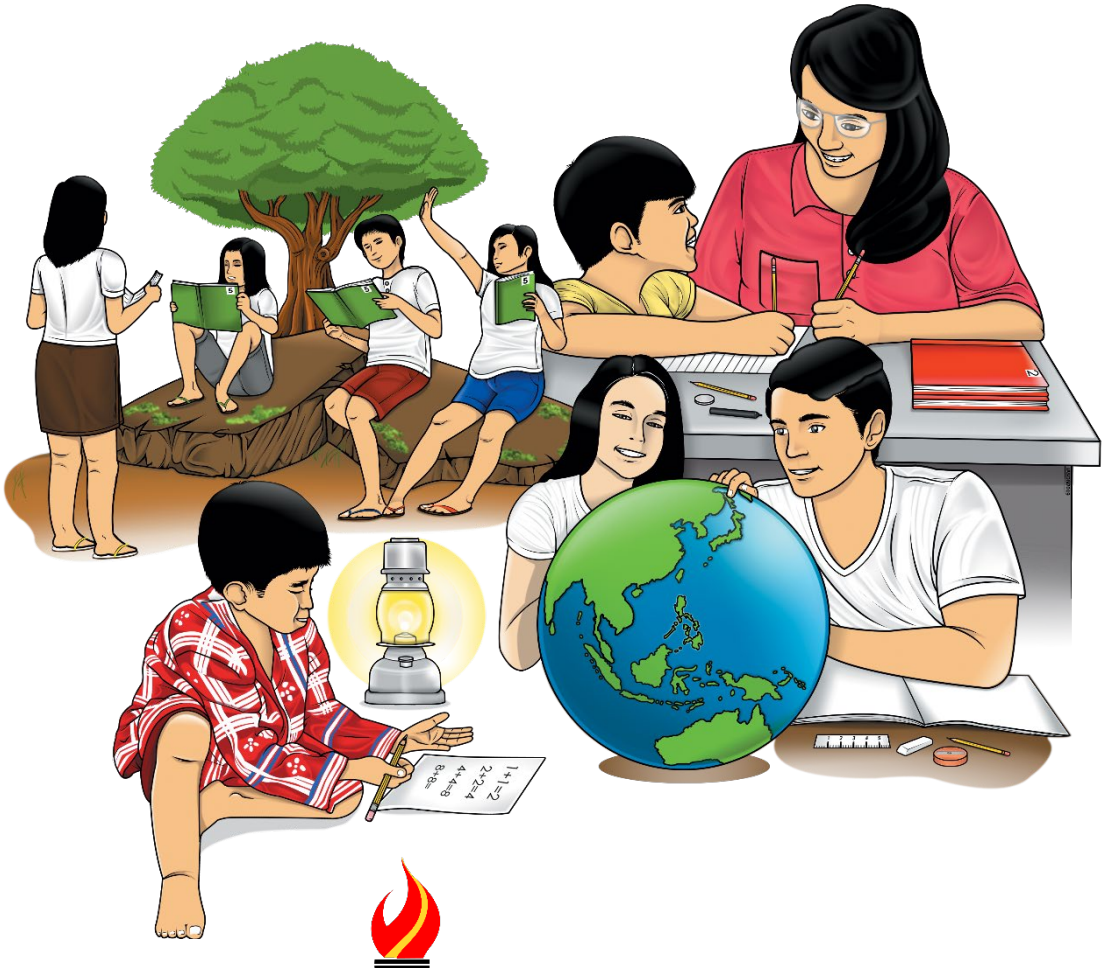
Senior High School

DepED
DEPARTMENT OF EDUCATION

General Mathematics

Quarter 2 – Module 3:
Solving Problems Involving Simple and Compound Interest



ALTERNATIVE DELIVERY MODE
ADM

General Mathematics
Alternative Delivery Mode
Quarter 2 – Module 3: Solving Problems Involving Simple and Compound Interest
First Edition, 2021

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

Development Team of the Module

Writer: Jerson D. Jolo
Editors: Elizabeth D. Lalunio, Elizabeth B. Dizon,Anicia J. Villaruel, Roy O. Natividad
Reviewers: Jerry Punongbayan, Necitas F. Constante, Fritz A. Caturay, Celestina M. Alba, Jerome A. Chavez, Edna Adel, Lirio G. Parale, Flora P. Segovia
Illustrators: Hanna Lorraine G. Luna, Diane C. Jupiter
Layout Artist: Roy O. Natividad, Sayre M. Dialola, Noel Rey T. Estuita, Argie L. Ty, Jilky I. Bosque
Management Team: Francis Cesar B. Bringas
Job S. Zape, Jr.
Ramonito Elumbaring
Reicon C. Condes
Elaine T. Balaogan
Fe M. Ong-ongowan
Elias A. Alicaya Jr.
Gregorio A. Co Jr.
Gregorio T. Mueco
Herbert D. Perez
Lorena S. Walangsumbat
Jee-Ann O. Borines
Asuncion C. Ilao

Printed in the Philippines by _____

Department of Education – Region 4A CALABARZON

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

Senior High School

General Mathematics

Quarter 2 – Module 3:
Solving Problems Involving Simple and Compound Interest

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

You already determine on your previous modules the different characteristics and qualities of simple and compound interest. You also determine the different formula and relationship involve in the simple and compound interest environment which will aid in computing the required components. In this module, you will practice your ability to think critically in solving problems related to this topic

Furthermore, realization regarding the importance and value of money is seen because the problems involve for you to learn this competency are all related to business transactions. You will explore the different problems related to investment and loans to different banks and lending companies. At the end of this module, it is hoped that you will practice a better judgement on spending your money.

Are you now ready for the new lesson? If so, you may proceed to this module and have fun while learning.

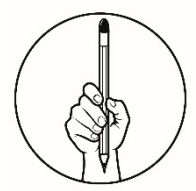
This module is composed of two lessons namely:

Lesson 1 – Solving Problems Involving Simple Interest

Lesson 2 - Solving Problems Involving Compound Interest

After going through this module, you are expected to:

1. solve problems involving simple and compound interest; and
2. apply the different formulas involve in simple and compound interest environment in solving problems.



What I Know

Let's find out how far you might already know about this topic by answering the assessment below.

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

For numbers 1- 5, use the situation below.

Michael borrowed money from Castañas Cooperative Bank at 1.75% simple interest for 5 years to add to his funds for his new business. It was charged ₱ 5,250.00 for interest.

1. What formula will be used to determine the amount of borrowed money?
   a. $I_s = Prt$
   b. $P = \frac{I_s}{rt}$
   c. $I_c = F(1 + j)^n$
   d. $P = \frac{F}{(1+r)^t}$

2. How much money will Michael add on his funds for his new business?
   a. ₱ 459.38
   b. ₱ 4,593.75
   c. ₱ 6,000.00
   d. ₱ 60,000.00

3. How much will he need to pay after 5 years?
   a. ₱ 5,709.38
   b. ₱ 9,843.75
   c. ₱ 11,250.00
   d. ₱ 65,250.00

4. If Michael borrowed the same amount of money payable for the same number of years and Castañas Cooperative Bank offered a promo as part of its anniversary celebration and make all the interest loans 1.25%, how much interest must be paid?
   a. ₱ 3,750.00
   b. ₱ 37,500.00
   c. ₱ 63,750.00
   d. ₱ 70,000.00

5. How much will he need to pay after 6 years if he availed the promo?
    a. ₱ 64,500.00
    b. ₱ 65,250.00
    c. ₱ 70,000.00
    d. ₱ 74,500.00

For numbers 6 – 10 use the problem below.

Gerson Joseph has ₱ 300,000.00 to invest at 1.12% compounded quarterly.

6. What is the total number of compounding frequency if the investment matures after 6 years?
    a. 4
    b. 6
    c. 10
    d. 24

7. How much is the interest rate per conversion period?
    a. 1.12%
    b. 0.19%
    c. 0.28%
    d. 0.05%

8. How much is the maturity value of his investment in 4 years?
    a. ₱ 300,000.00
    b. ₱ 313,725.96
    c. ₱ 466,671.30
    d. ₱ 467,476.38

9. How much is the compound interest after 4 years?
    a. ₱ 3,000.00
    b. ₱ 13,725.96
    c. ₱ 16,671.30
    d. ₱ 16,746.38

10. How much is the additional interest earned if instead of 4 years the investment matures after 6 years?
    a. ₱ 7,096.72
    b. ₱ 13,725.96
    c. ₱ 20,822.68
    d. ₱ 34,548.64

For numbers 11- 15 use the problem below:

Jeanelle is planning to borrow money amounting to ₱ 250,000.00. Limbon Rural Bank is offering 1.25% compounded semi – annually, while Buli Cooperative Bank offers 1% compounded monthly.

11. How much will be the maturity value after 5 years if he borrows from Limbon Rural Bank?
    a. ₱ 266,071.86
    b. ₱ 207,660.68
    c. ₱ 367,071.88
    d. ₱ 376,716. 66

12. How much will be the maturity value after 5 years if he borrows from Buli Cooperative Bank?
    a. ₱ 207,560.78
    b. ₱ 262,812.30
    c. ₱ 376,431.54
    d. ₱ 386,221.32

13. What will be the interest after 5 years if he borrows from Limbon Rural Bank?
    a. ₱ 126,716.66
    b. ₱ 117,071.88
    c. ₱ 42,339.32
    d. ₱ 16,071.86

14. What will be the interest after 5 years if he borrows from Buli Cooperative Bank?
    a. ₱ 136,221.32
    b. ₱ 126,431.54
    c. ₱ 12,812.30
    d. ₱ 2,812.53

15. Which bank offers the smaller interest?
    a. Both
    b. None
    c. Limbon Rural Bank
    d. Buli Cooperative Bank

Lesson 1 Solving Problems Involving Simple Interest

One of the most common scenario in our daily lives is engaging ourselves in a business transaction. It is all but natural because many actions that we undertake involves money. Moreover, when we are talking about money we usually involve ourselves with the different problems that need solutions especially when it comes to the computation of interest and the total amount to be paid at the end of a particular term. So, are you ready to systematically solve problems involving simple interest?

What's In

For you to begin, consider the previous lesson which is essential in this topic.

You already learned that in simple interest the basis of computation is the original principal. There are also different formula to be used in finding the different components in simple interest and these are the following:

$I_s = Prt$; simple interest

$F = P(1 + rt)$ or $= P + I_s$; maturity value

$P = \frac{I_s}{rt}$; principal or present value

where:

P= principal or present value

F = maturity value

r= rate of interest

t= time in years

I_s = Simple Interest

Let us consider the following examples:

1. Find I_s, if P = ₱ 4,500.00, t= 3 and r = 2.5% = 0.025 (in decimal form)

$$I_s = 4500(0.025)(3)$$

$$I_s = ₱\,337.50$$

The simple interest is ₱ 337.50

2. If P = ₱ 3,375.00, r= 1.2% and t= 2 years find F

$$F = P(1 + rt)$$

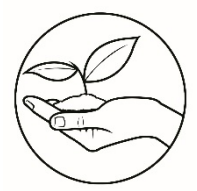
$$F = 3375[1 + (0.012)(2)]$$

F= ₱ 3,456.00

The maturity value is ₱ 3,456.00

Notes to the Teacher

Advise the learners to use scientific calculators because of the nature of the numbers that will be computed. Remind them as well that there are some formulas that will be used in this module that has a different representation of variables in other books. Both will yield the same answer as long as they represent the same components.



What's New

This or That

Febie is planning to invest her money in a bank. She researched some banks which will make a better offer. She narrowed down her choices to these two banks which have the following offers:

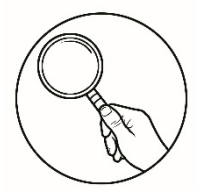
Insurance Bank, a bank that accepts an initial deposit of ₱ 5,000.00 with a simple interest of 1.5% in 3 years.

Trust Bank, a bank that accepts an initial deposit of ₱ 5,000.00 with a simple interest of 1.75% for 6 years

Questions:

1. What are the factors that Febie can consider in choosing a bank?
   _____
2. What are the differences between the offers made by the two banks?
   _____
3. How much interest is offered by the Insurance Bank? Trust Bank?
   _____
4. If you were Febie, which will you choose between the two banks? Why?
   _____
5. If Febie will invest ₱ 5,000.00, how much will be its maturity value in Insurance Bank? Trust Bank?
   _____
6. If you were Febie, what will be your basis in choosing a bank? Which bank will you choose?

   _____



What is It

If you noticed in the activity, there are two banks that offer different condition in earning interest. Insurance Bank offers a rate that is smaller compared to Trust bank. However, the time covered by the Insurance Bank is shorter. If Febie will deposit on Insurance bank her ₱5,000.00 savings will yield an interest of ₱225.00 after 3 years. On the other hand, if she chooses to deposit her money in Trust Bank the interest that she will earn is ₱525.00 but this will only be realized after 6 years. The choice for the bank where Febie will invest her money will depend upon her prerogative if she wanted to have a long term investment she can choose Trust Bank but if she thinks that she will need money in the near future she can invest in the Insurance Bank. There are times that the amount of return is not the only factor to consider in our choice since there are other components involved in the simple interest formula and that is what we will explore in this lesson by solving problems involving simple interest.

In solving problems involving simple interest, we can follow the 4 –step rule of George Polya.

George Polya's 4 – Step Rule

Explore. This step involves careful reading, analyzing, identifying the given and unknown facts in the problem and expressing the unknown in terms of variables.

Plan. In this step, writing an equation that describes the relationships between or among the variables is involved.

Solve. This step requires working out with the written equation and other number relations to determine the required quantities that answer the question in the problem.

Check. The final step that employs the use of other approaches to examine the appropriateness of the answer.

Let us take the following examples.

1. Mariel deposited ₱ 16,000.00 in a bank that offers a simple interest rate of 1.75%. If she placed the money for 7 years, how much interest will she earn?

2. Janice has a loan with an interest rate of 1.5%. The amount of interest is ₱ 2,250.00 for a period of 3 years. How much is her loan?

In solving the problems, we will use the steps provided.

1. Mariel deposited ₱ 16,000.00 in a bank that offers a simple interest rate of 1.75%. If she placed the money for 7 years, how much interest will she earn?

Explore. After reading and understanding the problem, it will be determined that the required component is the simple interest and the following are the known values:

P = ₱ 16,000.00

r = 1.75% or 0. 0175

t= 7 years

Plan. Since the value of simple interest is required, the formula $I_s = Prt$ will be applied.

Solve: Using the formula we will arrive at:

$$I_s = 16{,}000(0.0175)(7)$$

$$I_s = ₱\,1{,}960.00$$

Check. As for checking, we can use other formulas related to simple interest and substitute the value of simple interest. If the obtained value is any of the given facts, then you obtain the correct answer.

Mariel earned ₱ 1,960.00 interest.

2. Janice has a loan with an interest rate of 1.5%. The amount of interest is ₱ 2,250.00 for a period of 3 years. How much is her loan?

Explore. The known values are

I_s = ₱ 2,250.00

r = 1.5% or 0.015

t = 3 years

The required value is the Principal or present value

Plan. Since the problem requires the present value or the principal the formula to be used is

$$P = \frac{I_s}{rt}$$

Solve: Using the formula, we will arrive at:

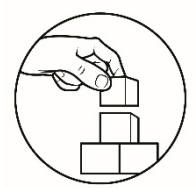
$$P = \frac{I_s}{rt}$$

$$P = \frac{2{,}250}{(0.015)(3)}$$

$$P = \text{₱}\,50{,}000$$

Check. As for checking, the formula in finding the simple interest can be used.

Thus, the amount of her loan is ₱ 50,000.00



What's More

Independent Practice 1

How much did Josie invest if the maturity value is ₱38,500.00 and the simple interest computed is at 1.12% for 6 years?

Guide Questions

1. What is required in the problem? _____
2. What are the given facts? _____
3. What formula will be used to solve the problem? _____
4. How much is the original investment? _____

Independent Assessment 1

Solve the problem in a separate sheet of paper.

Jamie invested a certain amount of money in JDJ Savings Bank with a 2.5% interest rate. He received ₱ 2,250.00 as interest after 2 years from his investment. How much did he invest?

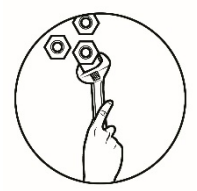
Marinel received ₱ 1,450,500.00 as her inheritance from her parents. She deposited the said amount in a time deposit with 1% interest rate per annum, how much money will be accumulated after 7 years?

What I Have Learned

Write a synthesis journal from the different activities and discussion you encountered from this module. You can recall past experiences and real-life problems and how you can solve and apply it in the future.

Synthesis Journal

What I did	What I learned	How I can use it



What I Can Do

Making Money Happen

You are an investor who is aiming to accumulate a money amounting to ₱100,000.00 at the end of a specific year. Make plans of the amount to be invested, terms and rate of investment for simple interest then choose which between the plans is more realistic for a starting investor.

Components	Plan 1	Plan 2
Present Value		
Rate		
Time		
Simple Interest		
Maturity Value		

Plan Chosen: _____

Reason for Choice: _____

_____

Rubric for Scoring:

Categories	Excellent 3	Fair 2	Poor 1
Decision Making Skills	Excellent decision making skills is fostered.	Fair decision making skills is fostered.	Poor decision making skills is fostered.
Planning	The goal set is achievable and realistic.	The goal set is difficult to achieve.	The goal set is not achievable and not realistic.
Accuracy of Solution	The computations made are all correct.	The computations made have flaws.	There is no attempt in making computation .

Lesson 2 Solving Problems Involving Compound Interest

There are instances wherein the borrower was surprised because the amount of the outstanding balance was changed when they failed to pay their monthly dues. This happens because instead of simple interest the lender use compound interest in computing the maturity value. As a borrower or investor, we must be aware with the different conditions stated in any transactions we engaged in. Our ability to be critical in whatever transactions that we will do, will be of great help in this topic which is solving problems involving compound interest.

What's In

Before starting this lesson, consider the previous module which is essential in this topic.

You already learned that in compound interest the basis of computing the interest is not only the principal but also the accumulated interest until such term.

There is also different formula in getting the different components of the compound interest and they are the following:

$F = P(1 + r)^t$

$F = P(1 + j)^{mt}$; maturity value for compounding more than once a year

$I_c = F - P$; Compound Interest

$P = \frac{F}{(1+j)^{mt}}$; present value

$j = \frac{i^{(m)}}{m}$

Where:

F= maturity value

I_c = compound interest

P= present value or principal amount

t = time in years

r = rate of interest

j= rate of interest for each conversion period

m=frequency of conversion

$i^{(m)}$=annual rate of interest

n= frequency of conversion x time in years

Consider the example below:

If P= ₱ 20,500.00, r= 2% and compounded annually for 3 years, find I_c and F

$$F = P(1 + r)^t$$

$$F = 20{,}500(1 + 0.02)^3$$

$$F = ₱\ 21{,}754.76$$

$$I_c = F - P$$

$$I_c = F - P$$

$$I_c = ₱\ 1{,}254.76$$

The maturity value is ₱ 21,754.76 and the compound interest is ₱ 1,254.76

Notes to the Teacher

Advise the learners to use scientific calculators because of the nature of the numbers that will be computed. Remind them as well that there are some formulas that will be used in this module that have different representations of variables in other books. Both will yield the same answer as long as they represent the same components.

What's New

Which is Which?

Miguel wanted to apply for a loan in a lending company. The company offers different terms of loan which are as follows:

₱ 50,000.00 loan at 1.15% interest compounded semi-annually for 3 years

₱ 50,000.00 loan at 1.25% interest compounded annually for 3 years

Questions:

1. What are the factors that Miguel can consider in choosing the terms of his loan?

   _____

2. What are the differences between the two terms of loans?

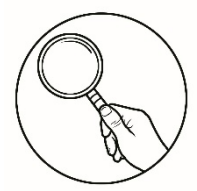
   _____

3. How much interest will a ₱ 50,000.00 loan at 1.15% yield? How much is the interest of ₱ 50,000.00 loan at 1.25%?

   _____

4. If you were Miguel, which between the two terms will you choose? Why?

   _____



What is It

In the previous activity, the type of interest that was used is compound In the previous activity, the type of interest that was used is compound interest. However, there are different terms and conditions that were used. For Miguel to choose wisely the terms he will use for his loan application, there is a need for him to analyze the given conditions first. If he will choose to apply for a loan with 1.15% interest compounded semi - annually for 3 years he will need to pay an interest amounting to ₱ 1,749.99. However, if he chooses to apply a loan at 1.25%interest compounded annually for 3 years he will need to pay ₱ 1,898.54. So, interest wise it is better to apply for a loan with 1.15% interest compounded semi – annually for 3 years.

In choosing the terms, it is important to analyze first the component and the conditions presented so that you can arrive in wise decision. This is also the things that you must remember in solving problems involving compound interest.

In solving problems involving compound interest, we can follow the 4 –step rule of George Polya.

George Polya's 4 – Step Rule

Explore. This step involves careful reding, analyzing, identifying the given and unknown facts in the problem and expressing the unknown in terms of variables.

Plan. In this step writing, an equation that describes the relationships between or among the variables is involved.

Solve. This step requires working out with the written equation and other number relations to determine the required quantities that answer the question in the problem.

Check. The final step that employs the use of other approaches to examine the appropriateness of the answer.

Let us take the following examples:

1. Jasmin borrowed money from a bank at the rate of 1.89% compounded semi – annually. If the amount she borrowed is ₱ 13,000.00, how much interest will she need to pay at the end of 6 years?

2. Arthur wants to set aside an amount to be invested in a fund earning 1.02% compounded quarterly, if he wants to accumulate ₱ 250,000.00 in 4 years, how much must he set aside?

Solving the problems, we will use the steps provided.

1. Jasmin borrowed money from a bank at the rate of 1.89% compounded semi – annually. If the amount she borrowed is ₱ 13,000.00, how much interest will she need to pay at the end of 6 years?

Explore. The known values are

P = ₱ 13,000.00

$i^{(2)}$=0.0189

m = 2

t = 6

mt=12

$j = \frac{i^2}{2} = \frac{0.0189}{2} = 0.00945$

The required variable is the compound interest

Plan. Since the problem suggest that it is compounding more than once a year the formulas:

$$F = P(1 + j)^{mt} \text{ and } I_c = F - P \text{ will be employed.}$$

There is a need to find first the maturity value because it is an important element in the compound interest formula.

Solve: Using the formula we will arrive at:

$$F = P(1 + j)^{mt}$$

$$F = 13{,}000(1 + 0.00945)^{12}$$

$$F = 14{,}553.29$$

After finding the maturity value, we can solve for the compound interest:

$$I_c = F - P$$

$$I_c = 14{,}553.29 - 13{,}000$$

$$I_c = ₱\,1{,}553.29$$

Check. As for checking, the formula in finding the present value can be used.

Thus, the compound interest is ₱ 1,553.29

2. Arthur wants to set aside an amount to be invested in a fund earning 1.02% compounded quarterly, if he wants to accumulate ₱ 250,000.00 in 4 years, how much must he set aside?

Explore. The known values are

F = ₱ 250,000.00

$i^{(4)}$=0.0102

m = 4

j = $\frac{i^4}{4} = \frac{0.0102}{4} = 0.00255$

t = 4

mt=16

The required value is the principal or present value

Plan. Since the problem suggest that it is compounding more than once a year the formulas:

$$F = P(1 + j)^{mt} \text{ and } I_c = F - P \text{ will be employed.}$$

There is a need to find first the maturity value because it is an important element in the compound interest formula.

Solve: Using the formula we will arrive at:

$$F = P(1 + j)^{mt}$$

$$250{,}000 = P(1 + 0.00255)^{(4)(4)}$$

$$250{,}000 = P(1.00255)^{16}$$

$$\frac{250{,}000}{(1.00255)^{16}} = \frac{P(1.00255)^{16}}{(1.00255)^{16}}$$

$$P = 240{,}017.74$$

After finding the maturity value, we can solve for the compound interest:

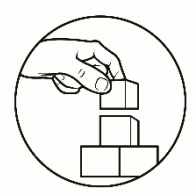
$$I_c = F - P$$

$$I_c = 250{,}000 - 240{,}017.74$$

$$I_c = ₱\,9{,}982.26$$

Check. As for checking, the formula in finding the present value can be used.

Thus, the compound interest is ₱ 9,982.2



What's More

Independent Practice 1

How much must Michelle set aside and invest in a fund earning 2.1% compounded quarterly if she wants to accumulate ₱ 50,000.00 in 5 years?

1. Explore: _____

2. Plan: _____

3. Solve: _____

4. Check: _____

Independent Assessment 1

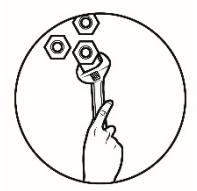
How much should be deposited in a bank paying 1.15% compounded semi – annually to accumulate an amount of ₱ 80,000.00 in 5 years?

What I Have Learned

Write a synthesis journal from the different activities and discussion you encountered from this module. You can recall past experiences and real-life problems and how you can solve and apply it in the future.

Synthesis Journal

What I did	What I learned	How I can use it



What I Can Do

You wanted to put up a business and planning to apply for a loan for your starting capital. The lending company where you inquire offers *Flexi Loan* for new entrepreneurs but the type of interest to be used is compound interest. *Flexi Loan* is a program wherein the new entrepreneur will propose the term of loan and payment subject for the approval of the management. Suppose you are a new entrepreneur, make a proposal for your loan using a compound interest environment.

LOAN PROPOSAL

Name: _____

Business to put up: _____

Brief Description of Business: _____

Source of Funds: _____

Amount of Loan: _____

Nominal rate: _____

Frequency of Conversion: _____

Time in years: _____

Compound Interest: _____

Maturity Value: _____

Terms of Payment (Monthly, Quarterly, Semi Annually, Annually):

_____

Amount of Payment per term: _____

Co Maker: _____

Rubric for Scoring:

Categories	Excellent 3	Fair 2	Poor 1
Decision Making Skills	Excellent decision making skills is fostered.	Fair decision making skills is fostered.	Poor decision making skills is fostered.
Planning	The goal set is achievable and realistic.	The goal set is difficult to achieve.	The goal set is not achievable and not realistic.
Accuracy of Solution	The computations made are all correct.	The computations made have flaws.	There is no attempt in making computation.

Assessment

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

For numbers 1- 5, use the situation below.
Jenny invested money from Lucena Rural Bank at 1.05% simple interest for 3 years. It was charged ₱ 472.50 for interest.

1. What formula will be used to determine the amount invested?
   a. $I_s = Prt$
   b. $P = \frac{I_s}{rt}$
   c. $I_c = F(1 + j)^n$
   d. $P = \frac{F}{(1+r)^t}$

2. How much money did Jenny invest?
   a. ₱ 1,500.00
   b. ₱ 15,000.00
   c. ₱ 150,000.00
   d. ₱ 600,000.00

3. How much is her accumulated money after 3 years?
   a. ₱ 1,947.50.00
   b. ₱ 15,472.50.00
   c. ₱ 150,472.50.00
   d. ₱ 600,472.50.00

4. If Jenny invested the same amount of money at Lucena Cooperative Bank who is offering an interest rate of 1.5% for 3 years how much interest will she gain?
   a. ₱ 325.00
   b. ₱ 475.00
   c. ₱ 675.00
   d. ₱ 825.00

5. How much will she accumulate in 3 years if she invested in Lucena Cooperative Bank?
    a. ₱ 15,325.00
    b. ₱ 15,425.00
    c. ₱ 15,625.00
    d. ₱ 15,675.00

For numbers 6 – 10 use the problem below.

Joy has ₱ 100,000.00 to invest at 1.11% compounded monthly.

6. What is the total number of compounding frequency if the investment matures after 6 years?
    a. 6
    b. 12
    c. 18
    d. 72

7. How much is the interest rate per conversion period?
    a. 0.0925%
    b. 0.925%
    c. 9.25%
    d. 92.5%

8. How much is the maturity value of his investment in 4 years?
    a. ₱ 104,537.90
    b. ₱ 113,725.96
    c. ₱ 166,671.30
    d. ₱ 167,476.38

9. How much is the compound interest after 4 years?
    a. ₱ 4,537.90
    b. ₱ 13,725.96
    c. ₱ 66,671.30
    d. ₱ 67,746.38

10. How much is the additional interest earned if instead of 4 years the investment matures after 6 years?

    a. ₱ 6,883.49
    b. ₱ 4,537.90
    c. ₱ 5,822.68
    d. ₱ 2,345.59

For numbers 11- 15 use the problem below:

Shirley is planning to invest ₱ 150,000.00. San Jose Rural Bank is offering 1.15% compounded semi – annually, while Taysan Cooperative Bank offers 1.25% compounded monthly.

11. How much will be the maturity value after 5 years if he borrows from San Jose Rural Bank?

    a. ₱ 158,851.63
    b. ₱ 207,660.68
    c. ₱ 367,071.88
    d. ₱ 376,716.66

12. How much will be the maturity value after 5 years if he borrows from Taysan Cooperative Bank?

    a. ₱ 159,668.97
    b. ₱ 262,812.30
    c. ₱ 376,431.54
    d. ₱ 386,221.32

13. What will be the interest after 5 years if he borrows from San Jose Rural Bank?

    a. ₱ 26,716.66
    b. ₱ 17,071.88
    c. ₱ 12,339.32
    d. ₱ 8,851.63

14. What will be the interest after 5 years if he borrows from Taysan Cooperative Bank?

    a. ₱ 36,221.32
    b. ₱ 16,431.54
    c. ₱ 9,668.97
    d. ₱ 2,812.53

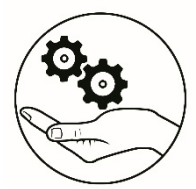
15. Which bank offers the smaller interest?

a. Both

b. None

c. San Jose Rural Bank

d.Taysan Rural Bank



Additional Activities

Solve the following problems on compound interest.

1. James invested ₱150,000.00 at 2.5% interest compounded semi – annually. Find the maturity value if he invests for (a) 4 years? (b) 8 years? (c) How much is the additional interest earned due to the longer time?

2. Jenny is planning to deposit ₱17,000.00 Quezon Metropolitan Bank is offering 7.5% compounded semi-annually for 5 years while Quezon Premier Bank is offering 7% compounded monthly for 5 years. Which bank should she deposit her money?

Answer Key

What I Know

1. B
2. D
3. D
4. A
5. A
6. D
7. C
8. B
9. B
10. A
11. A
12. B
13. D
14. C
15. D

What's More

Lesson 1

Independent Practice 1

Principal Amount/Present Value

F= ₱38,500, r = 1.12% or 0.0112

t = 6 years

F = P(1 + rt)

₱36,075.71

Independent Assessment 1

₱45,000.00

₱1,552,035

Lesson 2

Independent Practice 1

Explore: The known values are

F = ₱50,000.00

i = 2.1% or 0.021

m = 4

t = 5

j =

Plan: The required variable is the Principal or the present value. The formula is

Solve: ₱45,028.59

Check: Use the formula

Independent Assessment 1

₱75,542.19

Assessment

1. B
2. B
3. B
4. C
5. D
6. D
7. A
8. A
9. A
10. D
11. A
12. A
13. D
14. C
15. C

References

General Mathematics Learner's Material. Pasig City: Department of Education, 2016.

General Mathematics Teacher's Guide. Pasig City: Department of Education, 2016.

Orines, Fernando B. *Next Century Mathematics.* Quezon, City: Phoenix Publishing House, 2016.

Oronce, Orlando A. *General Mathematics.* Sampaloc, Manila: Re Bookstore, Inc., 2017.

Santos, Durawin C.,Biason, Ma. Garnet P. *Math Activated:Engage Yourself and Our World General Mathematics.* Makati, City: Salesiana Books by Don Bosco Press, Inc., 2016.

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 * blr.lrpd@deped.gov.ph