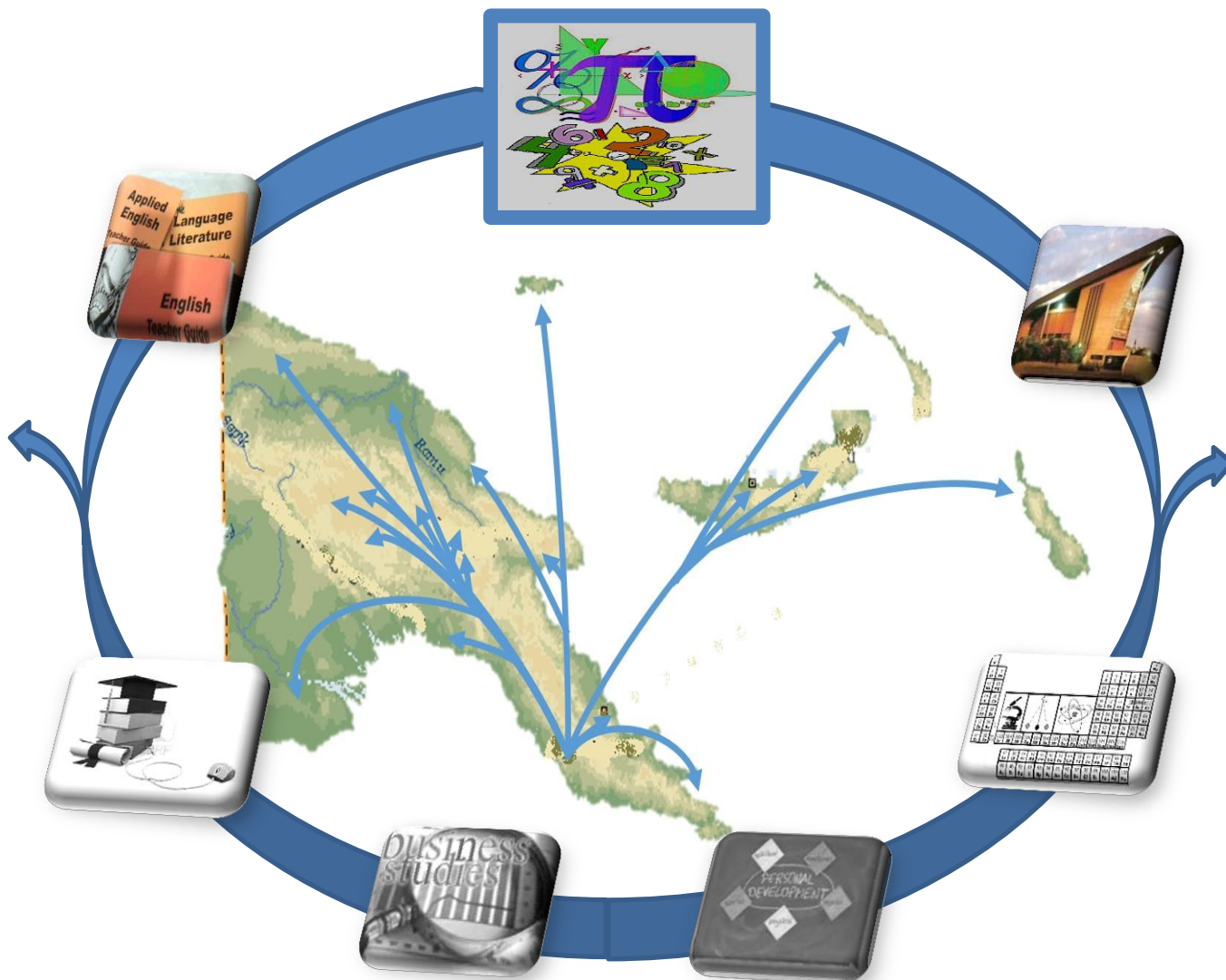




DEPARTMENT OF EDUCATION

GRADE 11 GENERAL MATHEMATICS

11.2: MANAGING MONEY 1



FODE DISTANCE LEARNING



PUBLISHED BY FLEXIBLE OPEN AND DISTANCE EDUCATION
FOR THE DEPARTMENT OF EDUCATION
PAPUA NEW GUINEA
2017



GRADE 11

MATHEMATICS B

UNIT MODULE 2

MANAGING MONEY 1

TOPIC 1:	Percentages
TOPIC 2:	Earning and Spending Money
TOPIC 3:	Investments
TOPIC 4:	Budgeting and Loans



Acknowledgements

We acknowledge the contribution of all Secondary and Upper Primary teachers who in one way or another helped to develop this Course.

Special thanks are given to the staff of the Mathematics Department- FODE who played active role in coordinating writing workshops, outsourcing of lesson writing and editing processes involving selected teachers in NCD.

We also acknowledge the professional guidance and services provided throughout the processes of writing by the members of:

Mathematics Subject Review Committee-FODE
Academic Advisory Committee-FODE
Mathematics Department- CDAD

This book was developed with the invaluable support and co-funding of the GO-PNG and World Bank.

MR. DEMAS TONGOGO
Principal-FODE



Flexible Open and Distance Education
Papua New Guinea

Published in 2014

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ISBN 978-9980-89-344-4

National Library Services of Papua New Guinea

Written by:

Compiled and finalised by: Mathematics Department-FODE

Printed by the Flexible, Open and Distance Education



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SECRETARY'S MESSAGE

Achieving a better future by individual students, their families, communities or the nation as a whole depends on the curriculum and the way it is delivered.

This course is part and parcel of the NDOE new reformed curriculum. Its learning outcomes are student centred and written in terms that allow them to be demonstrated, assessed and measured.

It maintains the rationale, goals, aims and principles of the National Curriculum and identifies the knowledge, skills, attitudes and values that students should achieve.

This is a provision of Flexible, Open and Distance Education as an alternative pathway of formal education.

The Course promotes Papua New Guinea values and beliefs which are found in its constitution, Government policies and reports. It is developed in line with the National Education Plan (2005 – 2014) and addresses an increase in the number of school leavers which has been coupled with a limited access to secondary and higher educational institutions.

Flexible, Open and Distance Education is guided by the Department of Education's Mission which is fivefold:

- to facilitate and promote the integral development of every individual
- to develop and encourage an education system which satisfies the requirements of Papua New Guinea and its people
- to establish, preserve, and improve standards of education throughout Papua New Guinea
- to make the benefits of such education available as widely as possible to all of the people
- to make education accessible to the physically, mentally and socially handicapped as well as to those who are educationally disadvantaged

The College is enhanced to provide alternative and comparable pathways for students and adults to complete their education, through one system, many pathways and same learning outcomes.

It is our vision that Papua New Guineans harness all appropriate and affordable technologies to pursue this program.

I commend all those teachers, curriculum writers and instructional designers who have contributed so much in developing this course.

DR. MICHAEL F. TAPO, EdD
Secretary for Education



UNIT 2: MANAGING MONEY 1

Introduction

How you manage, spend, and invest your money can have a deep impact on your life that is why it is very important to learn this important skill as early as possible. Learning financial understanding may take a while, but the basics are fairly simple and never change.

You have learnt basic Mathematics skills in your Lower Secondary years and definitely used these skills to deal with money.

In this module, skills like creating a budget, investing for the future, or even how credit cards work will be discussed.



LEARNING OUTCOMES

On successful completion of this module, you will be able to:

- calculate salaries, wages, overtime, commission, piece of work and rates as earnings
- calculate taxable income, goods and services taxes (VAT, GST), deductions, levies and superannuation
- use foreign exchange rates to perform simple calculations
- record basic income and expenditures
- estimate monthly expenses
- estimate monthly income
- explain basic ideas of cash flow
- discuss types of loans and interest rates
- calculate interest on loans



TIME FRAME

This unit should be completed within 8 weeks.

If you set an average of 3 hours per day, you should be able to complete the unit comfortably by the end of the assigned week.

Try to do all the learning activities and compare your answers with the ones provided at the end of the unit. If you do not get a particular exercise right in the first attempt, you should not get discouraged but instead, go back and attempt it again. If you still do not get it right after several attempts then you should seek help from your friend or even your tutor. Do not pass any question without solving it first.



11.2.1 Percentages

Percents are necessary in many activities, be it personal or business. They are used in making decisions where comparisons are based.

They aid in the assessment of performance—sales, business or even personal. For example, as a student, you are evaluated on a percent basis. If you took an exam where you got 50 correct answers, no one will know how you fared until the total number of items in the exam was identified. If there were 100, you did not fair well as if there were 60.

Percents allow us to make comparisons. Comparisons are based on a base of 100. Therefore, if there were 100 items on the exam, your score would be 50%. If there were 60 items, there would be 83.3 %.

When dealing with percents, there may be same score but has different meanings depending on the size of the original quantity or amount.

Another common and useful applications of percent involve money. As we go along our discussion in this module, you will find the indispensable part in managing money.

11.2.1.1 Percent, Fractions and Decimals

Percent is a ratio that compares a number to 100. It comes from Latin words meaning “parts of a hundred” or “per hundred”.

When you say 10 percent, you mean 10 out of 100 . It may also be expressed as a ratio 10:100 or as a fraction $\frac{10}{100}$. Percents can also be renamed as decimals.

It is easy to recognize percents as it uses the symbol %.

Changing percent to fractions and decimals

To express a percent as a decimal, rewrite the percent as a fraction with a denominator of 100. Then it is easier to express the fraction as a decimal.

Example 1

Express 62% as a fraction and a decimal number.

Solution

62% means “62 out of 100” , so we can write it as $\frac{62}{100}$.



To simplify, divide the numerator and denominator by 2, since it is the GCF of 62 and 100.

$$\frac{62 \div 2}{100 \div 2} = \frac{31}{50}$$

62% is equal to the fraction $\frac{31}{50}$.

To change 62% to decimal, let us revise the lessons we have learnt in your previous module.

Recall that we just have to move the decimal point to places to the right?

Given 62% , we remove the percent sign and we only have 62.

Since this is a whole number, the decimal point is located after the digit 2.

Now we move it two places to the right, we get .62 or it can also be written as 0.62.

Therefore, we say that 62% is equal to the fraction $\frac{31}{50}$ and to the decimal 0.62.

Example 2

Express the following as a fraction in lowest term.

a) 12%

b) 150%

c) 8%

Solution

a) 12% can be written as $\frac{12}{100}$.

To simplify, divide the numerator and denominator by 4, the GCF of 12 and 100.

$$\frac{12 \div 4}{100 \div 4} = \frac{3}{25}$$

.Therefore, 12% is equal to $\frac{3}{25}$.

b) 150% can be written as $\frac{150}{100}$.

To simplify, divide the numerator and denominator by 50, the GCF of 150 and 100.

$$\frac{150 \div 50}{100 \div 50} = \frac{3}{2}$$

Notice, that the fraction is an improper fraction, so we can also express it as a mixed number in the form of $1\frac{1}{2}$.

Therefore, 150% is equal to $\frac{3}{2}$ or $1\frac{1}{2}$.



c) 8% can be written as $\frac{8}{100}$.

To simplify, divide the numerator and denominator by 4, the GCF of 8 and 100.

$$\frac{8 \div 4}{100 \div 4} = \frac{2}{25} .$$

Therefore, $8\% = \frac{2}{25}$.

Example 3

Express the following as a decimal.

a) 48%

b) 130%

c) 12.8%

Solution

Changing percent to decimal is easy. Just follow the following steps.

Step 1: Remove the percent sign.

Step 2: Locate the decimal point and move it two places to the left.

a) 48%

Removing the percent sign, we have 48.

Since it is a whole number, the decimal point is found after the digit 8, then we move the decimal point two places to the left, we get, .48 or 0.48.

Therefore 0.48 is the decimal value of 48%.

b) 130%

Removing the percent sign, we have 130.

Since it is a whole number, the decimal point is found after the digit 0, then we move the decimal point two places to the left, we get, 1.30 or 1.3.

Therefore 1.30 is the decimal value of 130%.

c) 12.8%

Removing the percent sign, we have 12.8.

Since it is already a decimal number and the decimal point is found in between the digits 2 and 8 then we move the decimal point two places to the left, we get, .128 or 0.128.

Therefore 0.128 is the decimal value of 12.8%.



Example 4

Express $\frac{1}{4}$ as a percent.

Solution

Mental Math Hint: When changing $\frac{1}{4}$ to a percent, think of finding 1 out of 4 parts of 100 = 25%.

Or try this simple steps:

$$\begin{array}{l} \frac{1}{4} = \frac{n}{100} \\ (1) (100) = 4n \\ 100 \div 4 = 4n \div 4 \\ 25 = n \end{array}$$

Set up a proportion.

Find the cross products.

Divide both sides by 4.

Therefore, $\frac{1}{4}$ is equivalent to 25%.

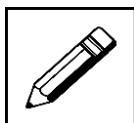
Example 5

Express $\frac{3}{2}$ as a percent.

Solution

$$\begin{array}{l} \frac{3}{2} = \frac{n}{100} \\ (3) (100) = 2n \\ 300 \div 2 = 2n \div 2 \\ 150 = n \end{array}$$

Therefore, $\frac{3}{2}$ is equivalent to 150%.

**Student Learning Activity 11.2.1.1**

20 minutes

Complete the table by supplying the equivalent percent, fraction or decimal. Write each fraction in lowest terms.

Percent	Fraction	Decimal
70%		
	$\frac{7}{8}$	
		0.025
0.2%		
	$\frac{2}{9}$	
		$0.5\overline{33}$



11.2.1.2 Percentage Problems

If Percent means a part per hundred, in relation with it Percentage means a rate, a number, a value or an amount in each hundred.

These two words are oftentimes used synonymously to refer with numerals equated with the % symbol.

For many calculations, we need to find a certain percentage of a quantity. For example, it is common in some countries to leave a tip of 10% of the cost of your meal for the waiter. Say a meal costs K25.40:

$$10\% \text{ of K25.40} = \frac{10}{100} \times \text{K25.40} = \text{K2.54}$$

To easily compute percentage, translate the mathematical statement into a mathematical expression. Note that the word “of” indicates multiplication while the word “is” means equal.

Let us translate $10\% \text{ of K25.40 is K2.54}$
 $(10\%) (\text{K25.40}) = \text{K2.54}$

To fully understand how the computation was done, study the following examples.

Example 1

What is 70% of 40?

Solution

Let : x represent the number we are to find.

Express 70% as a decimal: $70\% = 0.70$.

Then, we translate the given to mathematical expression

Substitute and solve:

$$\begin{aligned} 70\%(40) &= x \\ (0.70)(40) &= x \\ 28 &= x \end{aligned}$$

Therefore, 28 is 70% of 40.

Example 2

Twenty (20) is what percent of 60?



Solution

Let x represent the unknown.

Translate the given to mathematical expression

$$20 = (x\%)(60)$$

Divide both sides by 60

$$\frac{20}{60} = x\%$$

Simplify:

$$\frac{1}{3} = x\%$$

X% means that $\frac{1}{3}$ is to be expressed as percent. Following the rules we discussed previously,

$$\frac{1}{3} = 33.\overline{333}\% \text{ or } 33\frac{1}{3}\%$$

Therefore, 20 is $33\frac{1}{3}\%$ of 60.

Example 3

Fifteen (15) is 3% of what number?

Solution

Let x represent the unknown.

Translate the given to mathematical expression

$$15 = (3\%)(x)$$

Note that 3% is equal to 0.03 in decimals.

$$15 = (0.03)(x)$$

Divide both sides by 0.03

$$\frac{15}{0.03} = x$$

Simplify:

$$500 = x$$

Therefore, 15 is 3% of 500.

Managing Percentage

The following examples are practical applications of percentage.

Example 4

James earns K2,100 per month (whole) and 15% of his monthly earnings are used for rent. What is the amount of his rent (part)?

Solution

Multiply the percent by the whole amount to find the part.

Note: Change 15% to decimal.

$$0.15 \times K2,100 = K315$$

Therefore, K315 of his monthly salary is allotted for rent.



Example 2

In year 2014, Nikki earned K 18,000. This year 2015, she is earning K 20,000. What percent of year 2014's salary is year 2015's salary?

Solution

Find what percent K 20,000 is of K 18,000.

$$K\ 20,000 \div K\ 18,000 = 1.11 \text{ or } 111\%$$

Therefore, Nikki's salary on 2015 is 111% of her 2014 salary.

Example 3

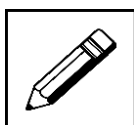
Lorenza deducts K65 from her monthly pay for savings. This savings is 4% of her monthly salary. What is Lorenza's monthly salary.

Solution

Divide the part by the percent.

$$K\ 65 \div 0.04 = K\ 1,625.$$

Therefore, Lorenza's monthly salary is K1,625.

**Student Learning Activity 11.2.1.2**20 minutes

- A. Find the percent or number.
1. What is 26% of 60?
 2. What is 11% of 30?
 3. 28 is what percent of 50?
 4. 43 is what percent of 100?
 5. What is 72% of 1200?
 6. 15 is what percent of 80?
-



7. 25 is 20% of what number?
8. 350 is 500% of what number?
9. 18 is 54% of what number?
10. 77 is what percent of 77?

B. Solve the following:

1) Sandy has K75 per month deducted from her pay for savings. This is 5% of her monthly salary. Find Sandy's monthly salary.

2) Joan's 22-foot boat cost K8,950. She made a K3,000 down payment. Her down payment was about what percent of the price?

3) How much will Asia earn in a year if she invested K5,000 at 8.25% interest?

4) Lola earns K1,100 per month. If she saves K220, what percent of her earnings did she save?



11.2.1.3 Percentage Increase and Decrease

The commonly used techniques in increasing or decreasing percentage is finding the percentage amount and add it (Increase) or subtract it (decrease) from the original quantity.

By analysing the given information, there are also another way to deal with it, one is through the use of proportions.

Example 1

It costs K5 to manufacture a pair of pants. At a store, the pants are sold for \$12. What is the percent of increase from the manufacturing cost to selling price?’

Solution

Step 1:Determine the amount of increase.

$$K12 - K5 = K7$$

Subtract the cost from the selling price.

$$\frac{n}{100} = \frac{7}{5}$$

Step 2:Calculate the percent of increase.

$$n \times 5 = 100 \times 7$$

$$5n = 700$$

$$n = 140$$

Therefore, the percent of increase is 140%.

Example 2

Dang’s Sporting Goods had a sales of K 20,000 during the first three months of the year. On the next three months, the sales totaled K 24,000. Determine the percent of increase from the first three months to the second three months.

Solution

Step 1 Determine the amount of increase.



Note: 1 quarter of a year is 3 months.

Second-Quarter Sales	minus	First-Quarter Sales	equals	Amount of Increase
K 24,000	–	K 20,000	=	K 4,000

Step 2 Calculate the percent of increase.

Amount of Increase	÷	First-Quarter Sales (Original Amount)	=	Percent of Increase
K 4,000	÷	K 20,000	=	0.20 = 20%

Example 3

Alma's telephone bill in January was K 34.80. Her telephone bill in February was K 21.70. Determine the percent of decrease in Alma's telephone bill from January to February?

Solution

Step 1 Find the amount of decrease.

January's Bill (Original Amount)	minus	February's Bill (New Amount)	equals	Amount of Decrease
K 34.80	–	K 21.70	=	K 13.10

Step 2 Find the percent of decrease.

Amount of Decrease	÷	January's Bill (Original Amount)	=	Percent of Decrease
K 13.10	÷	K 34.80	=	0.376 = 37.6%



Round to three decimal places



Example 4

The price of a pocket calculator in 2004 was K23. The same model calculator was sold in 2008 for K9.80. Determine the percent of decrease in the price.

Solution

Method 1 Find the amount of decrease.

$$23 - 9.80 = 13.20$$

Let n represent the percent.

$$n \times 23 = 13.20$$

$$n = \frac{13.20}{23}$$

$$= 0.574$$

$$= 57.4\%$$

Therefore, the decrease is 57.4%.

Method 2 Find what percent 9.80 is of 23.

$$n \times 23 = 9.80$$

$$n = \frac{9.80}{23}$$

$$= 0.426$$

$$= 42.60\%$$

Since the price in 2008 is 42.60% of the price in 2004, the percent of decrease is $100\% - 42.60\% = \mathbf{57.4\%}$

**Learning Activity 11.2.1.3**

Solve the following:

1. Eunice's employer assessed her job performance. He told her that there will be an increase in her weekly salary from K210 to K250.20. What is the percent of increase?

2. In a show room, Jomar saw a car with a sign that read "K 10,200 reduced to K 8,420." What was the percent of decrease?

3. A mobile home that previously sold for K 27,400 was increased to K 31,246. What was the percent of increase?

4. A contractual worker completed 347 shirts for the current week. If his output last week was 584 shirts, what was the percent of increase for the current week?

5. In the appliance center of a certain mall, January sales amounted to K 70,502. In February, sales amounted to K 54,700. What was the percent of decrease?

6. This year, Katherine received a notice that her cooperative dues would increase from K 73 to K 81.40 a year. What is the percent of increase?



11.2.1.4 Profit and Loss

Gross profit is the difference between the selling price and the cost of the goods sold. It does not indicate the actual profit.

To run a certain business, other operating expenses like salaries, commissions, rent, advertising and utilities add up to the cost of buying the merchandise for resale. The amount that remains after deducting the operating expenses from the gross profit is called **net income or net profit**.

Example 1

Rhianna opened a clothing store. During the first-month operation, her store sold K5,200 worth of clothes. It cost her K2,700 for the clothes sold. What was the gross profit?

Solution

Sales – Cost of Goods Sold = Gross Profit

$$K5,200 - K2,700 = K2,500$$

Example 2

Rhianna had sales gross profit of K2,500 during the month. If operating expenses were K1,750, what was the net income?

Solution

Gross Profit – Operating Expenses = Net Income

$$K2,500 - K1,750 = K750$$

Example 3

KIM Hardware earned K40,000 in sales for the month of June. The cost of goods was K15,000, and the operating expenses were K10,200. What percent of sales were the gross profit and net income?

Solution

Step 1 Find what percent gross profit is of sales.

Gross Profit ÷ Sales = Gross Profit Percent of Sales



$$K25,000 \div K40,000 = 0.625 \text{ or } 62.5\%$$

$$\text{Note: } K25,000 = K40,000 - K15,000$$

Step 2 Find what percent net income is of sales.

$$\text{Net Income} \div \text{Sales} = \text{Net Income Percent of Sales}$$

$$K14,800 \div K40,000 = 0.37 \text{ or } 37\%$$



STUDENTLEARNING ACTIVITY 11.2.1.4



20 minutes

Solve the following:

1. ROMY Hardware had sales of K26,250 for the month of January. The cost of the merchandise sold totaled K14,850 and expenses amounted to K11,300. What was the net profit or loss for the month?

2. For the month of June, Ria's dress shop had sales of K3,225. The following were expenses incurred by the shop: K525 for rent, K1,100 for salaries, K520 for shop expenses, and K210 for supplies and materials. What was the shop's net income in June?



3. Jim Fujimoto, a physician, summarized his operations for the month of August: Revenue from regular practice, K12,000, and revenue from surgery, K11,500. Expenses included salaries, K3,500; rent, K1,400; utilities, K400; supplies, K600; laboratory services, K800. What was his net income for the month?
4. John Grohman hopes to make a yearly net income of K40,000 in his new office equipment business. The typical business of this type earns a net income of 12% of net sales. What should Mr. Grohman's net sales be yearly in order to earn K40,000 net income?



11.2.1.5 Buying with a Discount

Stores sometimes sell merchandise at a discount. An advertisement that says “All appliances will be sold at a discount of 10%” means, for example, that a toaster originally marked K15 will sell at a discount of 10% of K15, or K1.50. The sale price or net price is K15 - K1.50, or K13.50.

It is really a smart idea to buy goods or avail services at a discounted price. But you have to check labels especially if the goods sold at a discounted price are nearly expired such as medicines, vitamins, and foods at the groceries.

Example 1

A top-selling record album usually sells for K7.95. Sound World is selling it at a 20% discount. What is the sale price?

Solution

$$\text{Discount} = \text{Discount Rate} \times \text{Original Price}$$

$$\text{Discount} = 0.20 \times \text{K}7.95$$

$$\text{Discount} = \text{K}1.59$$

$$\text{Original Price} - \text{Discount} = \text{Sale Price}$$

$$\text{K}7.95 - \text{K}1.59 = \text{K}6.36$$

Therefore, the top-selling album is on sale at K6.36.

Example 2

A manufacturer of a popular brand of perfume shows the product in the catalog with a list price of K75 and a net price of K45. What is the trade discount rate?

Solution

Step 1 Find the trade discount amount.

$$\text{List Price} - \text{Net Price} = \text{Trade Discount}$$

$$\text{K}75 - \text{K}45 = \text{K}30$$

Step 2 Find the trade discount rate.

$$\text{Trade Discount} \div \text{List Price} = \text{Trade Discount Rate}$$



$$K30 \div K75 = 0.40 \text{ or } 40\%$$

Therefore, the trade discount rate is 40%.

Example 3

Howard purchased CDs for resale in his computer supply store. The list price for the entire purchase was K480. A trade discount of 40% was offered by the supplier. What was the net price of the purchase?

Solution A

Step 1 Find the amount of the trade discount.

$$\text{List Price} \times \text{Trade Discount Rate} = \text{Trade Discount}$$

$$K480 \times 0.40 = K192$$

Step 2 Find the net price.

$$\text{List Price} - \text{Trade Discount} = \text{Net Price}$$

$$K480 - K192 = K288$$

Solution B

Step 1 Find the net price rate.

$$\text{List Price Rate} - \text{Trade Discount Rate} = \text{Net Price Rate}$$

$$100\% - 40\% = 60\%$$

Step 2 Find the net price.

$$\text{List Price} \times \text{Net Price Rate} = \text{Net Price}$$

$$K480 \times 0.6 = K288$$

Therefore, the net price of the purchase is K288.

Example 4

Wantok Arts and Crafts Store normally sells an artificial flower arrangement for K65. During a summer sales promotion, a 40% markdown is offered. What was the markdown and discounted price?



Solution

Step 1 Find the markdown.

$$\text{Regular Price} \times \text{Markdown Rate} = \text{Markdown}$$

$$K65 \times 0.40 = K26$$

Step 2 Find the discounted price.

$$\text{Regular Price} - \text{Markdown} = \text{Discounted Price}$$

$$K65 - K26 = K39$$

Therefore, the discounted price is K39.

Example 5

Four Seasons Sporting Goods offered tennis shoes for a regular selling price of K36 that were marked down 25%. Gooden Sports Center offered the same brand of tennis shoes for a regular selling price of K32 with a markdown of 20%. Which store offered the lower discounted price?

Solution

Step 1 Find the Four Seasons price.

$$\text{Regular Price} \times \text{Markdown Rate} = \text{Markdown}$$

$$K36 \times 0.25 = K9$$

$$\text{Regular Price} - \text{Markdown} = \text{Discounted Price}$$

$$K36 - K9 = K27$$

Step 2 Find the Gooden price.

$$\text{Regular Price} \times \text{Markdown Rate} = \text{Markdown}$$

$$K32 \times 0.2 = K6.40$$

$$\text{Regular Price} - \text{Markdown} = \text{Discounted Price}$$

$$K32 - K6.40 = K25.60$$

Although Four Seasons had a higher markdown rate, Gooden had a lower discounted price.

**STUDENT LEARNING ACTIVITY 11.2.1.5**

40 minutes

Solve the following.

1. In closing out its inventory of portable refrigerators, Hardware International offered a special trade discount of 35% off the list price of K389.95. Rexton Company ordered 5 refrigerators. What is the net price Rexton will pay for this order?
2. The Drapery Department at Carlson's Department Store can purchase yard goods at the special price of K8.40 a yard, less a discount of 40%. The buyer decides to order 80 yards of the material. How much will the material cost?
3. The buyer for the College Shop purchased 3 dozen blouses at K89 a dozen, less a 38% discount.
 - a. What was the amount of discount on each dozen blouses purchased for the College Shop?
 - b. What was the total amount due on the purchase?
 - c. What was the cost of each blouse?



11.2.2 Earning and Spending Money

Good money management can mean many things – from living within your means to saving for short and long-term goals, to having a realistic plan to pay off your debts.

Usually problem occurs when the amount spent is more than what a person earns.

This topic will guide you in analyzing your salaries or wages and further discuss some other ways to manage your earnings and spending.

11.2.2.1 Wages and Salaries

Many employees are paid a salary, which is a fixed amount of money earned over a specific period of time.

A **Salary** is a fixed amount of money employers pay for their employees services rendered. **Gross salary** is the amount before deductions like taxes, loans and the like while **net salary** refers to amount computed after deductions.

Supervisors and teachers are among those who are paid a salary. Salaried employees usually do not punch a time clock. They are paid the same amount regardless of the number of hour worked. The number of hours usually depends on the amount of work to be done. Often, the number of hours is more than 40 per week.

Use the table to convert a salary from one time period to another.

Pay Period	Number per Year
Monthly	12
Semi-monthly (twice a month)	24
Fortnightly (every 2 weeks)	26
Weekly	52

Example 1

Sarah receives an annual net salary of K 21,072. Before buying a car and making monthly payments, she needs to know her monthly salary. Compute her monthly salary.



Solution

Divide the annual salary by the number of pay periods in a year, 12.

$$K\ 21,072 \div 12 = K\ 1,756$$

Sarah's monthly salary is K1,756.

Example 2

Jack earns a semimonthly salary of K 575. He needs to know his annual salary before purchasing insurance since payments are made once a year. What is Jack's annual salary?

Solution

Multiply the semimonthly salary by the number of pay periods in a year, 24.

$$K\ 575 \times 24 = K\ 13,800$$

Example 3

Mary earns K 21,424 per year. What is her weekly salary?

Solution

Divide the annual salary by the number of pay periods in a year, 52.

$$K\ 21,424 \div 52 = K\ 412$$

Example 4

Oliver earns a fortnightly salary of K 938. What is his annual salary?

Solution

Multiply the biweekly salary by the number of pay periods in a year, 26.

$$K\ 938 \times 26 = K\ 24,388$$

Wages

Wages refers to the amount paid to a worker for each hour worked based on a basic rate. Usually a 40-hour work per week is called the basic week. Any hour spent more than the required number hours per week is called as **overtime**.

Usually wage is computed by multiplying the basic rate by the basic week.



Example 5

Alea works a basic week of 40 hours and her basic rate is K6.25 per hour. Calculate her basic wage for the week.

Solution

$$\begin{aligned}\text{Basic wage} &= \text{basic rate} \times \text{basic week} \\ &= \text{K}6.25 \times 40 \\ &= \text{K}250\end{aligned}$$

Alea has a basic wage of K250 per week.

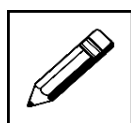
Example 6

A helper works a basic week of 32 hours and earns K172.48. Calculate his basic rate of pay.

Solution

Manipulating the formula, we have

$$\begin{aligned}\text{Basic rate} &= \frac{\text{basic wage}}{\text{basic week}} \\ &= \frac{\text{k}172.48}{32} \\ &= \text{K}5.39\end{aligned}$$

**Student Learning Activity 11.2.2.1**30 minutes

Solve the following:

1. Change each of the following salaries to its equivalent in another pay period.



2. Judith Alden's annual salary at Claxon's Furniture Company is K 17,400. She was told that the payroll department will now be computerized and that she will now be paid on a semimonthly basis. What will be her gross pay each pay period?
3. Joe Sula was offered a job that pays K 1,980 a month. His present job pays him an annual salary of K 20,000.
- Which job has the higher annual salary—the new job or the present job—and by how much?
 - What percent higher is the better-paying job (to the nearest tenth of a percent)?
4. Li Ying's present annual salary is K 20,020. She was offered a job doing the same kind of work a an annual salary of K 21,060.
- If she accepts the new offer, how much more will she earn each week?
 - What percent more will she earn each week (to the nearest tenth of a percent)?



11.2.2.2 Commission

Salespersons are often paid a commission in addition to a salary. A **commission** is usually a certain percent of sales. For example, a salesperson who works for a commission of 25%, and who sells K800 worth of goods, would earn 25% of K800, or K200. Sometimes the percent of sales that determines the commission is called the rate of the commission.

Example 1

A furniture salesperson worked for a commission rate of 8.25% of sales. Last year, total sales were K 216,850. Find the salesperson's commission for the year.

Solution

Commission = Commission Rate \times Amount of Total Sales

$$\text{Commission} = 0.0825 \times \text{K } 216,850$$

$$\text{Commission} = \text{K } 17,890.125$$

Therefore, the salesperson's commission for the year was K17,890.13.

Example 2

Miguel receives a 15% commission on his sales. Last month, Miguel's sales were K24,500. Calculate his commission for the month.

Solution

Multiply total sales times the commission rate.

Total Sales \times Commission Rate = Commission

$$\text{K}24,500 \times 0.15 = \text{K}3,675$$

Example 3

Gloria DeWitt is a retail salesperson who receives a monthly salary of K950 plus a 1.5% commission on her sales. Last month, Gloria had sales totaling K38,500. Compute her gross pay for the month.

Solution

Step 1 Calculate the commission earned.

Sales \times Commission Rate = Commission

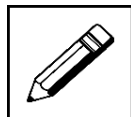


$$K38,500 \times 0.015 = K577.50$$

Step 2 Calculate the monthly gross pay.

Salary + Commission = Gross Pay

$$K950.00 + K577.50 = K1527.50$$



Student Learning Activity 11.2.2.2



30 minutes

Solve the following:

1. Nina Washington sells books. She receives a base salary of K210 a week plus 5% of all her sales. Her sales totaled K8,500 for the week. What was her gross pay?

2. Sara Heinz's employer offered to pay her (A) a salary of K400 a week with a 1% commission on all sales, or (B) K200 a week and a 5% commission on sales.
 - a. If sales average K4,500 a week, what is the gross pay for offer

 - b. For offer B?

 - c. Which is the better offer?



-
3. Sal Falls was offered a salary of K500 a month and 12% commission of all sales at Acme Company. Zenith Sales offered him a salary of K610 a month and 10% of all sales. He estimates his sales will average K8,500 a month.
- How much would he earn per month working for Acme?
 - How much per month for Zenith?
 - Which is the better offer?

11.2.2.3 Income Tax

Income tax is the amount paid by workers to the government. This is dependent on the salary a person earns. Different rates also apply to low income, middle income and high income earners. The tax also depends on the declaration of the worker. A single person has to pay more as compared to a person with 5 children.

The government determines the tax rate each year or each specific period. Example, a tax review every 5 years is done in some countries, others does the review annually while others take decades before they amend the rates.

Tax is basically computed as:

$$\text{Tax} = (x\%)(\text{Gross Pay} - \text{Deductions})$$

Where x is the rate of tax subject to the person or worker.

Example 1

Lulu earns a fortnightly gross income of K2500. She pays 5% tax and regular deducted with K50 for her health care. Compute fortnightly net pay.

Solution

Identify the given:	K2500	Lulu's Gross Pay per fortnight
	5%	Tax rate
	K50	Deduction



$$\begin{aligned}\text{Tax} &= (x\%)(\text{Gross Pay} - \text{Deductions}) \\ &= (5\%)(\text{K}2500 - \text{K}50) \\ &= (0.05)(\text{K}2450) \\ &= 122.5\end{aligned}$$

$$\begin{aligned}\text{The net pay} &= \text{Gross Pay} - (\text{deductions} + \text{tax}) \\ &= \text{K}2500 - (\text{K}50 + \text{K}122.50) \\ &= \text{K}2500 - 172.50 \\ &= \text{K}2327.50\end{aligned}$$

This is simple as it looks because the rate is already pre-determined.

Sample Income Tax Rates table

Column 1		Column 2	Column 3	Column 4			
Salary per fortnight		Non resident	No Declaration	Declaration is lodged with dependants			
Exceeding	Not exceeding			0	1	2	3 or more
309	311	68.48	130.62	7.5	5.77	4.61	3.46
311	313	68.86	131.46	7.94	6.21	5.05	3.9
313	315	69.3	132.3	8.38	6.65	5.49	4.34
619	621	136.62	260.82	75.7	64.34	56.77	49.2
621	623	137.06	261.66	76.14	64.72	57.1	49.49
623	625	137.5	262.5	76.58	65.09	57.43	49.78

Example 2

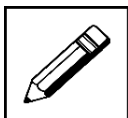
Rem is a single employee with no dependant earns K311.80 per fortnight.

- How much tax will be deducted from her salary?
- How much is her net pay?

Solution

a) Rem's salary is within the range K311 to K313 and she has 0 dependant. Looking at the table and getting the intersection of the two columns and rows which describes her status, we have **7.94**.

- Given her gross pay = K311.80 and tax amounting to 7.94
Net pay = gross pay – (deductions + tax)
= K 311.80 – 7.94
= K 303.86

**Student Learning Activity 11.2.2.3**

30 minutes

Using the table below, compute the net pay of the following employees at ABC Group of companies.

Column 1		Column 2	Column 3	Column 4			
Salary per fortnight		Non resident	No Declaration	Declaration is lodged with dependants			
Exceeding	Not exceeding			0	1	2	3 or more
309	311	68.48	130.62	7.5	5.77	4.61	3.46
311	313	68.86	131.46	7.94	6.21	5.05	3.9
313	315	69.3	132.3	8.38	6.65	5.49	4.34
619	621	136.62	260.82	75.7	64.34	56.77	49.2
621	623	137.06	261.66	76.14	64.72	57.1	49.49
623	625	137.5	262.5	76.58	65.09	57.43	49.78

Name	Salary Per fortnight (K)	Residency	Number of dependants	Net Pay
Lea Hasu	622	resident	0	
Lilly Loki	312	resident	3	
Arnold Stevens	624	Non-resident	0	
John Marioth	310	resident	2	



11.2.2.4 Value Added Tax

Value Added Tax (VAT) or commonly known as Goods and Services Tax (GST) in Papua New Guinea refers to the amount of tax applied on goods sold and services rendered.

Not all goods are subjected to GST, some are exempted items like the following:

- Goods sold at the market like Malaoro.
- Medical supplies and services by doctors, hospitals, nurses, dentists and other medical practitioners.
- School fees.
- Postage stamps and newspapers' sales.

The GST is an example of an indirect tax. Taxes of this sort are called indirect because the individual does not pay the tax direct to the government and there is no record kept of who is paying the tax. The tax is collected, as part of the total price, at the point of sale.

To calculate the amount of GST payable on an item, we simply calculate 10% of the purchase price.

Using that rate, we can compute for the Price of goods inclusive of GST as:

$$\text{Price (with GST)} = (\text{retailer's price}) (10\%)$$

This simple formula can be manipulated depending on the subject.

Example 1

A cricket bat has a pre-GST price of K127.50. Calculate the GST payable on the purchase of the bat.

Solution

$$\text{GST payable} = 10\% \text{ of } K127.50$$

$$= 0.1 \times K127.50$$

$$= K12.75$$

When calculating the amount required to purchase an item, you will need to add the GST to the pre-tax price. The quickest way to do this will be to calculate 110% of the pre-tax price. By using this method we add the 10% GST to 100%, which represents the cost of the item. In this way there is only one calculation to make.



Example 2

The Besenko family are celebrating the seventh birthday of their daughter, who wants to go to McDonald's for lunch. The cost of the meal is K19.80. How much will the Besenkos have to pay for the meal, including the GST?

Solution

Total cost = 110% of K19.80

$$= 1.1 \times \text{K}19.80$$

$$= \text{K}21.78$$

When we are given the total cost of an item, including GST, to calculate the pre-tax price of the item we need to reverse the above process. This means that we need to divide the total cost by 110%, written as a decimal.

Example 3

Calculate the pre-tax price of a car that costs \$31 350, including GST.

Solution

Price = $\text{K}31\,350 \div 1.1$

$$= \text{K}28\,500$$

Example 4

New Zealand has a VAT levied at a rate of 12.5%. Vanessa goes on holidays to New Zealand and rents a car for five days at a rate of NZ\$56.50 per day. Calculate the total cost of renting the car including the VAT.

Solution

Cost = $\$56.50 \times 5$

$$= \$282.50$$

Total cost = 112.5% of \$282.50

$$= \$317.81$$



Note that,

1. The GST is a tax of 10% of the purchase price of all items other than a few exemptions.
2. To calculate the amount of GST payable, calculate 10% of the purchase price.
3. To calculate the total cost of an item, including the GST, calculate 110% of the pre-tax price.
4. To calculate the price of an item when you are given the total cost, including the GST, divide the total cost by 110%.
5. A value added tax (VAT) is similar to the GST and is applied in many countries. The VAT rate varies between countries; however, the same methods of calculation are used as for our GST.



Student Learning Activity 11.2.2.4



30 minutes

Solve the following:

1. Calculate the GST payable on a book which has a pre-tax price of \$35.60.

2. Calculate the GST payable on each of the following items (prices given are pre-tax):
 - a) A bottle of dishwashing liquid at k2.30

 - b) a basketball at k68.90

 - c) a pair of cargo pants at k98.50

 - d) a bus fare at k1.30

 - e) a restaurant meal for which the bill totals k89.90.



3. Calculate the GST payable on each of the following items with a pre-tax prize (correct to the nearest toea):
- a) a barbecued chicken at K7.99
 - b) a tin of shoe polish at K4.81
 - c) a tin of dog food at K15
 - d) a pack of toilet rolls at K6.25
 - e) a pack of frozen pies at K3.36.

11.2.2.5 Other Deductions

Superannuation is the money deducted from an earner's salary which are set aside for retirement while **Levies** are imposed or required deduction for a certain purpose. In PNG employees contribute 6% of their income to the superannuation fund.

Levies on the other hand are imposed or required deduction for a certain purpose. A good example of this is a health care levy. In some countries like Australia, it is required that earners are deducted a certain amount for their health care. In return for this, Health care pays for basic health care services, such as visits to your local doctor, x-rays and pathology. The basic health care levy is 1.5% of taxable income. This is the rate that the majority of people pay. People who are on low incomes pay no health care levy or pay the levy at a reduced rate.

These deductions affect the net pay each earner get per payday. However, it is important to learn them because they add benefits to employees in the long run.

Example 1

Calculate the Health Care levy for a person with an annual taxable income of K44 300.

**Solution**

$$\begin{aligned}\text{Health Care levy} &= 1.5\% \text{ of K44 300} \\ &= 0.015 \times \text{K44 300} \\ &= \mathbf{\text{K664.50}}\end{aligned}$$

Example 2

Simon has a gross weekly wage of K451.75.

a Calculate Simon's gross annual wage.

Since Simon is paid every week, his number of pay per year is 52.

$$\begin{aligned}\text{To compute for the annual gross income:} &= \text{K451.75} \times 52 \\ &= \text{K23 491}\end{aligned}$$

b Calculate the amount of Health Care levy that Simon pays annually.

$$\begin{aligned}\text{Health Care levy} &= 1.5\% \text{ of K23 491} \\ &= 0.015 \times \text{K23 491} \\ &= \mathbf{\text{K352.36}}\end{aligned}$$

Example 3

John worked 63.58 hours in one fortnight based on the recorded time for the period. His rate per hour is K8.13. He receives an allowance of K55 every fortnight and he contributes 6% for his superannuation.

Calculate the following:

- Gross pay before any deduction
- Amount contributed to superannuation
- Taxable income after adjustment

Solution

$$\begin{aligned}\text{a) Gross pay before any deduction} &= \text{rate} \times \text{number of hours worked} \\ &= \text{K8.13} \times 63.58 \\ &= \text{K516.90}\end{aligned}$$

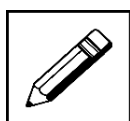
$$\begin{aligned}\text{b) Amount contributed to superannuation} &= 6\% \times \text{Gross pay} \\ &= (0.06) (\text{K516.90}) \\ &= \text{K31}\end{aligned}$$



$$\begin{aligned} \text{c) Taxable income after adjustment} &= \text{Gross pay} - \text{superannuation} + \text{allowance} \\ &= \text{K}561.90 - 31 + 55 \\ &= \text{K} 540.90 \end{aligned}$$

There are other deductions which are not compulsory like loans, cash advance and the like. These deductions are computed based on individual's case.

Basically, these deductions are computed and subtracted from the gross pay to determine one's taxable income.



Student Learning Activity 11.2.2.5



30 minutes

1) Calculate the annual Health Care levy for a person with

- an annual taxable income of K58 900
- an annual taxable income of K 45 000
- a monthly taxable income of K 3500
- a fortnightly taxable income of K 875

2) Use the information below to answer the questions that follow.

Rate per hour :	K 42.50
Number of Hours work in one fortnight:	40
Allowances:	
House:	K 750
Food:	K200
Superannuation:	6%

Calculate the following:

- Gross pay before any deduction



b) Amount contributed to superannuation

c) Taxable income after adjustment



SUMMATIVE TASK 11.2.2



40 minutes

A. Encircle the letter of the correct answer.

1) It refers to the amount received by an earner computed after all deductions.

- | | |
|---------------|-----------------|
| A. Commission | C. Gross Salary |
| B. Net Salary | D. Wages |

2) It refers to the amount paid to a person for each hour worked given a certain rate.

- | | |
|---------------|-----------------|
| A. Salary | C. Gross Salary |
| B. Net Salary | D. Wages |

3) Leticia earned K255 for working 30 hours. What is her basic rate per hour?

- | | |
|-----------|------------|
| A. K5.30 | C. K8.50 |
| B. K 6.20 | D. K 12.30 |

4) Jones has no fixed amount to receive each fortnight. His pay is based on the number of cars he sells every month. How do you call the amount he receives?

- | | |
|---------------|-----------|
| A. Salary | C. Wages |
| B. Commission | D. Income |



5) When deductions are subtracted from the gross pay and the difference is multiplied with a rate in a bracket, what value is computed?

- A. Income
B. Superannuation
C. Tax
D. Levy

6) Which of the following deductions are compulsory?

- I. Loan II. Levy III. Superannuation

- A. I and II
B. I and III
C. II and III
D. I, II and III

B. Solve the following:

1) Calculate the annual Health Care levy for a person with monthly taxable income of K7 900.

2) Calculate the GST payable on an entertain package with a pre-tax price of K12 750.

3) Didi is a government employee with 3 dependants. If she earns K2850 per fortnight.

a) How much tax will be deducted from her salary?

b) How much is her net pay?

4) Hans receives K250 allowance per fortnight for being a sales agent. If he has a commission of 20% on his sales, how much will he get if he sold goods amounting to K12, 350?



11.2.3 Investments

Investment may be compared to growing money.

If you invest in a bank, you will get a certain amount of interest by just letting your money stay there.

For a more aggressive and yet risky way of investing, you may try the stock market or simply invest in a business.



11.2.3.1 Simple Interest

A person who borrows money pays the lender interest. **Interest** is money paid for the use of money. The interest paid depends on the amount of money borrowed, called the principal, the rate of interest, and the length of time, usually given in years, for which the money is used. The relationship is given by the following formula:

$$\text{Interest} = \text{Principal} \times \text{Rate} \times \text{Time}$$

Or

$$I = P \times R \times T$$

Interest paid only on the original principal is called simple interest.

Example 1

Kristen borrowed K2,500 to make a down payment on a mobile home. He agreed to repay the money in 9 months at a simple interest rate of 15% a year. How much interest will she have to pay?

Solution

$$I = P \times R \times T$$

Use this formula to find the simple interest.

$$P = K2,500$$

$$R = 15\% = 0.15$$



$$T = 9 \text{ months} = 0.75 \text{ year}$$

$$I = (2,500)(0.15)(0.75) \quad \text{Substitute known values in the formula.}$$

$$I = 281.25$$

Therefore, Kristen will pay K281.25 in interest.

Example 2

Asia invested money for 2 years at a simple interest rate of 8.5% a year. Asia's interest was K6,800. How much did she invest?

Solution

$$I = P \times R \times T$$

$$6,800 = P(0.085)(2) \quad \text{Substitute known values in the simple interest formula.}$$

$$6,800 = 0.17P$$

$$40,000 = P$$

Therefore, Asia invested K40,000.

Example 3

Peter has been offered an opportunity to invest K100,000 at an annual interest rate which will allow him to double his investment in $12\frac{1}{2}$ years. What is the interest rate?

Solution

$$I = P \times R \times T$$

$$I = 100,000$$

$$P = 100,000$$

$$T = 12.5$$

$$100,000 = (100,000)(R)(12.5) \quad \text{Substitute known values in the simple interest formula.}$$

$$100,000 = 1,250,000R$$

$$\frac{100,000}{1,250,000} = R$$

$$0.08 = R$$

Therefore, Peter's investment will earn 8% annual interest.



11.2.3.2 Compound Interest

Compound Interest is computed on the principal plus the interest earned in a previous time period.

It can be compounded for any time period, which is called the compounding period. Compounding periods can be annually, semi-annually, quarterly, monthly, or daily.

When interest is compounded daily, for example, the interest is added to the principal each day. Therefore a new principal is computed each day.

The more frequently compounding occurs, the higher the amount of interest earned. The simple interest formula, $PRT = I$, is also used to calculate compound interest. Interest earned in a compounding period is added to the principal before calculating interest for the next period.

Example 1

Michelle earned K540 at a 6% simple interest on K3,000 over a three-year period. If the interest was compounded annually, how much interest would Michelle have earned?

Solution

Step 1 Calculate the first year's interest.

$$\text{Principal} \times \text{Rate} \times \text{Time} = \text{Interest}$$

$$K3,000 \times 0.06 \times 1 = K180$$

Step 2 Calculate the second year's interest.

$$\text{Principal} \times \text{Rate} \times \text{Time} = \text{Interest}$$

$$K3,180 \times 0.06 \times 1 = K190.80$$

Note: $K3,180 = \text{Amount Invested (K3,000)} + \text{First Year's Interest (K180)}$

Step 3 Calculate the third year's interest.

$$\text{Principal} \times \text{Rate} \times \text{Time} = \text{Interest}$$

$$K3,370.80 \times 0.06 \times 1 = K202.25$$

Note: $K3,370.80 = K3,180 + K190.80$

Step 4 Find the total interest earned.

$$\text{First Year's Interest} + \text{Second Year's Interest} + \text{Third Year's Interest} = \text{Total Interest Earned}$$

$$K180 + K190.80 + K202.25 = K573.05$$

Michelle earned K33.05 more when her interest was compounded annually (K573.05 – K540).



Example 2

Kevin Gibbons invested K2,000 at 10% interest compounded semiannually for one (1) year. What are Kevin's earnings at the end of the year?

Solution

Step 1 Calculate the interest for each time period.

First half year:

$$\text{Principal} \times \text{Rate} \times \text{Time} = \text{Interest}$$

$$K2,000 \times 0.10 \times \frac{1}{2} = K100$$

Note: Semiannually is a half year

Second half year:

$$\text{Principal} \times \text{Rate} \times \text{Time} = \text{Interest}$$

$$K2,100 \times 0.010 \times \frac{1}{2} = K105$$

Step 2 Find the total interest earned.

$$\text{Interest (First Half)} + \text{Interest (Second Half)} = \text{Interest Earned}$$

$$K100 + K105 = K205$$

Another way of solving compound interest is by the use of the formula.

The formula for compound interest that is calculated yearly is:

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

Where: A is the final amount including the principal.

P is the principal amount.

r is the rate of interest per year.

t is the number of years invested.

Example 3

Alex invested K1000 for 3 years at rate of 5% compounded annually. How much money will he have in 3 years?

Solution:

Use the formula:

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

$$A = 1000 (1 + 0.05)^3$$

$$= K1157.62.$$

Alex will have K1157.62 after 3 years.



Example 4

You invest K10,000 for 2 years at a 6.7% interest rate. How much money will you have in two years?

Use the formula:

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

Note: Convert the 6.7% into a decimal: $6.7\% = .067$

$$\begin{aligned} A &= 10000 (1 + 0.067)^2 \\ &= \text{K}11,384.89 \end{aligned}$$

You will have K11,384.89 in two years if you invest K10000 at a rate of 6.7%.

The Compound Interest Table

Another useful way of dealing compound interest is through the use of the Compound Interest table.

Below is a sample.

DAILY COMPOUND INTEREST									
Interest Earned on K1.00									
(365-Day Year)									
Interest Rate									
Days	5.0%	5.5%	6.0%	6.5%	7.0%	7.5%	8.0%	8.5%	9.0%
30	0.004117763	0.004530439	0.004943279	0.005356284	0.005769453	0.006182786	0.006596283	0.007009944	0.007423770
31	0.004255313	0.004681807	0.005108476	0.005535320	0.005962340	0.006389536	0.006816907	0.007244454	0.007672176
60	0.008252481	0.009/81403	0.009910995	0.010741258	0.011572192	0.012403798	0.013236077	0.014069028	0.014902653
90	0.012404225	0.013652985	0.014903267	0.016155075	0.017408410	0.018663274	0.019919669	0.021177595	0.022437057
180	0.024962316	0.027492373	0.030028642	0.032571136	0.035119873	0.037674866	0.040236130	0.042803681	0.045377535
240	0.033420798	0.036823446	0.040237251	0.043662249	0.047098479	0.050545976	0.054004776	0.057474916	0.060956433
360	0.050547748	0.055740577	0.060959003	0.066203151	0.071473151	0.076769127	0.082091207	0.087439518	0.092814190
365	0.051267499	0.056536238	0.061831311	0.067152848	0.072500985	0.077875852	0.083277580	0.088706305	0.094162160

Example 5

Nancy invested K2,000 at 6.5% to be compounded daily for 180 days. What is the interest earned on her investment?



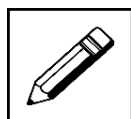
Solution

Step 1 Use the Daily Compound Interest Table. Read down the Days column until you come to 180. Read across until you come to the column headed 6.5%. The number, 0.032571136, is the interest earned on K1 at 6.5% compounded daily for 180 days.

Step 2 Find the total interest earned.

Interest on K1 at 6.5% for 180 Days \times Principal = Interest

$$K0.032571136 \times K2,000 = K65.14$$

**Student Learning Activity 11.2.3.2**

20 minutes

A. Use the Daily Compound Interest Table to find the interest earned on the following investments. (Round your answers to the nearest cent.)

Compounding Period	Principal	Rate	Time	Interest
Daily	K8,000	6%	90 days	K119.23
Daily	5,000	7.5%	240 days	_____
Daily	3,000	5.5%	31 days	_____
Daily	10,000	6.5%	60 days	_____
Daily	300	6%	365 days	_____

B. Solve the following.

1. Hillary Ito invested K5,750 at 7.5% daily compounded interest for 90 days. How much interest did Hillary earn?

2. Lin invests \$500 for 5 years at a rate of 4% compound interest. How much money will she have at the end of 5 years?

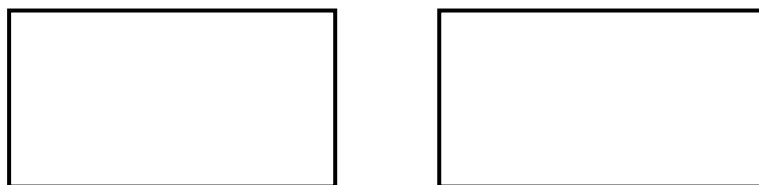


3. Mike invests K1000 for 4 years at 4% interest and the following year he invests K3000 for 3 years at 2% interest. How much money will he have after 4 years?

4. Joey invests \$2500 for 4 years at a rate of 3% compound interest. How much money will he have at the end of 4 years and 6 months?

11.2.3.3 Appreciation

Appreciation is a term used to indicate the value of something is increasing. Examples include gold, jewelries, paintings, real estates and collector's items.



Appreciation can be computed using the formula

$$A = P \left(1 + \frac{R}{100} \right)^n$$

Where: P = initial value

R = percent increase

N = term of the calculation (years, months, days)



Example 1

A vacation house along the beach is bought in 2011 for K 30 000. If it increases in value by 5% each year. How much it is worth in 2015?

Solution

Using the formula

$$A = P \left(1 + \frac{R}{100} \right)^n$$

Substitute: $P = 30\,000$, $R = 5$, $n = 4$

$$A = 30\,000 \left(1 + \frac{5}{100} \right)^4$$

Simplify:

$$A = 30\,000 (1 + 0.05)^4$$

$$= \mathbf{36465.18}$$

Let us compare using the long way

2012	30 000	+	(30 000)(0.05)	=	31500
2013	30 000	+	(31500)(0.05)	=	33075
2014	30 000	+	(33075)(0.05)	=	34728.75
2015	30 000	+	(34728.75)(0.05)	=	36465.18

Therefore, the vacation house is worth 36465.18 in 2015.

Example 2

A valuable coin, purchased for K250, is expected to grow in value by 10% p.a. Give an estimate of the value of the coin in 10 years' time, correct to the nearest whole number.

Solution

Using the formula

$$A = P \left(1 + \frac{R}{100} \right)^n$$

Substitute: $P = 250$, $R = 10$, $n = 10$

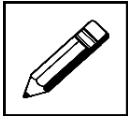
$$A = 250 \left(1 + \frac{10}{100} \right)^{10}$$

Simplify:

$$A = 255 (1 + 0.10)^{10}$$

$$= \mathbf{648}$$

Therefore, the coin is expected to have a value of K648 in 10 years.

**Student Learning Activity 11.2.3.3**

20 minutes

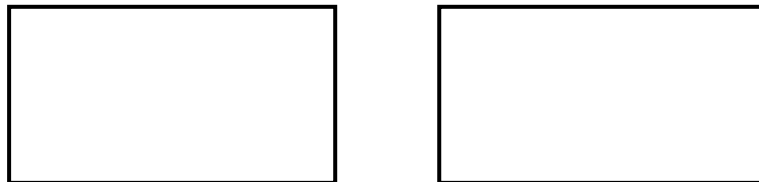
Solve the following:

- 1) A piece of 24 karat jewelry was bought at K 5250 6 years ago. If its value increases by 4% per year, calculate its present value.
- 2) A painting by a renowned artist is originally priced at K5000. If the painting is 12 years old, find its present value.
- 3) If the inflation rate is 3% p.a., estimate the cost next year of a new car which has a price tag of K28 000 this year.



11.2.3.4 Depreciation

Depreciation is a term used to indicate the value of something is decreasing. As the thing is being worn out over time, its value is said to be depreciating. Examples include a car, appliances, gadget like mobile phones , computers and tablets.



Depreciation can be computed using the formula

$$A = P \left(1 - \frac{R}{100} \right)^n$$

Where: P = initial value

R = percent increase

N = term of the calculation (years, months, days)

Example 1

A flat screen TV is bought for K 12,000. If it decreases in value by 1% each month, how much it is worth after a year?

Solution

Using the formula

$$A = P \left(1 - \frac{R}{100} \right)^n$$

Substitute: P = 12 000, R = 1, n = 12

$$A = 12\,000 \left(1 - \frac{1}{100} \right)^{12}$$

Simplify:

$$A = 12\,000 (1 + 0.01)^{12}$$

$$= \mathbf{10636.62}$$



Let us compare using the long way

Month	Value
1	$= 12000 - (12000)(0.01) = 11880$
2	$= 11880 - (11880)(0.01) = 11761.20$
3	$= 11761.20 - (11761.20)(0.01) = 11643.59$
4	$= 11643.59 - (11643.59)(0.01) = 11527.15$
5	$= 11527.15 - (11527.15)(0.01) = 11411.88$
6	$= 11411.88 - (11411.88)(0.01) = 11297.76$
7	$= 11297.76 - (11297.76)(0.01) = 11184.78$
8	$= 11184.78 - (11184.78)(0.01) = 11072.93$
9	$= 11072.93 - (11072.93)(0.01) = 10962.20$
10	$= 10962.20 - (10962.20)(0.01) = 10852.58$
11	$= 10852.58 - (10852.58)(0.01) = 10744.05$
12	$= 10744.05 - (10744.05)(0.01) = 10636.62$

The long method is useful if you want to see the values in between the periods. The use of the formula is straightforward and it will directly lead you to the unknown value you want to compute.

Example 2

An Android mobile is priced at K 2200. If it depreciates at a rate of 3% per annum. How much will it cost in 3 years?

Solution

Using the formula

$$A = P \left(1 - \frac{R}{100} \right)^n$$

Substitute: $P = 2\,200$, $R = 3$, $n = 3$

$$A = 2\,200 \left(1 - \frac{3}{100} \right)^3$$

Simplify:

$$A = 2200 (1 - 0.03)^3$$

$$= \mathbf{2007.88}$$

The mobile phone is expected to have a value of K2007.88 after 3 years.



11.2.3.5 Foreign Exchange

Exchange rates are quoted as foreign currency per unit of domestic currency or domestic currency per unit of foreign currency.

“What is the equivalent value of 1 Australian Dollar (AUD) to Kina (K)?”

This question reflects foreign exchange rate.

Kina is the domestic currency while Australian Dollar is the foreign currency.

Exchange rate allow us to express the cost or price of a good or service in a common currency.

The Foreign Exchange Market involves activities like the following:

- Commercial banks and other depository institutions : transactions involve buying/selling of bank deposits in different currencies for investment.
- Non-bank financial institutions (pension funds, insurance funds) may buy/sell foreign assets.
- Private firms: conduct foreign currency transactions to buy/sell goods, assets, or services.
- Central banks: conduct official international reserve transactions; foreign exchange intervention.

Study the following table below:

Country and Currency	Exchange rate
Australian dollar (AUD)	0.42066
United States dollar (USD)	0.4391
Singapore dollar (SGD)	1.87086
New Zealand dollar (NZD)	0.52147
British pound sterling (GBP)	0.26802
Euro (EUR)	0.30719

This table shows that K1 = 0.42066 AUD
= 0.4391 USD
= 1.87086 SGD
= 0.52147 NZD
= 0.26802 GBP



$$= 0.30719 \text{ EUR}$$

Example 1

Convert K1000 to:

- Euro
- United States Dollar

Solution

- a) To convert Kina to Euro, we use the exchange rate $K1 = \text{€} 0.30719$

We represent the unknown x and form a proportion:
$$\frac{K1}{\text{€}0.30719} = \frac{K1000}{x}$$

Cross multiply:
$$1(x) = (0.30719)(1000)$$

$$X = 307.19$$

K1000 = € 307.19

- c) b) To convert Kina to United States Dollar, we use the exchange rate

$$K1 = \$ 0.4391$$

We represent the unknown x and form a proportion:
$$\frac{1}{0.4391} = \frac{K1000}{x}$$

Cross multiply:
$$1(x) = (0.4391)(1000)$$

$$X = 439.10$$

K1000 = \$439.10

The following table shows the equivalent value in Kina per 1 unit currency of the listed countries.

Country and Currency	Exchange rate In Kina
1 Australian dollar (AUD)	2.37724
1 United States dollar (USD)	2.2774
1 Singapore dollar (SGD)	0.53451
1 New Zealand dollar (NZD)	1.91765
1 British pound sterling (GBP)	3.731
1 Euro (EUR)	3.25529

We can derive the following information from the table.

$$1 \text{ AUS} = \text{k}2.237724$$

$$1 \text{ USD} = \text{K}2.2774 \dots \text{ and so on}$$



This table is useful too I converting Kina to another currency.

Example 2

Jill has USD 356 and would like to change it to kina.
Convert from USD to Kina.

Solution

a) To convert USD to PGK, we use the exchange rate 1 USD = K2.2774

We represent the unknown x and form a proportion: $\frac{1}{2.2774} = \frac{356}{x}$

Cross multiply: $1(x) = (356)(2.2774)$
 $X = 810.75$

$$\mathbf{\$356 = K810.75}$$

Example 3

Honey bought a mobile phone for in Australia in one of their trips. When she reached the country her sister would like to buy it. If the phone cost 958 AUD, How much will her sister pay her in Kina if the exchange rate at that day is 1 AUD = K2.55?

Solution

Note that the exchange rate varies from time to time. One day it may be high then the following day it may be a little low.

To convert AUD to PGK, given the exchange rate 1 AUD = K2.55

We represent the unknown x and form a proportion: $\frac{1}{2.55} = \frac{958}{x}$

Cross multiply: $1(x) = (958)(2.55)$
 $X = 2442.90$

$$\mathbf{AUD 958 = K2442.90}$$

**Student Learning Activity 11.2.3.5**

20 minutes

A. Using the Exchange Rate table

Country and Currency	Exchange rate In Kina
1 Australian dollar (AUD)	2.22724
1 United States dollar (USD)	2.3154
1 Singapore dollar (SGD)	0.54.251
1 New Zealand dollar (NZD)	1.92145
1 British pound sterling (GBP)	3.630
1 Euro (EUR)	3.2852

Convert the following:

- 1) K 560 to Euro
- 2) SGD 8345 to Kina
- 3) K12, 345 to New Zealand dollar
- 4) GBP350 to Kina

B. Solve the following. Use the same conversion table in A.

- 1) In an online shop the prize of a bag is USD 250. How much Kina will Gela deposit to purchase the bag?
- 2) Kira's son is in Australia to study. She needs to send him an allowance through wire transfer. If she sent K 2300, how much will his son receive in AUD?

**SUMMATIVE TASK 11.2.3**

30 minutes

A. Identify what is being described in the following statements.

- 1) It is the amount paid for the use of money.
- 2) It refers to an increasing value or worth of something.
- 3) The total amount of money borrowed or lent.
- 4) The domestic currency of Papua New Guinea.
- 5) The percentage multiplied to a currency to convert to foreign currency.

B. Complete the tables below:

1) Simple Interest

Interest	Principal	Rate	Time
K15	K 234		3 years
1240		2%	8 years
	K 2300	5%	18 months

2) Foreign exchange. Use the table on learning Activity 11.2.3.5.

Foreign Currency	Kina
SGD	K9214
GBP 255	
AUD 325	
USD	K 4820
NZD 8250	



C. Solve the following:

1) Winnie invested K5,000 at 12% interest compounded semi-annually for 5 years. How much interest did she earn in 5 years?

2) A yacht is bought in 2013 for K 55 000. If it decreases in value by 5% each year. How much it is worth in 2015?

3) A diamond ring is priced at K9800. If its value appreciates at a rate of 6.5% per year, how much will it cost after 50 months?



11.2.4 Budgeting and Loans

The first step to coming up with a good budget is comparing your income to your expenses. If you are a student your income may be substituted with your allowance. But if you do a part time work, you surely have your own source of income while studying.

Be your money comes from your allowance or it is hard earned, budgeting plays an important role in assuring that your money are well spent and you meet your basic needs.

Loans may also serve as your source of finances to sustain your studies or do other related matters like business or purchasing important things.

Both budget and loans must be managed properly to ensure that loans are paid on time and you avoid penalties while you manage to meet your daily necessities.

11.2.4.1 Budgeting

A **budget** is a plan one makes to be sure that one's income will be enough to cover expenses. It is a list of estimates of both income and expenses, usually for a certain period like fortnightly, monthly, or yearly. If the set budget is followed it will ensure a business to make a profit, a person to save and meet all set needs and create a better financial plan as well.

Example 1

If the yearly income of a family in the village is K25,000, how much do they plan to spend on food in a year given the following details in their budget?

Food :	15%
Education:	25%
Household maintenance:	10%
Medication and Check Ups:	5%

Solution

From the information above, the family expect to spend 15% of their income on food. Letting n be the amount they will spend,

$$n = 0.15 \times 25,000$$
$$n = 3750$$

The family plans to spend K2550 on food.



Now it is time to calculate your monthly and yearly spending. You will have two types of spending: fixed and variable. Fixed expenses happen every month. For example, your rent would be a fixed expense. Variable expenses change each month.

Usually a budget is organized in column form. The planned expenses are on the left column while the allotted amount is on the right to facilitate easy computation.

Personal Budget

Is any financial plan created by an individual for his or her own personal use and the immediate family. Usually this plan is made by the couple in a big family or by just one person if he or she is not married and living alone. This includes essential (needs) and non-essential (wants) items.

Below is sample personal budget.

Income		Expenses	Amount (K)
		Essentials	
Basic Salary:	K 1230	Food	350
		Rent	500
Part Time work:	K 450	Clothes	20
		Electricity Bill	100
		Water Bill	50
		Petrol	120
		Non-Essentials	
		Shopping	170
		Movies & Recreation	60
		Others	
Total	K1,680	Total	K1,370

Notice that in this plan the , the income is more than the expenses. If the planned expenses is more than the income the budget must be adjusted.

The plan above provides opportunity for the person to save. Since the difference maybe saved for future endeavors.

Example 2

Using the sample budget above, compute for the personal savings.



Solution

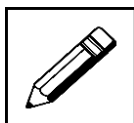
$$\begin{aligned}\text{Savings} &= \text{Total Income} - \text{Expenses} \\ &= \text{K } 1,680 - \text{K } 1,370 \\ &= \text{K } 310\end{aligned}$$

Business or Company Budget

This is a budget for a certain business or establishment. This is the focal point of the work of the manager in a business. To create an effective plan for more profit and to execute the plan as is.

All businesses aim to make profit because that is the very reason why it is called as business.

Revenue	Amount (K)	Expenses	Amount (K)
Sales :	19 650 000	Fuel for transports	30 000
Investments:	6 231 200	Electricity Bill	50 000
		Water Bill	18 000
		Rentals	50 000
		Internet Connection	25 000
		Taxes	3 060 000
		Salaries /Wages	820 200
		Representations	5 000
		Housekeeping services	15 000
		Stationeries	48 000
		Marketing and Adds	30 000
		Insurance & registrations	30 200
		Entitlements	700 000
		Expansion	3 000 000
		Dividends	18 000 000
Total Revenue	25 881 200	Total Expenditure	25 881 200

**Student Learning Activity 11.2.4.1**

15 minutes

A. Complete the table below by supplying the amount allotted in the budget.

Income		Expenses		Amount in Kina
		Essentials		
Basic Salary:	K 2500	Food	(20%)	
		Rent	(20%)	
Extras:	K 500	Clothes	(10%)	
		Electricity Bill	(5%)	
		Water Bill	(3%)	
		Petrol	(3%)	
		Non-Essentials		
		Shopping	(3%)	
		Movies & Recreation	(1%)	
		Savings		
Total	_____		Total	_____

B. After completing the table, answer the following:

1) How much is allotted for all essential expenses?

2) What percent of the budget is the savings?

3) How much saving does the budget suggest?



C. Solve the following.

1. The Randolph family pays K546 per year for medical insurance. This amounts to 40% of the cost of all their insurance, and 5% of their annual income. How much does all their insurance cost and how much is their annual income?

2. Tim and Sally Wright are looking for an apartment. If they want to spend no more than 25% of their combined monthly take-home pay of K1375, what is the largest monthly rent they can afford



11.2.4.2 Rent

Rent is amount paid for the use of something usually a house or a car. In some cases DVDs for movies are also for rent in some places. The use of facilities and equipment also falls under rent.

A person resort to renting a house for their convenience. Example condominium units are rented for the purpose of being near the workplace. Others rent a house because they cannot afford to build one yet.

Some companies rent facilities and venues for special functions and occasion. Equipments are also rented for short term use.

Sometimes we find ourselves in the position where we need to rent a vehicle for travelling. Often rental companies have different deals and plans. Look at the chart below. Which rental plan you should choose depends on how far you will go during the trip.

Observe the table for the rental cost.

Model	Standard Daily Rate (Dollars)	Plus Cents Per Kilometre	Unlimited Mileage Daily (Dollars)
Sub-Compact	40	15	70
Compact	45	21	75
Midsize	49	23	80
Station Wagon	55	25	89
Van	64	28	100
Luxury	70	30	105

Example 1

Susie and her family rent a vehicle while they are in Australia for a day tour. The place they will visit is about 100 km to from their hotel. There are five of them travelling so they will need a van. Should they get the Standard Daily Rate or Unlimited Mileage Daily?

Solution:

Analyzing the table , using a van, they will spend 28 cents per kilometer added to the standard daily rate.

So, $200 \text{ km} \times 0.28 = \56 (for 200 kilometres travelled)

Total amount of rent = $\$56 + \64 (Standard Daily Rate) = $\$120$



Looking back at the table, the unlimited mileage daily only costs \$100.

Susie and her family should get the Unlimited Mileage Daily plan as it would only cost them \$100 compared to \$120 for the Standard Daily Rate plus mileage.

Example 2

Michelle and her family are going on a vacation trip. The total driving distance is 1700 kilometres and the trip will last one week (7 days). They need to rent a mid-size car.

- How much would it cost them to rent the vehicle through the Standard Daily Rate plus Mileage plan?
- How much would it cost them to rent the vehicle through the Unlimited Mileage plan?
- What is the better plan?
- How much money will this save them?

Solution

a) Analyzing the table, using a van, they will spend 23 cents per kilometer added to the standard daily rate.

So, $1700 \text{ km} \times 0.23 = \391 (for 1700 km travelled)

Total amount of rent = $(7)(\$49) + \391 (Standard Daily Rate)
= \$734

b) Unlimited Mileage = $7 (\$80)$
= 560

c) Unlimited mileage since it will only cost them \$560

d) Savings = $\$734 - \560
= \$174

Note that house rentals are fixed. Unlike cars, you can change the car you would like to use after the other if you are not satisfied.

Use the skill presented above in analyzing the best house to rent because once you are tied up, you need to wait for 3 months before you can move. As landlords require 1 month deposit and 2 months advanced to cover the first 3 months.

Also note that a contract must be signed before engaging with rentals.

Read the terms and conditions carefully before you use whatever you have rented.

**Student Learning Activity 11.2.4.2**

20 minutes

Answer the following using the given information on the table on page ___.

The Jones family is flying to Edmonton and then renting a luxury car to travel to Banff. A one way trip is 300 km and they will most likely put on another 200 km driving around town. They need to rent the vehicle for 6 days.

a. How much will it cost them if they use the Standard Daily Rate plus Mileage?

b. How much will it cost them if they use the Unlimited Mileage plan?

c. What is the better plan?

d. How much money will it save them?

3. Louise needs to rent a small car in Yellowknife. She just needs it for getting around town while she is here. She is in Yellowknife for 5 days and will probably drive about 25 kilometres per day.

a. How much will it cost them if they use the Standard Daily Rate plus Mileage?

b. How much will it cost her if she uses the Unlimited Mileage plan?

c. Which is the better plan?

d. How much money will it save her?



11.2.4.3 Hire Purchase

Hire Purchase or also known as Instalment buying is a mode of purchasing something wherein you only pay for a portion (down payment) of your purchase immediately and have the remaining balance owing divided into equal payments. Hire purchase is usually more expensive than just buying the item outright. The company needs to make some extra money to cover administration fees and interest lost on their money. But the convenience is that you can use the good or item without paying for the actual costs.

Example 1

An item is on sale for K4200 cash. Or it can be obtained by K1000 deposit, and pay K150 instalments for 26 fortnights.

- a) How much is the total cost of the item in hire purchase?

Solution:

- a) To compute for the total hire purchase price of the item Add the outstanding balance with and the down payment.

$$\begin{aligned}\text{cost of the item in hire purchase} &= \text{outstanding balance} + \text{down payment} \\ &= (26 \text{ fortnights}) (K150) + K 1000 \\ &= K3900 + 1000 \\ &= \mathbf{K 4900}\end{aligned}$$

Example

Bracks Fine Furniture sells a mini refrigerator for K900 plus 5% GST if you pay in cash. Or, you can buy the fridge on an installments for K300 down and K135 a month for 6 months (this plan already includes taxes).

What is the difference in cost between the regular price and the installment price?

Solution

Step 1: If you purchase the fridge in cash, it will cost you the purchase price plus taxes:

$$\begin{aligned}\text{GST} &= K900 \times 0.05 \\ &= K45.00\end{aligned}$$



$$\begin{aligned}\text{Price in cash} &= \text{K}900 + \text{K}45 \\ &= \text{K}945\end{aligned}$$

Step 2: If it is purchased with installments it would cost:

$$\begin{aligned}\text{cost of the item in hire purchase} &= \text{outstanding balance} + \text{down payment} \\ &= (6 \text{ months}) (\text{K}135) + \text{K}300 \\ &= \text{K}810 + \text{K}300 \\ &= \text{K } 1110.00\end{aligned}$$

Difference in the regular price and installment price = $\text{K}1110 - \text{K}945 = \text{K}165$

You would pay K165 more by buying through an installment plan.



Student Learning Activity 11.2.4.3



20 minutes

Use the information to answer the questions that follow.

- 1) Steve wants to buy a new plasma TV. He can buy it now for \$5800 plus 5% GST, or he can pay in installments by paying \$1000 down and \$250 a month for 24 months (taxes are already included in the installment plan).
 - a. How much would the TV be if he paid directly including GST?

 - b. How much would the TV be if he paid in installments?

 - c. How much does Steve owe after his down payment?



d. What is the difference in price between buying the TV directly and paying in installments?

2) Lisa wants to buy new furniture for her living room. She can buy it now for \$7600 plus 5% GST, or she can pay in installments by paying \$500 down and \$345 a month for two years (taxes are included in the installment plan).

a. How much would the furniture be if she paid directly including GST?

b. How much would the furniture be if she paid in installments?

c. How much does Lisa owe after her down payment?

d. What is the difference in price between buying the furniture directly and paying in installments?



11.2.4.4 Bank Loans

You can take out a personal loan from a bank or financial institution. Often car dealerships allow you to take out a loan to buy a vehicle. When you take out a loan you are charged interest. This is how banks and other financial institutions make their money.

Example 1

Jill took out a K20,000 loan for a new vehicle for 5 years with an annual interest rate of 5%. Her monthly payments are K377.48.

- a) How much will Jill pay for her new vehicle overall?
- b) How much will she pay in interest?

Solution

- a) First calculate how much she pays over 5 years or 60 months.
$$= 60 \times K377.48$$
$$= K22,648.80$$

She pays K22,648.80 for her new vehicle.

- b) Next calculate how much interest she pays.
$$= K22,648.80 - K20,000$$
$$= K2648.80$$

She pays K2648.80 in interest.

Example 2

Mike wants to purchase a 20 foot Lund fishing boat. It is on sale for K22,450 at the local boat shop. They are offering financing for 9.5% over 5 years. Monthly payments are K471.61.

- a. How much will Mike pay for the boat overall?
- b. How much does Mike pay in interest?

Solution

- a) To calculate how much he pays over 5 years or 60 months.
$$= 60 \times K471.61$$
$$= K28296.6$$

She pays K28296.6 for her new vehicle.

- b) Next calculate how much interest she pays.
$$= K28296.6 - K22,450$$
$$= K5846.6$$

She pays K5846.6 in interest.

**Student Learning Activity 11.2.4.4**

20 minutes

Solve the following:

- 1) The Kudlaks want to buy a new All Terrain Vehicle (APV). They decide on a Yamaha. The price is K16,500 at 8.5% interest rate over 6 years. Monthly payments are K293.41.

a. How much will they pay for their APV in total?

b. How much do they pay in interest?

2. Jennifer wants to buy a brand new car. She has really looked into models and prices and has decided to buy a hybrid. The vehicle costs K46,000 at a 3% interest rate over 6 years. Monthly payments are K699 per month.

a. How much will Jennifer pay overall for her hybrid?

b. How much will she pay in interest?



3. Johnny wants to buy a new laptop computer. It will cost him a total of K3350 after taxes and shipping. He will borrow this money from the bank at a 5% interest rate per year for three years. His monthly payments are K100.40.

a. How much will Johnny pay for his loan overall?

b. How much interest does he pay?

**SUMMATIVE TASK 11.2.4**30 minutes

A. Encircle the correct answer.

1. It is a financial plan where the lists of essential things to be considered are allocated with an amount.

- A. Loan C. Rent
B. Purchase D. Budget

2. The term used as payment for the use of something like a venue, car or facilities.

- A. Purchase C. Loan
B. Budget D. Rent

3. It is also called as instalment.

- A. Down payment C. Outright Buy
B. Outstanding Balance D. Discounts

4. Amount lent by the bank to purchase something.

- A. Bank Loan C. Bank Card
B. Bank Promotions D. Bank Account

5. The amount charged by the bank for lending you some.

- A. Rent C. Loan
B. Interest D. Discount



B. Complete the table below:

Complete the table below by supplying the amount allotted in the budget.

Income		Expenses		Amount in Kina
		Essentials		
Basic Salary:		Food	(25%)	
Husband K 3500		Rent	(15%)	
Wife K 1500		Clothes	(10%)	
		Electricity Bill	(5%)	
		Water Bill	(3%)	
		Petrol	(4%)	
		Non-Essentials		
		Shopping	(2%)	
		Movies & Recreation	(1%)	
		Savings		
Total	_____	Total		_____

C. Solve the following

- 1) Clark wants to buy a new mobile phone. It will cost him a total of K6700 after taxes and shipping. He will borrow this money from the bank at a 2% interest rate per year for two years. His monthly payments are K210.

a. How much will Clark pay for his loan overall?

b. How much interest does he pay?

- 2) A family pays K 300 per year for car insurance. This amounts to 20% of the cost of all their insurance, and 5% of their annual income. How much does all their insurance cost and how much is their annual income?



- 3) Landlord A offers K1500 plus 10% GST for a two bedroom house. Landlord B offers K1600 inclusive of GST for two bedroom house . Granting that both house are in good condition, which landlord has the better offer?
- 4) A printer is on sale for K2800 cash. Or it can be obtained by K500 deposit, and pay K260 instalments for 10 fortnights.

How much is the total cost of the item in hire purchase?



UNIT SUMMARY

This summary outlines the key ideas and concepts to be remembered.

- **Percent** is a ratio that compares a number to 100. It comes from Latin words meaning “parts of a hundred” or “per hundred”.
- Percentage means a rate, a number, a value or an amount in each hundred.
- **Gross profit** is the difference between the selling price and the cost of the goods sold. It does not indicate the actual profit.
- The amount that remains after deducting the operating expenses from the gross profit is called **net income or net profit**.

- A Salary is a fixed amount of money employers pay for their employees services rendered.
- Gross salary is the amount before deductions like taxes, loans and the like.
- Net salary refers to amount computed after deductions.
- **Wages** refers to the amount paid to a worker for each hour worked based on a basic rate.
- A commission is usually a certain percent of sales.
- Income tax is the amount paid by workers to the government.
- Value Added Tax (VAT) or commonly known as Goods and Services Tax (GST) in Papua New Guinea refers to the amount of tax applied on goods sold and services rendered.
- **Superannuation** is the money deducted from an earner’s salary which are set aside for retirement.
- **Levies** are imposed or required deduction for a certain purpose.
- Interest is money paid for the use of money.
- Compound Interest is computed on the principal plus the interest earned in a previous time period.
- Appreciation is a term used to indicate the value of something is increasing.
- Depreciation is a term used to indicate the value of something is decreasing.
- A budget is a plan one makes to be sure that one’s income will be enough to cover expenses.



- Rent is amount paid for the use of something usually a house or a car.
- Hire Purchase or also known as Installment buying is a mode of purchasing something wherein you only pay for a portion (down payment) of your purchase immediately and have the remaining balance owing divided into equal payments.



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