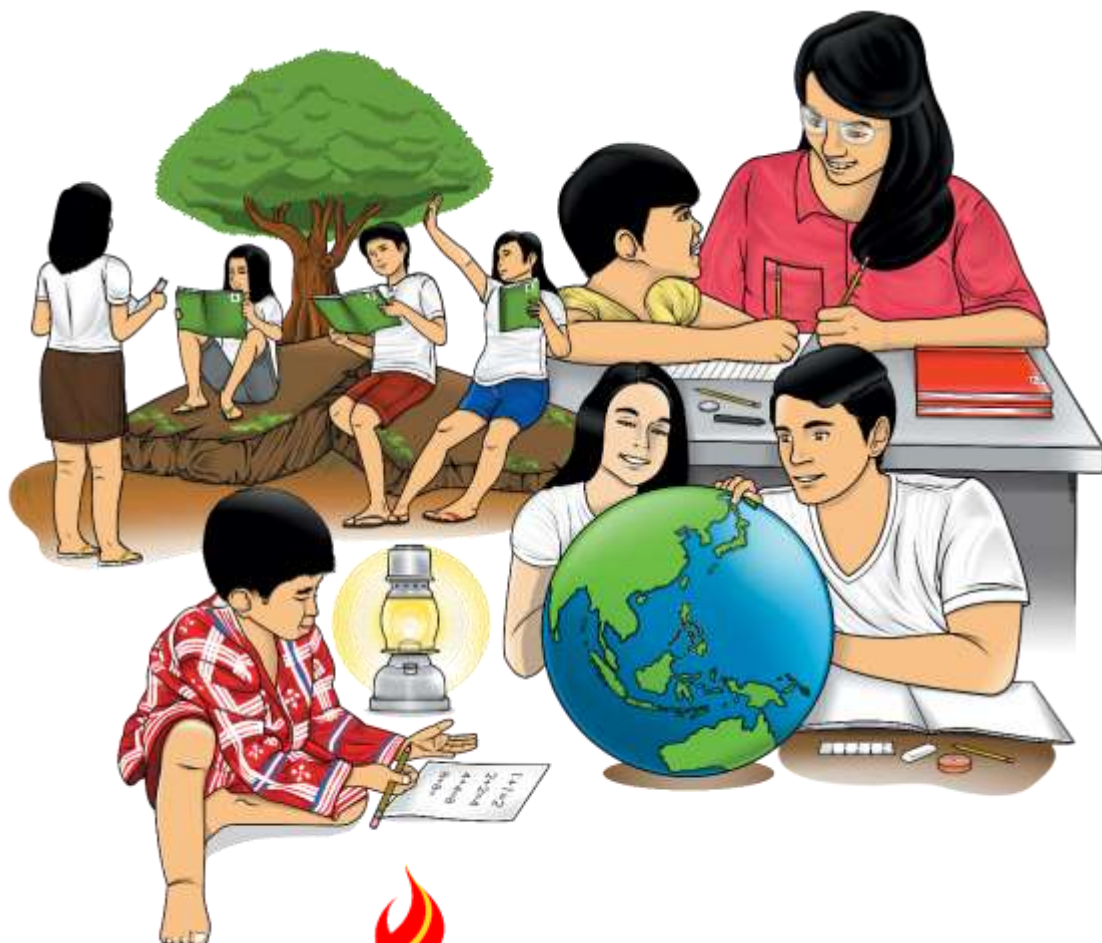


# General Mathematics

## Quarter 2 – Module 14: Simple and Compound Propositions



**General Mathematics - Senior High School**  
**Alternative Delivery Mode**  
**Quarter 2 – Module 14: Simple and Compound Propositions**  
**First Edition, 2021**

**Republic Act 8293, section 176** states that: No copyright shall subsist in any work of the Government of the Philippines. However, prior approval of the government agency or office wherein the work is created shall be necessary for exploitation of such work for profit. Such agency or office may, among other things, impose as a condition the payment of royalties.

Borrowed materials (i.e., songs, stories, poems, pictures, photos, brand names, trademarks, etc.) included in this module are owned by their respective copyright holders. Every effort has been exerted to locate and seek permission to use these materials from their respective copyright owners. The publisher and authors do not represent nor claim ownership over them.

Published by the Department of Education  
Secretary: Leonor Magtolis Briones  
Undersecretary: Diosdado M. San Antonio

**Development Team of the Module**

**Writer:** Azalea A. Gallano

**Editors:** Elizabeth D. Lalunio, Anicia J. Villaruel, Roy O. Natividad

**Reviewers:** Jerry Punongbayan, Diosmar O. Fernandez, Dexter M. Valle, Mark Vincent Pineda, Rowena M. Liu and Moahna Aura M. Mancenido

**Illustrators:** Hanna Lorraine Luna, Diane C. Jupiter

**Layout Artist:** Roy O. Natividad, Sayre M. Dialola, Argie L. Ty and Janeth D. Bendal

**Management Team:** Francis Cesar B. Bringas  
Job S. Zape, Jr.  
Ramonito Elumbaring  
Reicon C. Condes  
Elaine T. Balaogan  
Fe M. Ong-ongowan  
Hermogenes M. Panganiban  
Philip B. Gallendez  
Josephine T. Natividad  
Anicia J. Villaruel  
Dexter M. Valle

**Printed in the Philippines by** \_\_\_\_\_

**Department of Education – Region IV-A CALABARZON**

Office Address: Gate 2 Karangalan Village, Barangay San Isidro, Cainta, Rizal  
Telefax: 02-8682-5773/8684-4914/8647-7487  
E-mail Address: lrm.d.calabarzon@deped.gov.ph

# **General Mathematics**

## **Quarter 2 – Module 14:**

### **Simple and Compound Propositions**

# **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 prepared with you in mind. This will help you divide into two big groups the propositions. That is, you will learn the difference between simple and compound propositions.

The module is composed of one lesson only.

- Lesson 1 – Simple and Compound Propositions

After going through this module, you are expected to:

1. define simple and compound propositions; and
2. distinguish between simple and compound propositions.



## ***What I Know***

Choose the letter of the best answer. Write the chosen letter on a separate sheet of paper.

1. It is a proposition that uses logical connectors.
  - a. simple proposition
  - b. logical proposition
  - c. compound proposition
  - d. connective proposition
2. Which of the following is not a logical connector?
  - a. or
  - b. can
  - c. and
  - d. if-then
3. It is a proposition that cannot be broken down into more than one proposition.
  - a. logical proposition
  - b. simple proposition
  - c. compound proposition
  - d. connective proposition

For numbers 4 to 8, choose the simple proposition among each group of options.

4.
  - a. Is the laugh too loud?
  - b. What a bright smile!
  - c. Brush your teeth after eating.
  - d. Enamel covers the outer surface of our teeth.
5.
  - a. Does nature teach us?
  - b. Try smelling a Sampaguita flower.
  - c. Sampaguita is our national flower.
  - d. Don't pick flowers and follow the rules.
6.
  - a. Do not ever quit.
  - b. What does failure teach?
  - c. Stepping forward is a good start.
  - d. If rest recharges, then quitting is not an option.
7.
  - a. That's wrong!
  - b. Review your arithmetic.
  - c. You will get 15 when you subtract 30 from 50.
  - d. Either a learner review and master the prerequisite skills or not mastered competencies pile up.
8.
  - a. That is too much!
  - b. Do I have to drink my medication?
  - c. Medication should be taken on time.
  - d. If one overdoses with drugs, then the body may be harmed.

For numbers 9 to 13, choose the compound proposition.

9.
  - a. Finish!
  - b. Water seeks its level.
  - c. Come and join us or accompany them.
  - d. Health is wealth and lifestyle defines health.
10.
  - a. Do you see goodness in others?
  - b. Your eye is the lamp of your body.
  - c. Be mindful of the light that is in you.
  - d. If the eye is good, then the body is enlightened.
11.
  - a. Initiating to make amends is honorable.
  - b. Admit your fault and ask for forgiveness.
  - c. Have you experienced feeling light after swallowing your pride?
  - d. Either a good person will find a way to say sorry or one will initiate forgiveness.

- 12.
- Honor your parents.
  - Twenty-five is  $\frac{1}{4}$  of a hundred.
  - One of the primary colors is yellow.
  - There are 10 years in a decade and 100 years in a century.
- 13.
- Love your parents.
  - When did you last hug your parents?
  - Parents or guardians are a blessing from God.
  - Love of parents prolongs one's life and disrespecting them shortens days.
14. Given the simple propositions a: You are what you eat and b: Your food can describe your health, what compound proposition can be made?
- You are not what you eat.
  - Your food cannot describe your health.
  - You are what you eat but your food can describe your health.
  - If you are what you eat, then your food can describe your health.
15. What logical connector best fits in merging the simple propositions c: Life is more than food and d: The body is more than clothing?
- or
  - not
  - and
  - if then

## Lesson

# 1

# Simple and Compound Propositions

So far, you have initial knowledge of propositions already through Module 13. At this point, you may want to know more about propositions. To start with, propositions may be divided into two big groups of simple propositions and compound propositions. In this lesson, you are expected to demonstrate an understanding of key concepts simple and compound propositions. You should also be able to distinguish one from the other.



## ***What's In***

First, let us review what you have learned in the previous module. Answer the following with all confidence.

Identify each statement below as a simple sentence or compound sentence. Write **S** if it is a simple sentence and **C** if it is a compound sentence. If it is a compound sentence, identify the conjunction used as well.

- \_\_\_\_\_ 1. Best things in life are free.
- \_\_\_\_\_ 2. It is not true that a good deed will give a bad result.
- \_\_\_\_\_ 3. A happy heart is a medicine, but a sorrowful spirit weakens the bones.
- \_\_\_\_\_ 4. Gone are days that people practice apartheid.
- \_\_\_\_\_ 5. If bullying introduces a not so good background of the bully, then a psychosocial intervention should be designed for these bullies.



### ***Notes to the Teacher***

Enable learners to perform each task or activity in this module. Explanation for answers should be provided for exercises which will not be successfully answered by the learners.





## ***What's New***

Read the famous poem below by Rudyard Kipling, an Indian short story writer, poet and novelist. See the wisdom in this poem.

### **If**

by: Rudyard Kipling

If you can keep your head when all about you  
Are losing theirs and blaming it on you,  
If you can trust yourself when all men doubt you,  
But make allowance for their doubting too;  
If you can wait and not be tired by waiting,  
Or being lied about, don't deal in lies,  
Or being hated, don't give way to hating,  
And yet don't look too good, nor talk too wise:

If you can dream—and not make dreams your master;  
If you can think—and not make thoughts your aim;  
If you can meet with Triumph and Disaster  
And treat those two impostors just the same;  
If you can bear to hear the truth you've spoken  
Twisted by knaves to make a trap for fools,  
Or watch the things you gave your life to, broken,  
And stoop and build 'em up with worn-out tools:

If you can make one heap of all your winnings  
And risk it on one turn of pitch-and-toss,  
And lose, and start again at your beginnings  
And never breathe a word about your loss;  
If you can force your heart and nerve and sinew  
To serve your turn long after they are gone,  
And so hold on when there is nothing in you  
Except the Will which says to them: 'Hold on!'

If you can talk with crowds and keep your virtue,  
Or walk with Kings—nor lose the common touch,  
If neither foes nor loving friends can hurt you,  
If all men count with you, but none too much;  
If you can fill the unforgiving minute  
With sixty seconds' worth of distance run,  
Yours is the Earth and everything that's in it,  
And—which is more—you'll be a Man, my son!

Do you like it? What is the most striking line of the poem for you?  
Can you spot and identify as many propositions as you can in the poem?



## What is It

### Simple and Compound Propositions Defined

A **Simple Proposition** is a proposition that cannot be broken down into more than one proposition. Otherwise, it is a **Compound Proposition**. The latter is a proposition that is formed by joining simple propositions using **logical connectors**. Given propositions  $p$  and/or  $q$ , some logical connectors may be expressed in terms of the following:

not  $p$   
 $p$  and  $q$   
 $p$  or  $q$   
If  $p$ , then  $q$

### Example 1

In the previous module, we have understood that the following are propositions. This time let us identify each of these as simple or compound proposition.

- a: Grounding is beneficial to a person.
- d: There is no stronger than the heart of a volunteer.
- $p$ :  $3! = 6/2$
- $p_1$ : If an individual is great, then there is a teacher behind.
- $p_2$ : Either a person saves before spending, or one spends before saving.
- $p_3$ : It is not a shame to greet the utility worker the same way as with the school principal.
- $p_4$ : If a person is disabled, then he/ she is entitled to obtain a PWD ID, and if a person is entitled to obtain a PWD ID, then he/ she is disabled.

Solution:

Notice that among the propositions above, propositions  $a$ ,  $d$  and  $p$  are made up of one declarative sentence each, while propositions  $p_1$ ,  $p_2$ ,  $p_3$  and  $p_4$  are composed of more than one declarative sentence.

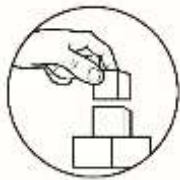
This informs us that propositions  $a$ ,  $d$  and  $p$  are all simple propositions, while propositions  $p_1$ ,  $p_2$ ,  $p_3$  and  $p_4$  are compound propositions.

### Example 2

Identify the simple components of the compound propositions in Example 1 and the corresponding symbols using the logical connectors used.

Solution:

Proposition	Simple Component/s	Proposition/s with Logical Connector/s
$p_1$	j: An individual is great. x: There is a teacher behind.	If j, <u>then</u> x.
$p_2$	o: A person saves before spending. k: One spends before saving.	o <u>or</u> k
$p_3$	c: It is not a shame to greet the utility worker the same way as with the school principal.	<u>not</u> c
$p_4$	y: A person is disabled. z: A person is entitled to obtain a PWD ID.	<u>if</u> y <u>then</u> z <u>and</u> <u>if</u> z <u>then</u> y



## What's More

### Activity 1.1

In the blank before each number, write **SP**, **CP**, or **N** if it is a simple proposition, compound proposition or not a proposition, respectively. Furthermore, identify the logical connector/s used if it is a compound proposition.

- \_\_\_\_\_ 1. If bad company ruins good morals, then one should be mindful in choosing friends.
- \_\_\_\_\_ 2. Essential oils do not expire.
- \_\_\_\_\_ 3. Ponder on the sacrifices of your parents.
- \_\_\_\_\_ 4. If you study hard, then you will have good grades.
- \_\_\_\_\_ 5. Have you thought of the sick when you are spending too much?
- \_\_\_\_\_ 6. In tossing a fair coin once you may get a head or a tail.
- \_\_\_\_\_ 7. There is wisdom in spending for needs and it makes sense to think at least twice before giving in for wants.
- \_\_\_\_\_ 8. Two lines are parallel if and only if they are coplanar and do not intersect.
- \_\_\_\_\_ 9. Study hard and rest well.
- \_\_\_\_\_ 10. Camber is not telling the truth.

## Activity 1.2

Identify the simple propositions comprising each of the compound propositions below. Translate it as well into symbols using the logical connector used in each proposition.

Compound Proposition	Simple Components ( $p_1$ and $p_2$ )	Logical Connector
1. It is not proper to be too confident.		
2. If complacency is deceitful, then preparation is necessary.		
3. Fifty is half of a hundred and a hundred is a tenth of a thousand.		
4. A person sacrifices before attaining success or failure follows one's slackness.		
5. Fish is rich in protein and Vitamin D helps the body effectively absorb Calcium.		



## ***What I Have Learned***

Answer the following questions.

1. What is a simple proposition?
2. What is a compound proposition?
3. Can you name the logical connectors tackled in this lesson?



## ***What I Can Do***

The lesson enables you to differentiate a proposition from not. It further teaches you to categorize a proposition into a simple proposition or compound proposition. You understood that logical connectors help in forming a compound proposition. In relation to this, suppose your group is tasked to build a Ferris wheel miniature and to determine the equation of the function it obeys. As a member of a five-person group, which of these tasks will you take part in or not? And, why? Will it be doing the research, contributing to the expenses, buying the materials, designing the project, constructing the wheel, computing the equation or presenting the output? Answer in just one sentence. Most possibly, your answer is a compound sentence with conjunctions or those logical connectors. Write it on another sheet of paper.



## ***Assessment***

Choose the letter of the best answer. Write the chosen letter on a separate sheet of paper.

1. Which describes a compound proposition?
  - a. It is neither true nor false.
  - b. It is an imperative sentence.
  - c. It is made up of simple propositions joined by logical connector/s.
  - d. It is a proposition that requires the use of prepositions to form logic.
2. Which of the following is not a logical connector?
  - a. or
  - b. and
  - c. would
  - d. if-then

For numbers 3 to 8, choose the only simple proposition among the options.

3.
  - a. Climb!
  - b. Have you climbed a tree?
  - c. Conserve our coconut trees.
  - d. The coconut tree is known as the “Tree of life”.

- 4.
- It is so blurred!
  - Is that a dog or a cat?
  - Let me ask you for assistance.
  - The normal vision of a person is 20/20.
- 5.
- Are there 60 seconds in a minute?
  - Has anybody seen the throne of God?
  - Light travels 186,000 miles per second!
  - Though God may be physically far from us, He is near when His obedient servant prays.
- 6.
- Does it break your heart?
  - It is wise to thank God for being alive.
  - Take courage and have a happy heart.
  - The heart pumps blood throughout the body and it keeps us alive.
- 7.
- Don't pollute the air.
  - The brain needs oxygen.
  - Be grateful for the priceless air we take in.
  - Have you thanked God for the air we breathe?
- 8.
- What is your name?
  - Good day everybody!
  - The Philippines is located in East Asia.
  - Can we kill the virus by just washing our hands regularly?

For numbers 9 to 13, choose the only compound proposition among each group of options.

- 9.
- Are you sure?
  - You deserve a good break!
  - Busy, techy and frugal consumers tend to shop online.
  - If one is accountable for own decisions, then one should decide wisely.
- 10.
- Time is up!
  - Man can outlive time.
  - Time is an independent variable and distance is a dependent one.
  - The clock keeps on ticking while a couch potato enjoys slackness.

11.
  - a. Good job students!
  - b. Be proud of hard work.
  - c. Are you a working student?
  - d. If a learner studies well, then opportunities knock later.
  
12.
  - a. It's correct!
  - b. Are you sure?
  - c. Be truthful and be trustworthy.
  - d. It is wonderful and it is a good day.
  
13.
  - a. Have you seen it in pictures?
  - b. Paris' Eiffel Tower is beautiful!
  - c. Either watch from afar or climb it.
  - d. Paris' Eiffel Tower is named after its maker or it is named after the place where it stands.
  
14. Given the simple propositions a: A person prioritizes own spiritual growth and b: One satisfies own desires. what compound proposition can be made?
  - a. One does not satisfy own desires.
  - b. A person does not prioritize own spiritual growth.
  - c. A person prioritizes own spiritual growth or one satisfies own desires.
  - d. If a person prioritizes own spiritual growth, then one satisfies own desires.
  
15. What logical connector best fits in merging the simple propositions c: Money is a root of all evil and d: Spending for the needy is wise?
  - a. or
  - b. not
  - c. and
  - d. if then



## ***Additional Activities***

Consider the proposition a: Matmat is telling a joke. Decide whether it is a simple proposition, compound proposition or neither. Expound your answer.

<b>Criteria</b>	<b>3</b>	<b>2</b>	<b>1</b>
Answer <b>(score x 2)</b>	Type of proposition is correct	Type of proposition is incorrect	No identified answer
Explanation <b>(score x 3)</b>	Answer is explained completely; manifests understanding of concepts behind the truthfulness of answer	Answer is explained but some details are not touched; manifests understanding of some concepts behind truthfulness of answer	No explanation





## Answer Key

<p><b>What I Know</b></p> <ol style="list-style-type: none"> <li>c</li> <li>b</li> <li>b</li> <li>d</li> <li>c</li> <li>c</li> <li>c</li> <li>c</li> <li>d</li> <li>d</li> <li>d</li> <li>d</li> <li>d</li> <li>d</li> <li>c</li> </ol>	<p><b>What's More</b></p> <p><b>Activity 1.1</b></p> <ol style="list-style-type: none"> <li>CP, if then</li> <li>CP, not</li> <li>N</li> <li>CP, if then</li> <li>N</li> <li>CP, or</li> <li>CP, and</li> <li>CP, if and only if</li> <li>N</li> <li>CP, not</li> </ol> <p><b>Activity 1.2</b></p> <ol style="list-style-type: none"> <li>It is <b>not</b> proper to be too confident.</li> <li> <p><math>p_1</math>: Complacency is deceitful.</p> <p><math>p_2</math>: Preparation is necessary.</p> <p>if <math>p_1</math>, then <math>p_2</math></p> </li> <li> <p><math>p_1</math>: Fifty is half of a hundred.</p> <p><math>p_2</math>: A hundred is a tenth of a thousand.</p> <p><math>p_1</math> and <math>p_2</math></p> </li> <li> <p><math>p_1</math>: A person sacrifices before attaining success.</p> <p><math>p_2</math>: Failure follows one's slackness.</p> <p><math>p_1</math> or <math>p_2</math></p> </li> <li> <p><math>p_1</math>: Fish is rich in protein.</p> <p><math>p_2</math>: Vitamin D helps body effectively absorb Calcium.</p> <p><math>p_1</math> and <math>p_2</math></p> </li> </ol> <p>Simple Components</p> <p>Logical Connector</p>	<p><b>Assessment</b></p> <ol style="list-style-type: none"> <li>c</li> <li>c</li> <li>d</li> <li>d</li> <li>c</li> <li>b</li> <li>b</li> <li>c</li> <li>d</li> <li>d</li> <li>d</li> <li>d</li> <li>d</li> <li>d</li> <li>c</li> </ol>
---	--	--

## ***References***

Dimasuay, Lynie, Jeric Alcala, and Jane Palacio. *General Mathematics: Learner's Material*. Philippines: C & E Publishing, Inc., 2016.

Poem, Family Friends. *Family Friends Poem*. 2006.  
<https://www.familyfriendpoems.com> (accessed June 13, 2020).

General Mathematics Learner's Material. First Edition. 2016. p. 242-245

\*DepED Material: General Mathematics Learner's Material

**For inquiries or feedback, please write or call:**

Department of Education - Bureau of Learning Resources (DepEd-BLR)

Ground Floor, Bonifacio Bldg., DepEd Complex  
Meralco Avenue, Pasig City, Philippines 1600

Telefax: (632) 8634-1072; 8634-1054; 8631-4985

Email Address: [blr.lrqad@deped.gov.ph](mailto:blr.lrqad@deped.gov.ph) \* [blr.lrpdpd@deped.gov.ph](mailto:blr.lrpdpd@deped.gov.ph)