The improper fraction should consist of the new numerator and the original denominator.

$$\begin{array}{l} \text{new numerator} \longrightarrow \frac{27}{11} \\ \text{denominator} \longrightarrow \end{array} \Bigg] \text{improper fraction}$$

As you can see, the whole number part is gone and only the fraction part remains.

3) **STEP 1** Divide the numerator by the denominator.

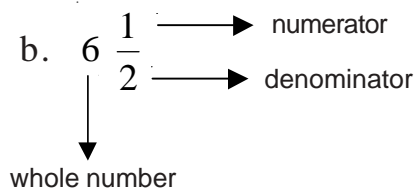
$$\begin{array}{r} \text{divisor} \longleftarrow 9 \overline{)43} \\ \underline{36} \\ 7 \longrightarrow \text{remainder} \end{array}$$

$\xrightarrow{\text{quotient}}$   
 $\xrightarrow{\text{remainder}}$

**STEP 2** Set the quotient (4) as the whole number. Set the remainder (7) as the numerator and the divisor (9) as the denominator.

$$4 \frac{7}{9}$$

4. a.  $6\frac{1}{2}$  inches



**STEP 1** Multiply the whole number by the denominator.

$$\text{Whole number} \times \text{denominator} = 6 \times 2 = 12$$

**STEP 2** Add the product in step 1 with the numerator. The sum becomes the new numerator.

$$\begin{aligned} \text{Product} + \text{numerator} &= \text{new numerator} \\ 12 + 1 &= 13 \end{aligned}$$

**STEP 3** The improper fraction should consist of the new numerator and the original denominator.

$$\begin{array}{l} \text{new numerator} \longrightarrow \frac{13}{2} \\ \text{denominator} \longrightarrow 2 \end{array} \Bigg] \text{improper fraction}$$

As you can see, the whole number part is gone and only the fraction part remains.

## E. What Have You Learned? (pages 29–31)

1. **STEP 1** Determine the GCF of 15 (numerator) and 21 (denominator). To find the GCF, list the prime factors of 15 and 21 and pair the common factors.

$$\begin{aligned} \text{Numerator:} \quad 15 &= \textcircled{3} \times 5 \\ \text{Denominator:} \quad 21 &= \textcircled{3} \times 7 \\ \text{GCF} &= 3 \end{aligned}$$

- STEP 2** Divide the numerator (15) and the denominator (21) by the GCF.

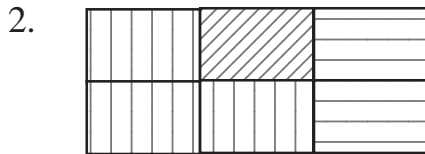
$$\begin{aligned} \text{Numerator} \div \text{GCF} &= \text{New Numerator} \\ 15 \div 3 &= 5 \longrightarrow \text{New Numerator} \end{aligned}$$

$$\begin{aligned} \text{Denominator} \div \text{GCF} &= \text{New Denominator} \\ 21 \div 3 &= 7 \longrightarrow \text{New Denominator} \end{aligned}$$

**STEP 3** The new numerator and the new denominator now form the fraction in lowest terms.

$$\frac{\text{New Numerator}}{\text{New Denominator}} = \boxed{\frac{5}{7}}$$

Therefore, 15/21 when simplified to its lowest term is 5/7.



3. 5/12

4. 7/12; 8/13; 2/3; 3/4

$\frac{7}{12}$	$\frac{3}{4}$	$\frac{8}{13}$	$\frac{2}{3}$
$\begin{array}{r} 0.58 \\ 12 \overline{)7.00} \\ \underline{60} \\ 100 \\ \underline{96} \\ 4 \end{array}$	$\begin{array}{r} 0.75 \\ 4 \overline{)3.00} \\ \underline{28} \\ 20 \\ \underline{20} \\ 0 \end{array}$	$\begin{array}{r} 0.61 \\ 13 \overline{)8.00} \\ \underline{78} \\ 20 \\ \underline{13} \\ 7 \end{array}$	$\begin{array}{r} 0.66 \\ 3 \overline{)2.00} \\ \underline{18} \\ 20 \\ \underline{18} \\ 2 \end{array}$

5.

$\frac{11}{50}$	$\frac{9}{25}$	$\frac{3}{20}$	$\frac{27}{100}$
$\begin{array}{r} 0.22 \\ 50 \overline{)11.00} \\ \underline{100} \\ 100 \\ \underline{100} \\ 0 \end{array}$	$\begin{array}{r} 0.36 \\ 25 \overline{)9.00} \\ \underline{75} \\ 150 \\ \underline{150} \\ 0 \end{array}$	$\begin{array}{r} 0.15 \\ 20 \overline{)3.00} \\ \underline{20} \\ 100 \\ \underline{100} \\ 0 \end{array}$	$\begin{array}{r} 0.27 \\ 100 \overline{)27.00} \\ \underline{200} \\ 700 \\ \underline{700} \\ 0 \end{array}$

- Rolly gave the largest amount.
- Max gave the smallest amount.

6. a. **STEP 1** Divide 233 by 24.

$$233 \text{ bottles} \times \frac{1 \text{ case}}{24 \text{ bottles}} = 9 \frac{17}{24}$$

$$\begin{array}{r} 9 \longrightarrow \text{quotient} \\ \text{divisor} \longleftarrow 24 \overline{)233} \\ \underline{216} \\ 17 \longrightarrow \text{remainder} \end{array}$$

**STEP 2** Set the quotient (9) as the whole number. Set the remainder (17) as the numerator and the divisor (24) as the denominator.

$$9 \frac{17}{24}$$

b. Convert the mixed fraction to an improper fraction. (1 point)

$$\begin{array}{r} 9 \frac{17}{24} \\ \downarrow \\ \text{whole number} \end{array} \begin{array}{l} \longrightarrow \text{numerator} \\ \longrightarrow \text{denominator} \end{array}$$

**STEP 1** Multiply the whole number by the denominator.

$$\text{Whole number} \times \text{denominator} = 9 \times 24 = 216$$

**STEP 2** Add the product in step 1 with the numerator. The sum becomes the new numerator.

$$\begin{array}{l} \text{Product} + \text{numerator} = \text{new numerator} \\ 216 + 17 = 233 \end{array}$$

**STEP 3** The improper fraction should consist of the new numerator and the original denominator.

$$\begin{array}{r} \text{new numerator} \longrightarrow 233 \\ \text{denominator} \longrightarrow 24 \end{array} \left. \vphantom{\begin{array}{r} 233 \\ 24 \end{array}} \right] \text{improper fraction}$$



## Glossary

**Denominator** The part of the fraction representing the total number of equal parts out of the whole. It is placed at the lower portion of the fraction

**Greatest Common Factor** It is the largest number that can be a divisor of a group of numbers without producing a remainder

**Improper Fraction** A fraction whose numerator is larger than their denominator; e.g.,  $\frac{8}{5}$

**Mixed Fraction** Consists of a whole number and a fraction; e.g.,  $2\frac{3}{4}$

**Numerator** The part of the fraction representing the number of parts selected from the whole. It is placed at the upper portion of the fraction

**Prime Factor** A factor that cannot be simplified further. Its only factors are 1 and itself; e.g., 5 is a prime factor because its only factors are 5 and 1.

**Proper Fraction** A fraction whose numerator is smaller than the denominator.



## References

Cariño, I. D. *General Mathematics for High School 1*. Pasig City: Anvil Publishing, Inc. 1999.

Capitulo, F.M. *Algebra: A Simplified Approach*. Quezon City: National Bookstore, Inc. 1997.



