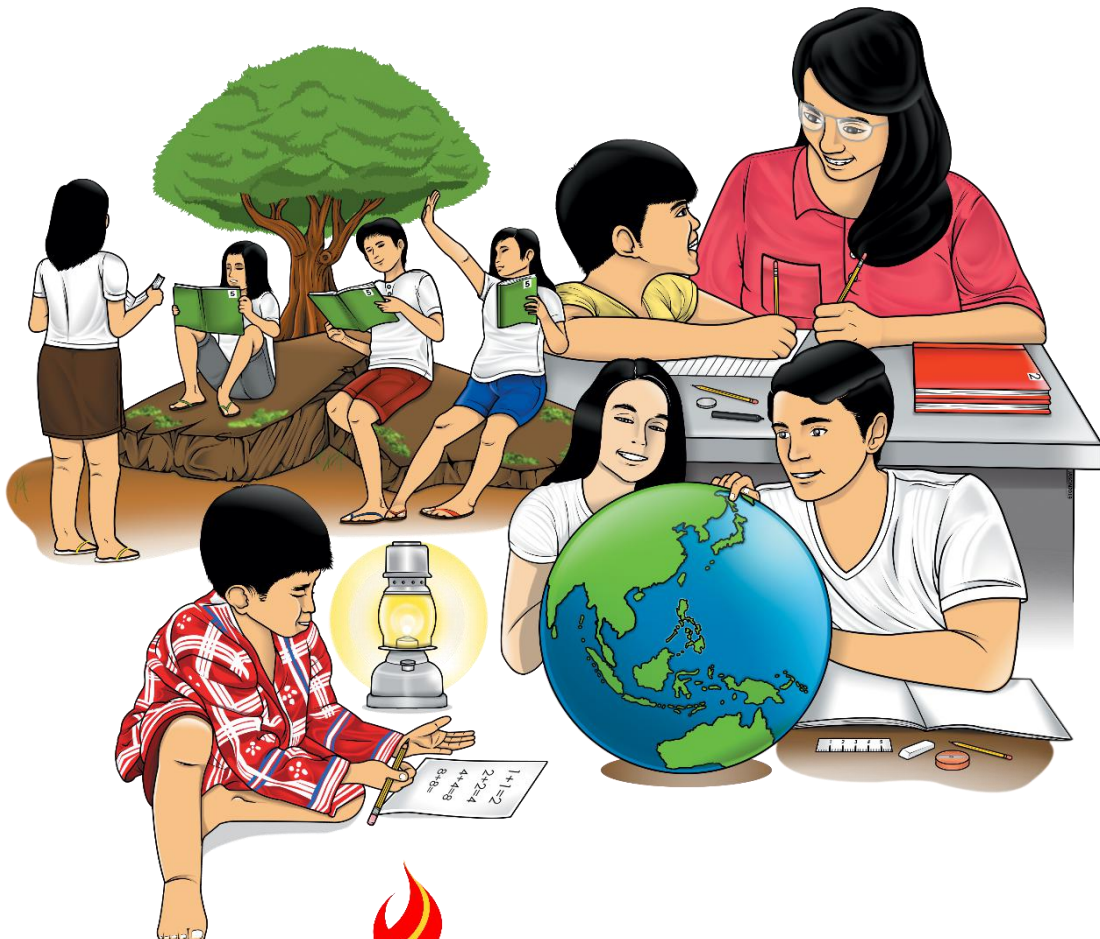


Senior High School

General Mathematics

Quarter 2 – Module 1: Simple and Compound Interests



General Mathematics – Senior High School
Alternative Delivery Mode
Quarter 2 – Module 1: Simple and Compound Interests
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Senior High School

General Mathematics

Quarter 2 – Module 1:

Simple and Compound Interests

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

Hello my dear learners!

Are you familiar with the cliché that says, “Nothing is permanent except change”? A big change happens to all of us. No one expected this, but we have to live with it. Instead of taking it negatively let’s do our part to achieve a positive result.

Have you met the subject matters about interest, loan, savings, finances, expenses, and investment when you were in Junior High or even in Elementary? Have you heard your parents, relatives, classmates, teachers, friends, or even your neighbor talking about these matters? You can actually encounter those not only in school but anywhere you go like your home, market, malls, banks, and other public places.

So here we go to the next module about Math of Investment. I hope you learned the previous module for logical sequence.

This lesson helps you understand thoroughly what is simple and compound interest. It will let you decide correctly on how and where to save money. Nowadays savings is very important, it is like saying “If seems that if you do not have savings you are out or you don’t belong” and it will then make you analyse whether to save in simple or compound on your favor, as a borrower or an investor.

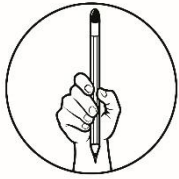
Are you ready now? Let’s begin working on this module. Open your heart and mind and have focus. Good Luck!

The module is composed of two lessons namely:

- Lesson 1 – Simple Interest
- Lesson 2 – Compound Interest

After going through this module, you are expected to:

1. illustrate simple and compound interests; and
2. distinguish between simple and compound interests.



What I Know

Dear students, I know that this is a new lesson for you I need you to be patient in answering this to test what you already know about the lesson. Good luck!

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

1. What interest remains constant throughout the investment term?
 - a. simple
 - b. compound
 - c. annuity due
 - d. ordinary annuity
2. It is an interest computed based on the principal amount.
 - a. simple
 - b. compound
 - c. annuity due
 - d. ordinary annuity
3. What is the difference between simple and compound interest?
 - a. Simple yields higher interest than compound interest.
 - b. Simple interest has a shorter term than compound interest.
 - c. Simple interest is always better than compound interest.
 - d. Simple interest is computed based on the principal while compound interest is computed based on the principal and also on the accumulated past interests.
4. If you would like to invest money, which bank offer would you prefer if you do not plan to withdraw your money in 2 years?
 - a. 5% simple interest per annum
 - b. 4% compounded interest per annum
 - c. 3% compounded interest semi-annually
 - d. 2% compounded interest quarterly
5. Which of the following statement is true about the borrower or debtor?
 - a. It is the amount of money borrowed or invested on the origin date.
 - b. It is the interest is computed on the principal and also on the accumulated past interests
 - c. It refers to the person (or institution) who owes the money or avails of the fund from the lender.
 - d. It refers to the person (or institution) who invests the money or makes the funds available.
6. Which of the following statements is/are true?
 - I. Compound interest of a loan favors the borrower.
 - II. Simple interest remains constant throughout the investment term.
 - III. In compound interest, the interest from the previous year also earns interest.
 - a. I only
 - b. I and II
 - c. II and III
 - d. I and III

7. Which of the following formula can be used to solve for the simple interest?
- | | |
|---------------------------|---------------------|
| a. $I = Prt$ | c. $A = P(1 + rt)$ |
| b. $SI = \frac{Prt}{100}$ | d. All of the above |
8. It is an amount after t years that the lender receives from the borrower on the maturity date.
- | | |
|------------------|-------------------|
| a. loan date | c. maturity value |
| b. maturity date | d. term |
9. Which of the following describes time or term?
- It is the date on which money is received by the borrower.
 - It is the amount paid or learned for the use of money.
 - It is the date of which the money borrowed or loan is to be completely repaid
 - It is the amount of time in years the money is borrowed or invested; length of time between the origin and maturity dates
10. In the formula, $I = Prt$, what is r ?
- | | |
|---------------|---------------------|
| a. revenue | c. repaid |
| b. real value | d. rate of interest |
11. It is the amount of money borrowed or invested on the origin date.
- | | |
|--------------------|--------------------|
| a. future value | c. maturity value |
| b. principal value | d. repayment value |
12. A person (or institution) who invests the money or makes the funds available.
- | | |
|-------------|-------------------------|
| a. Lender | c. Both a and b |
| b. Creditor | d. None of the choices. |
13. It refers to an interest that is computed based on the principal and interest accumulated every conversion period.
- | | |
|-------------|---------------------|
| a. simple | c. annuity due |
| b. compound | d. ordinary annuity |
14. It refers to the amount after t years that the lender receives from the borrower on the maturity date?
- | | |
|------------------|---------------------|
| a. present value | c. interest |
| b. future value | d. ordinary annuity |
15. Which of the following formula can be used to solve for the compound interest?
- | | |
|---|-------------------------|
| a. $A = P\left(1 + \frac{r}{n}\right)^t$ | c. $C = P(1 + r)^n - 1$ |
| b. $A = P\left(1 + \frac{r}{n}\right)^{nt}$ | d. Both a and b |

Lesson

1

Simple Interest

It's quite difficult to pursue our dreams, especially during these trying times that our country is experiencing the COVID-19 pandemic. Dream is just a dream until you decide to make it happen. We can realize our dreams through perseverance, patience, and determination. For now, continue to acquire new knowledge, develop your skills, and cultivate your talents because these will be your weapon to succeed in life.

I hope that you somehow encountered some math of investment terms like simple interest, loans, savings, investments, maturity value, money, resources, and the like. This lesson will help you understand simple interest. Different terminologies about the simple interest that you can use for the succeeding lesson once you go deeper on the problem solving about simple interest.



What's In

Match Me! Reveal Me!

Match the terminologies in column B to its definition or statement in column A. Write your answer on the blanks provided below the trivia question inside the box. Your answer should reveal an important Filipino value that everyone should possess. Finally, answer the guided questions that follow.

A	B
1. It is the amount of time in years the money is borrowed or invested.	S. Creditor
2. It is the date on which the total amount borrowed with interest is to be completely repaid.	R. Time or Term
3. It refers to the person or institution that invests the money or makes the funds available.	C. Origin/Loan Date
4. It is the amount of money borrowed or invested on the origin date.	E. Principal
5. It is the amount after t years that the lender receives from the borrower on the maturity date.	P. Maturity date
6. It is the date on which money is received by the borrower.	T. Maturity/Future Value

What Filipino value is shown when a person giving the greeting bows down towards another person older than him or taking his hand or her hand and pressing it on the forehead? This is an important Filipino value that the younger generations should never forget and performed with the right hand and saying "Mano po" to the elders.

$\frac{\quad}{1}$ $\frac{\quad}{4}$ $\frac{\quad}{3}$ $\frac{\quad}{2}$ $\frac{\quad}{4}$ $\frac{\quad}{6}$ $\frac{\quad}{5}$

Guided Questions:

1. How will you define interest in your own words? _____
_____.
2. Based on the definition given will you be able to know some important terms in simple business math? If yes try to elaborate just one term. _____
_____.
3. Are all the terms given, important in finding simple interest? Justify your answer. _____.

This module introduces a new chapter in General Mathematics. Specifically it introduces Math of Investment others call it Business Mathematics but either way it still includes finances, money, credit, investments, banking policies, and other topics that are related to finances. I know that some of you have encountered the words or terminologies mentioned above that would be a big help to start.



Notes to the Teacher

You may suggest to the learners to use their gadgets at home and be resourceful to search more information and different terms use for math of investment and Business mathematics. Ask them what they expect to learn in this subject since it is new to them. This will give you an idea on how to develop your lesson.



What's New

What Am I!

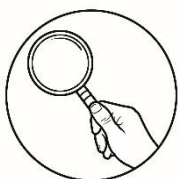
Read and analyze! Choose your answers among the ***principal***, ***simple interest***, ***interest rate*** and ***term***. Write your answer on the blank provided for each number.

1. I am the _____ which is calculated by multiplying the principal, the rate of interest and the time in years.
2. I am the _____, and simple interest is computed based on me and the time in years.
3. I am the _____, usually I am in percent and also called as the rate of increase of interest.
4. I am the _____, and I am the length of time between the origin and maturity dates.

Simply Saving!

Using the idea that you learned in the What I am? activity, try to answer the problem below. If you find difficulty solving the problem, that is fine. Continue reading this module and soon you will find the appropriate solution.

A working student in one of the biggest fast-food restaurants in Lucena City wants to save for the upcoming school year. He wants to deposit his money into a Filipino owned bank so that even in a simple way he can help his fellow Filipino. Supposed his monthly salary is ₱10,000.00 and it was deposited to an account that earns a simple interest of 2.75% per annum. Find the simple interest after 6 months, one year, and 18 months.



What is It

The *Name Me* activity previously summarizes the definition of the following terms:

Simple Interest (I_s) – interest that is computed on the principal. The interest remains constant throughout the term.

Lender or creditor – person (or institution) who invests the money or makes the funds available

Borrower or debtor – person (or institution) who owes the money or avails of the funds from the lender

Origin or loan date – date on which money is received by the borrower

Repayment date or maturity date – date on which the money borrowed or loan is to be completely repaid

Time or term (t) – amount of time in years the money is borrowed or invested; length of time between the origin and maturity dates

Principal (P) – amount of money borrowed or invested on the origin date

Rate(r) – annual rate, usually in percent, charged by the lender, or rate of increase of the investment

Interest (I) – amount paid or earned for the use of money

Maturity value or future value (F) – amount after t years that the lender receives from the borrower on the maturity date

To solve the problem in the *Simply Saving* activity which is a common scenario among Filipino working students wherein many can relate.

You can solve this problem using the simple interest formula

$$I_s = Prt$$

where:

I_s = Simple Interest

P = Principal or amount invested or borrowed

r = simple interest rate

t = term of time in years

Here are the steps to find the simple interest:

Step 1: Identify the given and the unknown

$$P = \text{₱}10,000.00$$

$$r = 2.75\% \text{ or } 0.0275$$

$$t = 0.5 \text{ or } \frac{6}{12} \text{ (6 months), } 1 \text{ (1 year), } 1.5 \text{ or } \frac{18}{12} \text{ (18 months)}$$

$$I_s = ?$$

Step 2: Substitute the given to the formula

$$I_s = Prt$$

For 6 months

$$\begin{aligned} I_s &= (\text{₱}10,000.00) (0.0275) (0.5) \\ &= \text{₱}137.50 \end{aligned}$$

For 1 year

$$\begin{aligned} I_s &= (\text{₱}10,000.00) (0.0275) (1) \\ &= \text{₱}275.00 \end{aligned}$$

For 18 months

$$\begin{aligned} I_s &= (\text{₱}10,000.00) (0.0275) (1.5) \\ &= \text{₱}412.50 \end{aligned}$$

Notice that the time is divided into 12 since there are 12 months in a year. You will also do the same if the given is in days, the divisor will be 360 for ordinary interest or 365 if you are looking for exact interest. Don't worry because it will be indicated in the problem if you will compute for the ordinary or exact interests but if not indicated always use the ordinary interest which consists of 360 days. In case that the given time is in years then multiply it as is.

Now that you have the idea of how to solve simple interest study the example below.

Example

Problem Solving: Due to COVID-19 pandemic Miss Dada a female resident of Brgy. May Pagkakaisa somewhere in Quezon Province thinks of a business that can provide for her needs as well as the need of her neighbors so she can be of help even in this trying time.

Since she doesn't have money on hand, she decided to borrow from a bank as the start-up capital of ₱50,000.00 at 7% simple interest rate payable within 5 years. Compute for the interest yield.

Solution.

Simple Interest

Time (t)	Principal (P)	Interest Rate (r)	Simple Interest		Amount after (t) years (Maturity Value)
			Solution	Answer	
1	50,000	7%	$(50,000)(0.07)(1)$	3,500	$50,000 + 3,500 = 53,500$
2	50,000	7%	$(50,000)(0.07)(2)$	7,000	$50,000 + 7,000 = 57,000$
3	50,000	7%	$(50,000)(0.07)(3)$	10,500	$50,000 + 10,500 = 60,500$
4	50,000	7%	$(50,000)(0.07)(4)$	14,000	$50,000 + 14,000 = 64,000$
5	50,000	7%	$(50,000)(0.07)(5)$	17,500	$50,000 + 17,500 = 67,500$

Notice the simple interest remains constant throughout the year and you only multiply with the term that you are computing. Therefore, if you are a borrower make sure that the interest on your loan is not too high. Try to compute it first before you apply for a loan. Compare first the interest and the term of the different lending institutions before you decide to consider a loan or investment.



What is It

Activity 1.1

Write the word **TRUE** if the statement is correct, otherwise write **FALSE** on a separate answer sheet. If your answer is **FALSE** write the word or phrase that will make the statement correct.

1. Simple interest changes throughout the investment term.
2. Simple interest computation will always be based on the original principal.
3. Interest is the amount of money invested or borrowed originally.
4. Simple interest is the product of the principal, rate of interest, and time.
5. In ordinary interest, the interest is computed based on 365 days.

Activity 1.2

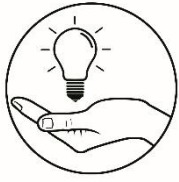
Match the corresponding term/formula in column **B** with its definition in column **A**. Write letter only on the blank provided for each number.

A	B
___ 1. It is the amount that is charged for the privilege of borrowing money.	a. $I_s = Prt$
___ 2. It refers to a person or institution who owes money.	b. Principal
___ 3. It is the amount of money originally invested or borrowed.	c. $F = P(1 + r)^t$
___ 4. It is the formula for computing simple interest.	d. Lender/Creditor
___ 5. It refers to the person/institution who made the funds available.	e. Interest
	f. Borrower/Debtor

Activity 1.3

Solve the following problems.

A couple with three children are peacefully living in a barangay near the City proper. The husband is a government employee while the wife is a rug sewer. They always remind their children about this: "*Bilhin and kailangan at huwag kailanganin ang hindi kayang bilhin*". Because of this teaching, the children open a joint account to a certain cooperative to have a better investment. The total amount they earned in selling rugs, was put in their account in the cooperative to help their parents. Their total earnings amounting to ₱5,000.00 will earn an interest rate of 7.5% per year. Help them to compute for the simple interest earned and maturity value, if their money will be invested in 3 years.



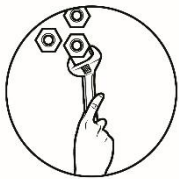
What I Have Learned

A. Please read the sentences carefully and fill in the missing word/s by writing your answer on the blanks provided.

1. Some who have the privilege of using a fund and promise to pay at some future date is called _____.
2. The amount that will be received at maturity date is the _____.
3. Simple interest is the interest computed on the the _____.

4. The date on which the loan amount is to be fully paid is called _____.
5. _____ is the amount calculated on the initial principal and with fixed interest throughout the periods or term.

B. Give the formula to find the simple interest.



What I Can Do

Read and analyze the situation below then answers the question given.

A typhoon severely damaged a certain place in Quezon Province. The wealthiest family in that area who happened to have large businesses have thought of a way to help SME's or the small business enterprises to recover, as well as those poor families affected by the said typhoon. The family then decided to allot funds to lend to those who are victims of calamity by giving a simple interest loan for only 10% per annum. If the family was able to lend ₱1,500,000.00, how much interest would be earned after 5 years? Use a model table discussed in this lesson to show the simple interest earned. What do you think about Filipino values being shown in this situation? Can you think of other means to help the community use simple interest?

Your output will be graded, according to this rubric.

Criteria	4	3	2	1
Comprehension	Identify, analyze and understand all of the main issues in the study	Identify, analyze and understand most of the main issues in the study	Identify, analyze and understand some of the main issues in the study	Identify, analyze and understand few of the main issues in the problem solving
Accuracy of the solution	With a complete and accurate solution.	With the correct answer but the incomplete solution	With some data missing to complete the solution,	Incomplete and incorrect solution.
Analysis	Insightful and thorough analysis and exploration of the questions asked	Thorough analysis and exploration of the questions asked	Seeming analysis and exploration of the questions asked	Incomplete analysis and exploration of the questions asked
Filipino Values	With at least three Filipino values which are significant and related to the problem	With two Filipino values which are significant and related to the problem	With one Filipino value which is significant and related to the problem	Without Filipino value that related to the problem

Lesson

2

Compound Interest

This lesson will lead you to understand another type of earning interest, the compound interest. If you understood the simple interest in the previous lesson, this lesson will give you knowledge of how simple interest differs from compound interest. This will lead you to compare your investment in the future from different options. It will also help you to make wise decisions if you will apply for loans from a bank to start your own business or if you need funds for emergency purposes. Being financially literate is also a skill that will help you to become successful in handling money and eventually lead you to a good life.



What's In

Match Me! Reveal Me, for the second time!

Match the terminologies in column B to its definition or statement in column A. Write your answer on the blanks provided below the trivia question inside the box. Your answer should reveal one of the products that we should be proud of as a Filipino. Finally, answer the guided questions that follow.

A	B
1. It is the amount paid or earned for the use of money.	O. Borrower/Debtor
2. It refers to the person or institution who owes money or avails of the funds from the lender.	N. Compound Interest
3. It is the interest computed on the principal and also on the accumulated past interest	T. Interest
4. It is the percentage of the principal that will be changed for a specified period of time.	C. rate of interest
5. It refers to maturity value.	U. Future Value

This is one of the fruit bearing trees found in the Philippines. We are also second to the highest exporter of this product all over the world. It is also traditionally called “the tree of life” because all the parts of this tree has varied uses, from housing materials, novelty items up to food products.

$\frac{\quad}{4}$ $\frac{\quad}{2}$ $\frac{\quad}{4}$ $\frac{\quad}{2}$ $\frac{\quad}{3}$ $\frac{\quad}{5}$ $\frac{\quad}{1}$

Guide Questions:

1. How will define compound interest? _____
2. Based on the definition given will able to know some important terms in compound interest? If yes. name those terms. _____

The activity gives you a glimpse of what the lesson is all about. It is all about compound interest and what makes this interest differ from the simple interest



What's New

Be hospitable and helpful, please!

Read and analyze each item and write the word **GENEROUS** if your answer is true and write **HELPFUL** if otherwise. These two words will remind you of Filipino values, to be kind and generous even in the most difficult situation if you see someone **on** difficult (**false**) situation.

1. Simple interest is computed using the formula $I_s = Prt$.
2. Compound interest is computed on the principal and also on the accumulated past interests.
3. An amount of ₱10,000.00 will yield more interest if it is invested in a bank that offers a simple interest of 10% annually than a bank that offers a 10% compound interest annually if it will be invested for three years.
4. Compound interest works best over a short period of time.
5. A borrower or debtor prefers compound interest rather than simple interest.
6. In compound interest, the interest from the previous years also earns interest.
7. It is better to deposit in a bank that offers simple interest than a bank that offers compound interest.

Are you confident about your answer? Are you generous enough to share your answer and help your classmates to answer each item correctly? Or do you think you still need help from your classmates? If you are still in doubt, don't worry, the next discussion will give your ideas of the correct answer.



What is It

Compound interest (I_c) is the interest computed on the principal and also on the accumulated past interest, so compound interest is a way to earn money because you don't just earn using your original money, but also the interest you earned.

To give you a deeper concept of compound interest, reflect on the following questions: Have you ever lend money to someone like a friend, sibling, or relative? If so, would you let them pay more than, less than or just equal the amount that you lent to them? Since you consider to help them, probably you will answer just an equal amount is ok even though your money has been used for a period of time. But, I'm sure some will answer that you should receive more than the amount they borrowed and no one will say that you should receive less than the amount they borrowed. I know you have your own reasons but let us see if compound interest will change your view in life regarding loans or borrowings, savings, and investment.

Are you familiar with credit cards? We have what we call "Perma-Debt" which means a continuous outstanding balance of a credit card where they pay the monthly minimum that fits in their budget to lessen the burden of interest monthly but tries to add some debt again on the following month so the debts never end. So why did I tell you this? If you are a debtor, compound interest is not good for you. Better yet pay your debt in full the soonest possible so that the burden of interest will not be on your shoulder. Conversely, if you are an investor, compound interest is your best buddy and it is better to invest in a long period of time for you to have a greater return of your investment through interest earned. So, if you have the means or a way to save and invest early, you must consider it as soon as possible for you to gain more money in the future.

Now, that you already know how to solve simple interest. Study the example below and compare this to the example given in Lesson 1. (Note: Same problem was given here to compare the interest earned in simple and compound interests)

Example

Problem Solving: Due to COVID-19 pandemic Miss Dada a female resident of Brgy. May Pagkakaisa somewhere in Quezon Province thinks of a business that can provide for her needs as well as the need of her neighbors so she can be of help even in this trying time.

Since she doesn't have money on hand, she decided to borrow from a bank with a start-up capital of ₱50,000.00 at 7% interest rate compounded annually and payable within 5 years. Compute for the interest yield.

Solution.

Compound Interest

Time (t)	Amount at the start of year t	Interest Rate (r)	Compound Interest		Amount at the end of year t (Maturity Value)
			Solution	Answer	
1	50,000	7%	$(50,000)(0.07)(1)$	3,500	$50,000 + 3,500 = 53,500$
2	53,500	7%	$(53,500)(0.07)(1)$	3,745	$53,500 + 3,745 = 57,245$
3	57,245	7%	$(57,245)(0.07)(1)$	4,007.15	$57,245 + 4,007.15 = 61,252.15$
4	61,252.15	7%	$(61,252.15)(0.07)(1)$	4,827.65	$61,252.15 + 4,827.65 = 66,079.80$
5	66,079.80	7%	$(66,079.80)(0.07)(1)$	4,625.59	$66,079.80 + 4,625.59 = 70,705.39$

Compound interest includes the interest from the current year and added on the principal at the start of the following year, which means that the previous interest earns interest as well, together with the principal until fully paid. So the interest yielded on simple interest is lower than the compound interest. The amount at the end of 5 years in simple interest is ₱67,500.00 while in compound interest it is ₱70,705.39. Therefore, if you are a borrower make sure that the interest on your loan is not too high if you will find a lender that offers simple interest better grab it that a lender who offers compound interest. On the other hand, if you are an investor learn to invest your money to an interest that will yield higher returns like compound interest. If you will be a lender in the future, I hope that you will not be abusive regarding the interest, be reasonable, and act generously by helping others who needed you the most.

Notice that the formula to find the future value in a compound interest is given by

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

where:

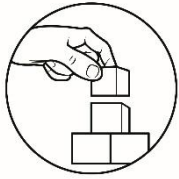
F = future value

P = principal amount

r = compound interest rate

t = time or time in years

Also, to find the compound interest just deduct the principal (P) from the computed future value (F). In the next module, you will encounter a situation where interest will be compounded more than once a year.



What's More

Activity 2.1

Write the word **TRUE** if the statement is correct; otherwise write **FALSE** on a separate answer sheet. If your answer is **FALSE**, write the word or phrase that will make the statement correct.

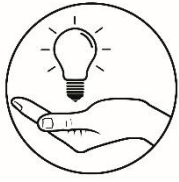
1. Perma-debt decreases the amount of money available on hand to spend in the future.
2. Compound interest works well if you save early for retirement or invest early.
3. The longer it takes for you to pay a debt the smaller the interest you pay.
4. If borrowers pay at least the minimum payment every month of their debt, their must not be of good standing.
5. If you are planning to invest, compound interest is better than the simple interest.

Activity 2.2

Your father asked you about investment and wanted to know the interest that will be earned if he will invest ₱500,000.00 in a certain bank that offers an annual compounding interest of 8% for 5 years.

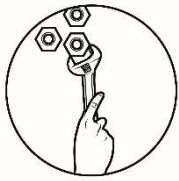
Complete the table below to help your father.

Time (t)	Amount at the start of year t	Interest Rate (r)	Compound Interest		Amount at the end of year t (Maturity Value)
			Solution	Answer	
1	500,000	8%	$(500,000)(0.08)(1)$		
2	540,000	8%		43,200	
3		8%	$(583,200)(0.08)(1)$		$583,200 + 46,656 = 629,856$
4		8%		50,388.48	$629,856 + 50,388.48 = 680,244.48$
5	680,244.48	8%		54,419.56	



What I Have Learned

- A. Please read the sentences carefully and fill in the missing word/s by writing your answer on the line/s provided.
1. The amount calculated on the principal and accumulated interest from previous periods on a deposit or loan is _____.
 2. Compound interest yields _____ amount than simple interest.
 3. If you are an investor, it is better to invest your money in _____.
 4. If you are borrower it is better to borrow money in a lender who offers _____.
 5. Debt using credit cards is an example of _____.
- B. Distinguish compound interest from a simple interest.



What I Can Do

Read and analyze the situation below then answers the question given.

The effect of COVID-19 pandemic has overwhelmed everyone. Nobody expected that it will occur in the early year of the 21st century. It has affected the health, economy, education, and lives of many people around the world. It is during these hard times that we need to show our deepest concern not only to ourselves, and to our family but our government as well. By simply following the safety precautions against the coronavirus like staying at home, wearing face mask and shield properly, and observing social distancing, we can show our support in fighting to end this pandemic.

Now, everyone including you can help amidst pandemic or any kind of calamity if you have the basic knowledge of value investing.

Assuming that somebody from your family is planning to borrow money from a bank or institution to start a business. You are asked to help him to look for a bank or lending institution that could offer the lowest interest rate. List all the necessary information and possible lending institutions by researching within your community. Identify the interest rate offered by different institutions and the rules and regulations when it comes to payment. Compare their offers and decide on the best lender where you can borrow funds. Submit a short report of your research.

Here is the rubric that will serve as your guide to finish the task.

Criteria	4	3	2	1
Knowledge about compound interest	Demonstrate a systematic understanding when deciding with regards to value investing using compound interest	Demonstrate an understanding when deciding with regards to value investing using compound interest	Demonstrate a partial understanding when deciding with regards to value investing using compound interest	Demonstrate a little understanding when deciding with regards to value investing using compound interest
Connections	Independently determines the connections of math of investment to the decision making using simple and compound interest	Determines the connections of math of investment to the decision making using simple and compound interest	Some effectiveness evidence when determining the connections of math of investment to the decision making using simple and compound interest	Requires support when determining the connections of math of investment to the decision making using simple and compound interest
Accuracy of data	With complete and accurate data to help with decision making	With considerable completeness and accuracy of data to help with decision making	With partially completeness and accuracy of data to help with decision making	With incomplete and inaccurate data

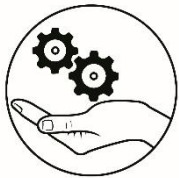


Assessment

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

- Which interest is computed on the principal and then added to it?
 - simple
 - compound
 - annuity due
 - ordinary annuity
- The simple interest formula is $I = Prt$. What does the t represent?
 - principle
 - time
 - interest
 - percent rate
- All of the following are used to find simple interest, EXCEPT?
 - principal
 - rate of interest
 - time
 - future value
- It is the amount after t years that the lender will receive from the borrower.
 - future Value
 - present Value
 - interest
 - principal
- Which of the following describes rate (r)?
 - It is the amount of money borrowed or invested on the origin date.
 - It is the amount paid or earned for the use of money.
 - It is charged by the lender, or rate of increase of the investment
 - It is computed on the principal and also on the accumulated past interests.
- Rate of interest must be converted into _____ before substituting to the formula of finding the interest.
 - fractions
 - decimals
 - mixed numbers
 - percentage
- The principal in the formula $I = Prt$ is _____.
 - the amount of money borrowed or deposited
 - the percent interest for his year
 - the amount taxed
 - the amount the bank owes you for being a customer at their bank
- The interest from the previous year also earns interest, which of the following describes the statement?
 - simple
 - compound
 - rate
 - time
- Variable P in simple interest formula when you are the creditor stands for?
 - Original Amount borrowed
 - Original Amount invested
 - Maturity Amount Borrowed
 - Maturity Amount invested
- The following statements are true EXCEPT _____.
 - The amount invested to a compounded interest yields to greater maturity value than to a simple interest.
 - The amount borrowed from a simple interest yields to a smaller maturity value than a compound interest
 - The simple interest yields interest only from initial principal amount.
 - The interest in a compound account yields interest only from initial principal amount.

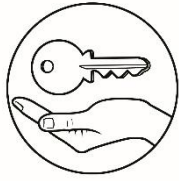
11. Compound interest is favorable to the following except?
- investor of a retirement fund
 - person who saves in bank
 - investor of stocks
 - borrower of a loan
12. Which of the following will yield a higher interest?
- Investing in a bank that offers a simple interest rate of 10% annually for 2 years
 - Investing in a cooperative that offers an interest rate of 10% compounding annually for 2 years
 - Saving money in a piggy bank for 2 years
 - Both a and b
13. What formula can be used to find maturity (future) value of a compound interest?
- $F = P + I$
 - $F = (1 + r)^t$
 - Both a and b
 - None of the choices.
14. What interest is computed on the principal and also on the accumulated past interests?
- simple
 - compound
 - annuity due
 - ordinary Annuity
15. Which of the following can be used to find compound interest?
- $I = F - P$
 - $F = P(1+r)^t$
 - $P = \frac{F}{(1+r)^t}$
 - $I = Prt$



Additional Activities

Solve the following:

- Supposed that a local farmer wants to borrow money from Landbank of the Philippines to start the organic farming in his one (1) hectare of agricultural land. The farmer needs ₱ 150,000.00 as start-up capital. The bank offers him 10% interest rate compounded annually. Compute for the total amount to be paid every year for 5 years. Show your answer in tabular form.
- A private school teacher plans to apply for a housing loan in the Home Mutual Development Fund or Pag-ibig. It offers her a loan amounting to ₱1,500,000.00, considering all the rules and regulations regarding the policy with 6.5% interest per annum payable within 15 years. Compare the maturity value if interest will be paid using simple interest and/or compound interest compounded yearly. Please use the model table shown in this module to compute and compare the interest.



Answer Key

Assessment

1. a
2. b
3. d
4. a
5. c
6. b
7. a
8. b
9. a
10. d
11. d
12. b
13. b
14. b
15. d

What's More

Activity 1.1

1. False; remains constant
2. True
3. False; it must be the principal is the original amount.
4. True.
5. False; 360

Activity 1.2

1. E
2. F
3. B
4. A
5. D

Activity 1.3

a. $I = ₱1,125.00$; $F = ₱4,125.00$
 b. $I = ₱1,211.48$; $F = ₱6,211.48$

What's More

Activity 2.1

1. True
2. True
3. False; the longer you pay debt the greater interest you pay.
4. False; the debtor is still in good standing since no penalty will be charge.
5. True.

Activity 2.2

Time at the end of year t	Amount at the start of year t	Interest at Rate (t)	Compound Interest	
			Solution	Answer
1	500,000	8%	$(500,000)(0.08(1))$	$40,000$
2	540,000	8%	$(540,000)(0.08(1))$	$43,200$
3	583,200	8%	$(583,200)(0.08(1))$	$46,656$
4	629,856	8%	$(629,856)(0.08(1))$	$50,388.48$
5	680,244.48	8%	$(680,244.48)(0.08(1))$	$54,419.55$
				$234,664.04$

What I Know

1. a
2. a
3. d
4. a
5. c
6. c
7. a
8. c
9. b
10. d
11. b
12. c
13. a
14. b
15. d

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