

GENERAL MATHEMATICS 11

Name: _____

Grade Level: _____

Date: _____

Score: _____

Learning Activity Sheet

SOLVES PROBLEMS INVOLVING SIMPLE AND COMPOUND INTERESTS

Background Information for Learners

Interest is a common mathematical ideas which is usually associated to business mathematics and other related areas. When we deposit money in our bank account or financial institutions, we get some extra money for our deposits. This extra money is called the **interest**.

Similarly when we borrow money from our bank or financial institution, we have to pay them back something a little extra (other than the amount we borrowed). Again this extra amount is called **interest**. (Maths, 2014)

Interest is charged as a percentage of the amount borrowed (or invested) for a certain fixed period before you repay (or withdraw) your borrowed (or withdrawn) amount. (Maths, 2014)

Interest has two types. First is simple interest given by the formula $A = Prt$, where A is the final amount, P is the principal, r is the rate and t is the time or duration. Second type of interest is compound interest given by the formula $A = P(1 + \frac{r}{n})^{nt}$, where A is the final amount, P is the principal, r is rate, t is time or duration and n is number of times interest applied per time period.

Learning Competency

Solves problems involving simple and compound interests. (*M11GM-IIIb-2*)

Activity 1: SIMPLEST OF THE SIMPLE; Simple Interest Problems

Directions: Answer the following problems by solving for the asked question.

1. Your mom deposited your earnings in a bank which amounted to Php4, 000. The bank offers an interest of 4.5% every year. How much your money will earn at the end of 3 years?

3. Php1200 is placed in an account at 4% compounded annually for 2 years. It is then withdrawn at the end of the two years and placed in another bank at the rate of 5% compounded annually for 4 years. What is the balance in the second account after the 4 years?

Activity 3: Mixed Interest Problems

Directions: Answer the following problems by solving for the asked question.

1. What would Php1000 become in a saving account at 3% per year for 3 years when the interest is not compounded (simple interest)? What would the same amount become after 3 years with the same rate but compounded annually? Which kind of interest earns more money and by how much?

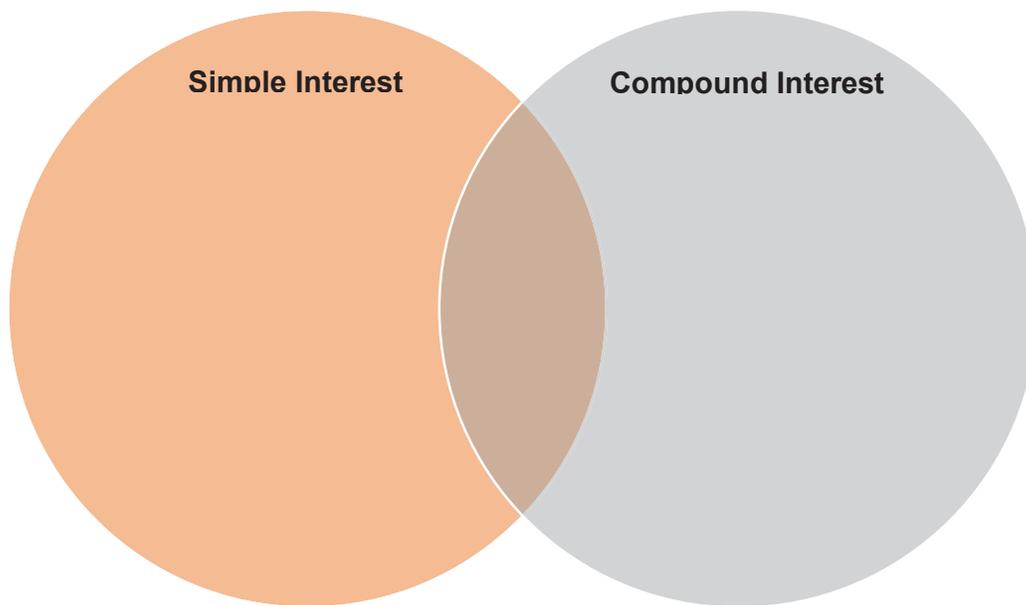
Guide Questions

Rubrics for scoring

Rubric	Description	Weight
Correctness of the Answer	The answer presented is exact to what is agreed which means it follows the number of decimals present in the final answer to avoid confusion.	70%
Detailed Procedure	The procedure was a carefully step by step procedure not ignoring the importance of each step.	30%

Generalization

Direction: Using the Venn-Euler Diagram, Illustrate the similarities and differences of the two types of interest.



References for the Learners

1. Sunshine Maths (<http://www.sunshinemaths.com/topics/financial-maths/introduction-to-interest/>)
2. Onlinemathlearning.com (<https://www.onlinemathlearning.com/simple-interest-formula.html>)
3. Analyzemath.com (https://www.analyzemath.com/finance/interests_problems_sol.html)

Answer Key

ACTIVITY 1

1. A=?
P= Php4,000

$$\begin{aligned}r &= 4.5\% \\t &= 3 \\A &= Prt \\A &= 4,000(.045)(3)\end{aligned}$$

$$A = \text{Php}540$$

2. A=Php720
P=Php3,000

$$\begin{aligned}r &=? \\t &= 2 \text{ years}\end{aligned}$$

$$\begin{aligned}A &= Prt \\720 &= 3,000(r)2 \\720 &= 6,000r \\6,000 & \quad 6,000 \\r &= 0.12 \text{ or } 12\%\end{aligned}$$

3. A= Php78, 000
P= Php200, 000

$$\begin{aligned}r &= 13\% \\t &=?\end{aligned}$$

$$\begin{aligned}A &= Prt \\78,000 &= 200,000(.13)(t) \\78,000 &= 26,000(t) \\26,000 & \quad 26,000 \\t &= 3 \text{ years}\end{aligned}$$

ACTIVITY 2

1. A=?
P= Php2,000

$$\begin{aligned}r &= 3\% \\t &= 7 \text{ yrs} \\A &= P\left(1 + \frac{r}{n}\right)^{nt}\end{aligned}$$

$$A = 2000\left(1 + \frac{0.03}{1}\right)^7$$

$$A = 2,459.75$$

2. A=?
P= Php3,000

$$\begin{aligned}r &= 5\% \\t &= 5 \text{ yrs} \\A &= P\left(1 + \frac{r}{n}\right)^{nt}\end{aligned}$$

$$A = 3000\left(1 + \frac{0.05}{1}\right)^5$$

$$A = 3,828.84$$

3. A=?
P= Php1,200

r=4%
t=2 yrs

$$A = P\left(1 + \frac{r}{n}\right)^{nt}$$

$$A = 1200\left(1 + \frac{0.04}{1}\right)^2$$

$$A = 1,297.92$$

A=?
P= Php1,297.92

r=5%
t=4 yrs

$$A = P\left(1 + \frac{r}{n}\right)^{nt}$$

$$A = 1,297.92\left(1 + \frac{0.05}{1}\right)^4$$

$$A = 1,577.63$$

ACTIVITY 3

1. SIMPLE INTEREST

A=?
P=1,000

r=3%
t=3 yrs

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

$$A = 1000(.03)(3)$$

$$A = \text{Php}1090$$

COMPOUND INTEREST

A=?
P= Php1,000

r=3%
t=3 yrs

$$A = P\left(1 + \frac{r}{n}\right)^{nt}$$

$$A = 1,000\left(1 + \frac{0.03}{1}\right)^3$$

$$A = \text{Php}1,092.73$$

Conclusion: The account which is compounded annually earns more money by Php2.73 as compared to the same account with simple interest.