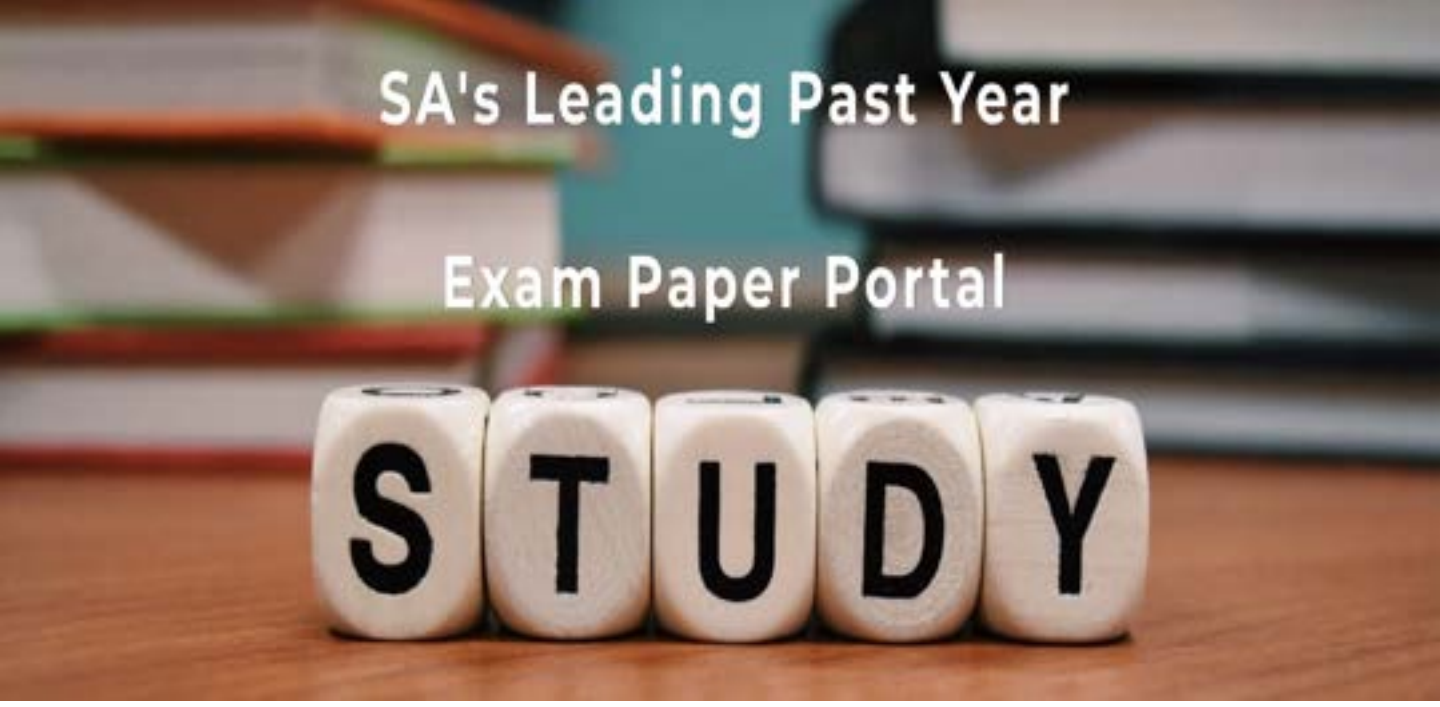

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1. Introduction

The declaration of COVID-19 as a global pandemic by the World Health Organisation led to the disruption of effective teaching and learning in many schools in South Africa. The majority of learners in various grades spent less time in class due to the phased-in approach and rotational/ alternate attendance system that was implemented by various provinces. Consequently, the majority of schools were not able to complete all the relevant content designed for specific grades in accordance with the Curriculum and Assessment Policy Statements in most subjects.

As part of mitigating against the impact of COVID-19 on the current Grade 12, the Department of Basic Education (DBE) worked in collaboration with subject specialists from various Provincial Education Departments (PEDs) developed this Self-Study Guide. The Study Guide covers those topics, skills and concepts that are located in Grade 12, that are critical to lay the foundation for Grade 12. The main aim is to close the pre-existing content gaps in order to strengthen the mastery of subject knowledge in Grade 12. More importantly, the Study Guide will engender the attitudes in the learners to learning independently while mastering the core cross-cutting concepts.

2. How to use this Self-Study Guide.

- This study guide covers selected sections of Finance which form part of paper 1.
- The topic is drawn from the CAPS Grade 10 – 12 Curriculum. Selected sections are presented in the following way:
    - What you should know at the end of the section.
    - Explanation of key concepts.
    - Summary/Notes.
    - Worked examples.
    - Practice questions.
    - Solutions to practice questions.
- Mathematical Literacy is a highly contextualised subject. Whilst every effort has been taken to ensure that skills and concepts you will be examined on are covered in this study guide, it is in fact the context used in the examination that will determine how these skills and concepts are assessed.
- This study guide covers all the cognitive levels.
- Go through the worked examples on your own.
- Do practice examples on your own. Then check your answers.
- Read symbols and explanation table below to understand how marks are allocated.

Symbol	Explanation
M	Method
M/A	Method with accuracy
MCA	Method with consistent accuracy
CA	Consistent accuracy
A	Accuracy
C	Conversion
S	Simplification
RT/RG/RD	Reading from a table/graph/diagram
SF	Correct substitution in a formula
O	Opinion/Example/Definition/Explanation
P	Penalty, e.g. for no units, incorrect rounding off, etc
R	Rounding off
NPR	No penalty for rounding
NPU	No penalty for the units
AO	Answer only, if correct, full marks

- Reward yourself for things you get right.
- If any of your answers are incorrect, make sure that you understand where you went wrong, before moving on to the next section.
- The study guide covers both generic and subject specific examination tips. You are expected to read and understand the tips, so that you are able to study more effectively.

3. TOPIC: FINANCE

3.1 Notes/Summaries/Key Concepts

TERMINOLOGY	MEANING
Account	A record of income and expenditure relating to a particular period or purpose.
Balance	This is the difference between debits and credits.
Bank statement	The details of all the transactions made from one bank account in a given time period.
Break-even point	Break-even point is where the business is at an activity level (doing business) at which **total cost = total sales,** i.e. you have made enough income to cover the costs. At the break-even point, you are making neither a profit nor a loss; from that point on you will be making a profit with each sale (until new costs are incurred).
Budget	A plan of how to spend money. An estimate of income and expenditure.
Bursary	A sum of money given to you by an organisation to cover the cost of your formal studies.
Capital	Money that is owned by someone and used for the purpose of investing or lending.
Commission	The sum of money paid to an agent (usually a salesperson) that is a percentage of the total value of goods sold by the agent.
Compound interest	Interest charged on an amount due, but including interest charges to date.
Consumption rate	The rate at which a commodity, such as water, electricity or fuel, is consumed.
Cost-effective	Best value for money.
Cost price	This is the amount that it **costs per unit** to either manufacture or purchase an item or to prepare for a service that will be delivered. This amount is pure cost, no mark-up or profit has been added yet.
Cost rate	The price of a product per mass, volume, length or time unit.
Credit	This is an entry in an account that shows a payment made into the account.
Credit balance	The amount in the account is your own.
Credit card	A credit card is a service bank product that allows you to buy goods and pay for them at the end of the month.
Credit limit	The maximum amount you can spend on your credit card.
Debit	Money deducted or money flowing out of an account. An entry in an account showing a payment made from the account.
Debit balance	The amount owed to a lender or seller.
Debit order	It is an arrangement whereby you give permission to a third party to withdraw money from bank account on a regular basis.
Deposit	A payment made into a bank account.
Disposable income	Income that is left over after all payments have been made.
Exchange rate	The value of one currency relative to the value of another currency.
Expenditure	An amount of money that is spent on something.
Fine print	The legal terms and conditions printed on a contract applicable to a transaction or account.
Fixed deposit	A single deposit invested for a fixed period at a fixed interest rate.
Fixed expenses	These are amounts that must be paid every month and stays the same for a period of time, like rent, school fees and transport costs.
Fund	A source of money.
Gross income	The **total** amount of **all** an individual's income before deductions.
Hire purchase	Goods and products such as furniture can be purchased using a long- term lease or hire agreement.
Inflation	An increase in the price of a basket of goods or services that is representative of the economy as a whole.
Interest	Money paid regularly at a particular rate for the use or loan of money. It can be paid to you by a finance organisation or bank (in case of savings); or it may be payable by you to a finance organisation on money you borrowed from the organisation.
Interest rate value	This is the % rate of interest that will be charged on your loan amount, i.e. a percentage value of the original loan amount.

Interest value	This is the actual rand amount of interest that will be added to your loan.
Investment	To put money into an organisation or bank (e.g. by buying shares), so as to gain interest on the amount at a higher rate.
Investment	Something in which you have invested money. Money invested for a period of time.
Invoice	A comprehensive document that details all the work done or items sold, and what costs are due.
Lay-bye	It is a form of credit where the buyer pays a deposit and pays the balance in instalments while the shop keeps the item(s) until it has been paid off.
Loan	A loan is an agreed sum of money that is lent by a bank or moneylender (e.g. personal loan or home loan).
Luxury item or service	An item or service that is not essential for daily life, but which makes life easier or more convenient.
Net pay	The amount an employee "takes home" after income tax has been deducted.
Overdraft	An overdraft is an arrangement you make with the bank that allows you to draw more money than there is in your account.
PAYE	(abbr.) Pay as you earn: tax taken off your earnings by your employer and sent to the South African Revenue Service before you are paid (the balance).
Remittance slip	A piece of paper that accompanies a payment and contains the most important details of the transaction.
Salary	An amount of money paid for the work you do. (This is normally paid monthly.)
Selling price	This is the price at which something is offered for sale.
Simple interest	Interest charged on the original amount due only, resulting in the same fee every time.
Statement	A summary of transactions (debits and credits, or payments and receipts) made on an account.
Tariff	The rate charged for a service rendered, e.g. import duties, water consumption cost, etc.
Tax	A compulsory levy imposed on citizen's earnings or purchases to fund the activities of government.
Taxable	A service, purchase, income, item or earning that will have tax charged to it.
Tax invoice	Printed record of what was bought, what it cost, what was taxable, the tax amount, method of payment, amount tendered, and change due, if any.
Trillion	One-million-million (one followed by twelve zeros).
UIF	(abbr.) Unemployment Insurance Fund: A government-run insurance fund which employers and employees contribute to, so that when employees are retrenched they can collect some earnings (a portion).
Variable expenses	Expenses that change over time or from one week/month to the next. These are things that you usually pay or buy each month, but the amount changes e.g. telephone and electricity costs.
VAT	**Value Added Tax (VAT)** is a tax that is levied at 15% (currently in South Africa) on most goods and services, as well as on the importation of goods and services into South Africa.
VAT exclusive price	The price before **VAT** is added.
VAT inclusive price	The price after **VAT** is added.
Wages	
Withdrawal	Money taken out of a bank account.
Zero rated VAT items	These are goods that are exempted from VAT. Groceries that are basic foodstuffs are zero-rated in South Africa, e.g. brown bread, milk, mielie meal, samp, rice, etc..

3.1.1 Tariffs

Objectives

By the end of this section, learners must be able to:

1. Work with the following tariff systems:
   - 1.1 Municipal tariffs (e.g electricity, water, sewage)
   - 1.2 Telephone tariffs (e.g cell phone, fixed line)
   - 1.3 Transport tariffs (e.g bus, taxi, train)
   - 1.4 Banking Charges (not included in this manual)
2. Calculate cost using given tariffs and/or formulae.
3. Draw and interpret graphs of various tariff systems
4. Compare TWO or MORE different options for a tariff system to determine the most appropriate/cost effective option for individuals with particular needs.
5. Draw graphs to represent the different options and interpret the point(s) of intersection.

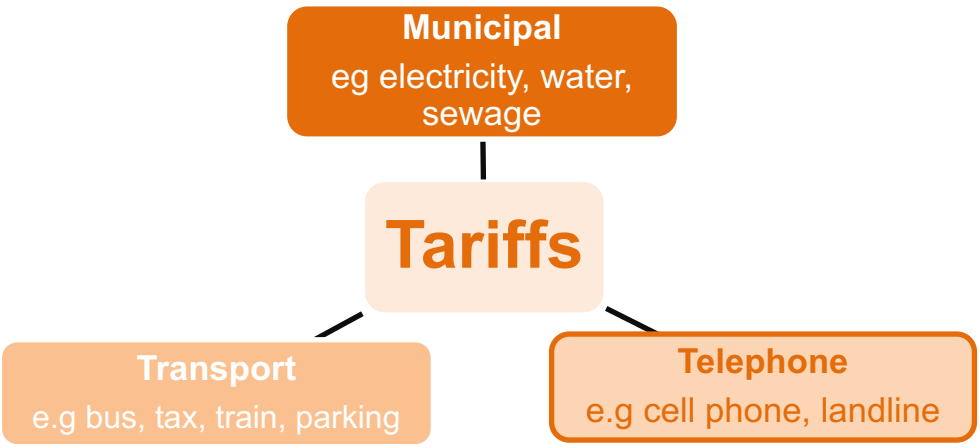
Summary

A tariff is the **charge** in rands per measuring unit for a specific service. Tariffs are not always constant; they change from time to time.

The formulae for calculating the total cost is:

Total cost = number of units × tariff (cost per unit)

In this section we are going to deal with the following tariffs:



Electricity tariffs

- Electricity usage is measured in kilowatt per hour (KWh).
- The amount of electricity that a person will pay each month depends on the number of Kwh of electricity used during the month.
- Electricity billing options include Prepaid (i.e. pay as you use) or a fixed billing system (i.e. using electricity and paying at the end of the month)
- Electricity is charged at a sliding scale. This means that the more electricity you use, the higher the rate at which you are charged for electricity.

The table below indicates the example of sliding scales for electricity tariffs

	Household (all tariffs are VAT exclusive) VAT to be charged at 15%	
Block 1	0 - 50 KWh	R0,8375 per KWh
Block 2	51 - 350 KWh	R0,9440 per KWh
Block 3	351 - 600 KWh	R1,2629 per KWh
Block 4	Over 600KWh	R1,5156 per KWH

Worked example 1

Use the table above to answer the questions that follow:

1.1 Write down the tariff per kWh charged in block 2.
1.2 Determine the amount to be paid for 250 kWh of electricity.

Solutions

1.1 R0,9440

1.2 Using the table, we can see that the 250kWh is made up of the following:

First 50 kWh = 50 × R0,8375
= R41,875 (no rounding at this stage)

∴ 250kWh – 50kWh = 200kWh

Then 200 = 200 × R0,9440
= R188,80

Total amount = R41,875 + R188,80
= R230,675 (no rounding at this stage)

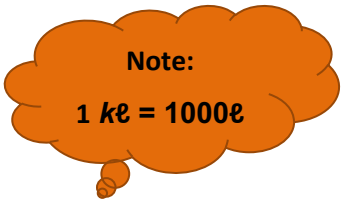
Amount of VAT = $\frac{15}{100}$ × R230,675
= R34,60125 (no rounding at this stage)

Total amount to be paid = R230,675 + R34,60125
= R265,27625
≈ R265,28

Water tariffs

Water tariff, just like electricity tariffs also varies from one place to the other.

- Water consumption is measured in kilolitres (*kℓ*)



- The amount payable for water also depends on the number of kl of water used during the month.
- Water is charged at a sliding scale. The more water you use, the higher the rate at which you are charged.

The table below indicates the example of sliding scales for water tariffs

Residential (all tariffs are VAT exclusive) VAT to be charged at 15%		
Up - 6 *kℓ*	First 6 *kℓ*	Free
> 6 *kℓ* - 10 *kℓ*	Next 4 *kℓ*	R5,21 per kilolitre
> 10 *kℓ* - 15 *kℓ*	Next 5 *kℓ*	R7,87 per kilolitre
> 15 *kℓ* - 20 *kℓ*	Next 5 *kℓ*	R10,52 per kilolitre
> 20 *kℓ* - 30 *kℓ*	Next 10 *kℓ*	R13,38 per kilolitre
> 30 *kℓ* – 40 *kℓ*	Next 10 *kℓ*	R13,97 per kilolitre
> 40 *kℓ*	Over 40 *kℓ*	R16,96 per kilolitre

Worked example 2

Use the table above to answer the questions that follow:

2.1 Give a possible reason why the first 6 *kℓ* would be free.
2.2 Calculate the total cost for 21 *kℓ*.

Solution

2.1 To accommodate households with low or no income.

2.2 Using the table, we can see that the 21 $k\ell$ is made up of the following:

6 + 4 + 5 + 5 + 1 = 21 $k\ell$

The first 6 $k\ell$ @ R0,00 = R0,00

The next 4 $k\ell$ @ R5,21/ $k\ell$ = R20,84

The next 5 $k\ell$ @ R7,87/ $k\ell$ = R39,35

The next 5 $k\ell$ @ R10,52/ $k\ell$ = R52,60

The last 1 $k\ell$ @ R13,38/ $k\ell$ = R13,38

Total 21 $k\ell$ = R126,17

Amount of VAT = $\frac{15}{100}$ × R126,17

= R18,9255

Total amount = R126,17 + R18,9255

= R145,0955 ≈R145,10

Telephone tariffs

Cell phone tariffs

Cell phone networks uses either **prepaid** or **contract** billing structures. Different networks charge different tariffs. The most common networks in South Africa are:

- Vodacom
- MTN
- Cell C
- Telkom

Prepaid tariff system

The general formula for the prepaid tariff system is:

Prepaid cost = total number of units × tariff

Note:

Units can be in minutes or seconds

In a prepaid tariff system, if no calls are made, there are no costs.

Contract tariff system

A cell phone contract for a specific period is taken out from a service provider.

The cost per month includes:

- Subscription fee
- Cost for the calls

The general formula for the contract tariff system is:

Contract cost = subscription fee + (total number of minutes – number of free minutes) × tariff

Worked example 3

Tshepo came across the following option as he was shopping for a new cell phone.

- Monthly subscription = R279,00
- Free 50 minutes
- Calls cost R0,99 per minute

Solution

Total amount = subscription fee + (Total minutes – free minutes) × tariff

Calculate the total amount Tshepo will pay if he used 75 minutes on a particular month.

= R279,00 + (75 – 50) × R0,99

= R279,00 + (25 × R0,99)

= R279,00 + R24,75

= R303,75

Practice Questions

Question 1

The table below shows the rates for domestic prepaid electricity:

TARIFF BLOCK	RATES PER KWH
Block 1 (0 – 50) kWh	R0,76
Block 2 (51 – 350) kWh	R0,97
Block 3 (351 – 600) kWh	R1,16
Block 4 (> 600) kWh	R1,39

Use the table above to answer the questions that follow.

1.1 The George family used 250 kWh of electricity for the month of December. Calculate the amount they need to pay. (3)

1.2 In January they used 351 kWh. Determine the difference between the December and January payments. (5)

Question 2

The table below indicates the Mangaung local Residential water tariffs for 2016/2017 and 2017/2018. These tariffs are applicable for both the prepaid and billed accounts. All tariffs are VAT exclusive.

Mangaung local municipality water tariffs (Residential)

Step tariffs	2016/2017 Prices (R) per kℓ	% increase	2017/2018 Prices (R) per kℓ
0 – 6 kℓ	6, 91	8%	7,46
7 – 15 kℓ	15, 95	9%	17,39
16 – 30 kℓ	17, 00	11%	18, 87
31 – 60 kℓ	19, 04	11, 5%	21,23
Above 61 kℓ	21, 58	12, 5%	24, 28
Basic charge per month	**22, 00**	**12%**	**24, 64**

Use the table above to answer the questions that follow.

2.1 Define the concept *basic charge* in the given context. (2)

2.2 Show how the tariff of R18, 87 during the 2017/2018 period was calculated. (2)

2.3 A certain household has received a bill of R205, 24 at the end of August 2018. Use the tariffs table above to calculate the number of kilolitres of water the household consumed. (5)

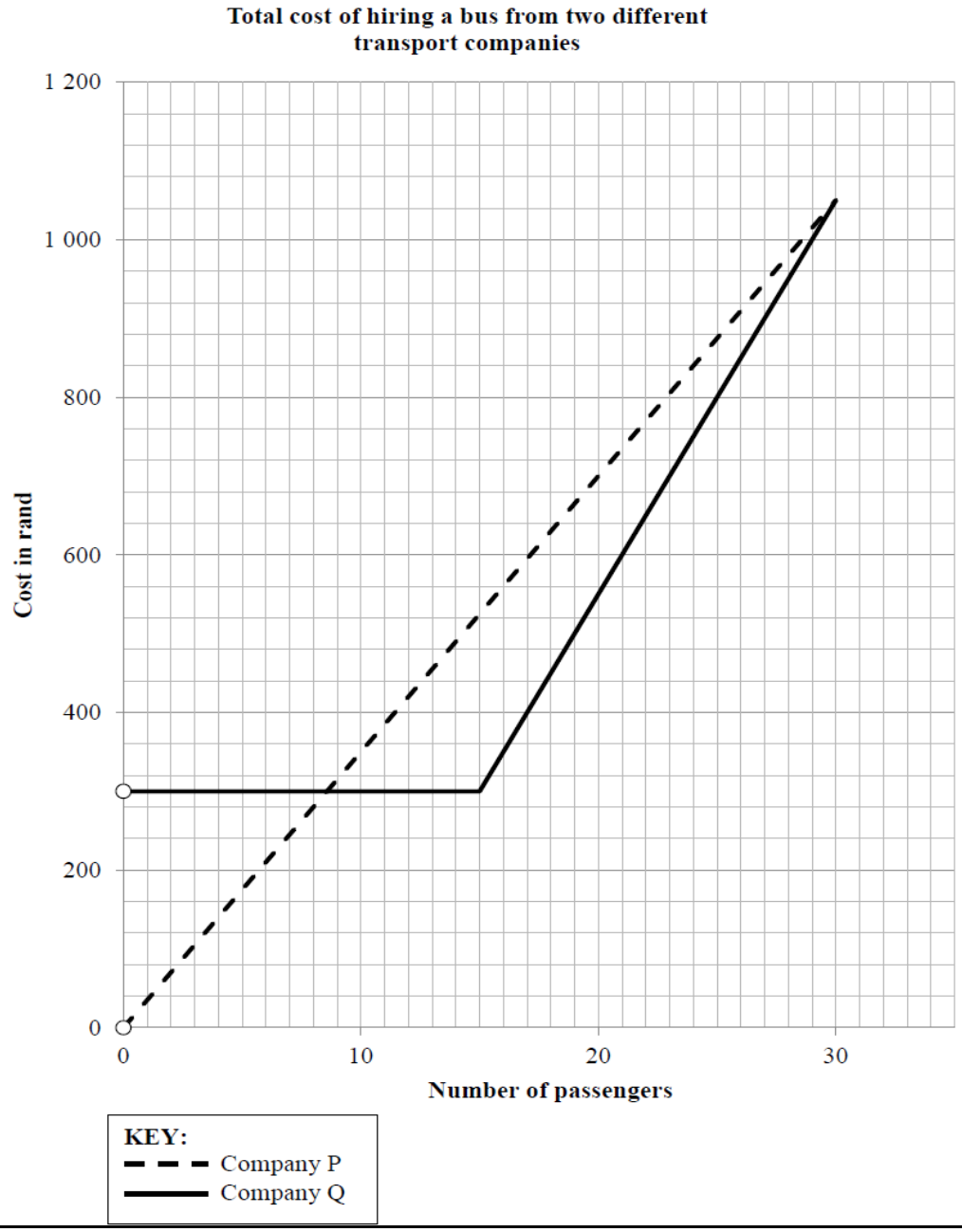
2.4 Mangaung local municipality has introduced a prepaid system of paying water. On the 01/09/2018, Mrs Mnisi loaded 133kℓ of water and on the 15/09/2018 when she checked the meter readings, only 53,7kℓ of water was remaining. Determine the amount of water she has used thus far. (2)

Question 3

The Department of Correctional Services became aware of a problem that Metro High School was experiencing with violent incidents at the school. They invited the school to visit one of their prisons on condition that one teacher had to accompany every group of 10 learners or fewer.

Mr Palm, the principal, must hire a bus to take the learners and teachers to visit the prison.

Graphs representing the total cost of hiring buses from two different companies are drawn below.



3.1 The total cost for hiring a bus from Company P is calculated by using the following formula:

Total cost (in rand) = number of passengers x 35

Use the graphs above and write down a formula for calculating the total cost (in rands) for Company Q in the form:

Total cost (in rands) = … (2)

3.2 Mr Palm has budgeted R900,00 for the total cost of the bus transport. Use the graphs above or the formulas in **QUESTION 4.1** to determine the following:

3.2.1 The maximum number of passengers that can be transported using Company Q. (4)

3.2.2 The ratio of learners to teachers, if the maximum number of passengers is transported according to the condition set out by Correctional Services regarding the number of teachers. (4)

Question 4

MaNdlovu has a landline telephone. A service provider has offered her a choice of two different call packages

CALL PACKAGE 1	CALL PACKAGE 2
• **Monthly rental of R150**	• Monthly rental of R300
• **First 100 minutes are free**	• First 500 minutes are free
• **Calls cost R0,50 per minute**	• Calls cost R0,50 per minute

4.1 Write down a formula that can be used to calculate the total cost (in rands) for CALL PACKAGE 2, in the form:

Total cost (in rands) = … (2)

4.2 Using the formula in 3.2, calculate the total cost (in rands) if MaNdlovu made calls for a total duration of 510 minutes. (4)

4.3 Determine, with calculations, the call package that will be cost effective for MaNdlovu if she makes only 300 minutes of calls per month. (6)

Question 5

The parking ticket of Ntsiki's mother at Bram Fischer International airport showed the following information:

ACSA parking ticket

Date of entry: 06 January 2015
Time: 07:30
Date of exit: 10 January 2015
Time: 09:15

Table 1: Bram Fischer International parking tariffs.

	Shaded Parking	Open Parking
Duration	**Rand (R)**	**Rand (R)**
0 – 5 min	Free	Free
5 min – 1 hour	17	12
1 – 2 hours	23	14
2 – 4 hours	31	17
4 – 12 hours	45	31
12 – 24 hours	100	67
After 24 hours	100× ***d*** + R44 for part thereof	67× ***d*** + R29 for part thereof

Number of days (full days) = ***d***

	Drop and Go (R)	Lock-Up Garages	
0 – 15min	Free	12 hours or less	R100
15 – 30 min	24		
30 min – 1 hour	58		
1 – 2 hours	117	Full day	R150
2 – 24 hours	244		
Tariffs increase for every additional hour or part thereof with R55			

Lost ticket (If there is no proof of travel) R500

5.1 Determine the amount that Ntsiki's mother must expect to pay for using the airport's shaded parking. (3)

5.2 Explain each of the following:

5.2.1 The circumstances under which a person will feel disadvantaged if the parking ticket is lost. (2)

5.2.2 The length of time for both the shaded and open parking, that a lost parking ticket would be an advantage. (4)

5.3 What measures are taken to discourage car owners, who must wait for the passengers, to use the drop and go parking? (2)

Tax
Objectives

By the end of this section, learners must be able to:

1. Define the difference between VAT inclusive and VAT exclusive.
2. Show the original value once VAT has been added or calculate the final value once VAT has been added.
3. Calculate UIF and understand why UIF is deducted.
4. Explain the meaning of Personal Income Tax.
5. Interpret a salary slip, tax tables and personal income tax forms in order to do personal tax calculations.
6. Calculate the Taxable Income and Non-Taxable Income.
7. Use the Tax table to calculate the Tax payable.
8. Work with rebates and medical credits.
9. Calculate the nett pay of an individual.
10. Investigate how an increase in salary can influence a person's tax bracket.

What is meant by tax?

It is a compulsory contribution to government revenue, levied on the workers' income and business profits, or added to the cost of some goods, services, and transactions.

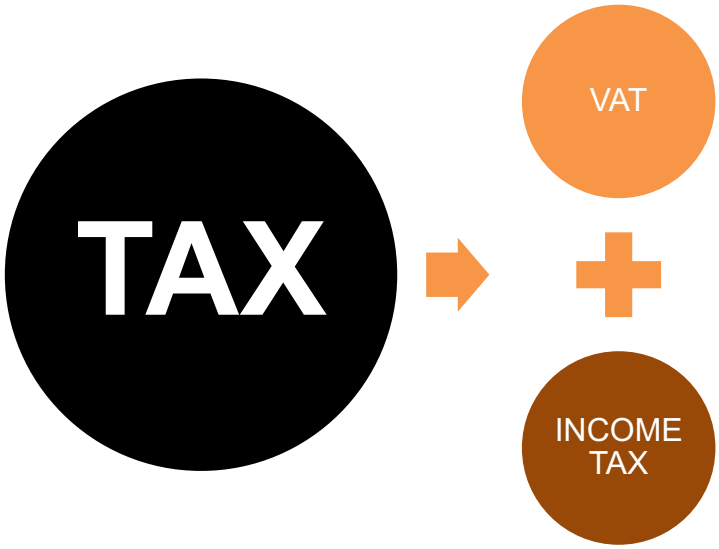
Why do we pay tax?

To provide funds for government programmes, e.g to provide public goods and services like healthcare; schools; roads etc.

Who pays tax?

VAT is paid by everyone who buys goods or pays for services rendered, however some goods are exempted from tax e.g. Fresh fruit; brown bread etc.
Personal income tax is only paid by individuals who earn above a certain amount of money (as determined by the government from one year to the next).

In this booklet we are going to deal with the following taxes:



VAT (Value added Tax)

All goods and services are subjected to VAT, unless it is zero rated at 0% or exempted from tax.

VAT is currently calculated at 15% of the value of the goods/services.

VAT inclusive means that VAT has already been added to the prices of the goods/services.

VAT exclusive means that VAT must still be added to the price of the goods/services.

INCOME TAX

Income Tax is defined as a compulsory payment to the state, which is deducted from person or business' earnings for the state to provide services to its citizens.

This amount is paid to the South African Revenue Services (SARS) and can be deducted from taxpayer's salary every month (PAYE)

VAT

VAT – Value Added Tax
VAT is currently levied at the standard rate of 15%.
You need to calculate VAT when:

- You are selling something and have to add VAT to the price.
- You want to check an invoice and make sure that the correct amount of VAT is included.
- **VAT- inclusive amount:** means that 15% VAT has already been added to the amount.
- **We calculate the original amount using the following principle:**

  Original amount = $\frac{\text{Amount including VAT}}{1{,}15}$

- **VAT- exclusive amount :** means that 15% VAT must still be added.
- **Thus,**

  Original amount + amount of VAT = amount including VAT

VAT inclusive

The item costs R529,99.
It **includes** 15% VAT.
This means VAT **was added** to the original price.

Original price = R529,99 ÷ 1,15
= R460,8608696.
Round off answer (2 dec): R460,86
The original price was **R460,86**

VAT amount: R529,99 – R460,86 = **R69,13**

OR

R529,99 x $\frac{100}{115} = R460{,}86$

Now: R529,99 –R460,86 = R69,13

VAT exclusive

The item costs R460,86 **excluding** 15% VAT.
This means VAT **must be added** to the original price
Thus,
1,15 x R460,86 = R529,989

Round off answer (2 dec): R529,99

VAT amount:
R529,99 –R460,86
= **R69,13**

OR

$\frac{15}{100} \times R460{,}86 = R69{,}13$

Now, R460,86 + R60,13 = R529,99

NB! COMMON MISTAKE MADE!!!

The item costs R529,99 (VAT inclusive). Calculate the original price.

VAT inclusive means that VAT **was added** to the original price.

VAT = R529,99 X 0,15

= R79,50

VAT amount: R529,99 – R79,50 = **R450,49** **which is incorrect**

(This is **incorrect** as the VAT was not calculated on the final price, but on the original price)

Correct calculation

R529 × $\frac{100}{115}$

= R460,00

VAT Exemption: Some products or services may not be taxed. This means that there is no VAT charge for them otherwise referred to as VAT exempted.

Below is a list of some VAT exempted products and services.

- Passenger service by rail or road.
- Supply of donated goods by a charitable organisation.
- Rentals on residential property.
- The sale or rental of land outside SA.
- Educational services.
- Union membership fees
- Caring services for children by a crèche or an after-school care centre.
- Some basic food items e.g Fresh fruit; brown bread etc.

Working with an invoice

E.g. Below is a Municipality Tax Invoice for Chester Williams.

Sixole Municipality VAT No: 29810784 P. O. Box 5200 The Hage 2443				
Account number: 400200321			**Date: 04 April 2017**	
Chester Williams **20 Marion Place** **Carrod Road** **The Hage**			Account for March 2017 Invoice No. **5537774**	
ITEM	**UNITS**		**VAT**	**COST**
Electricity	435		26,19	187,05
Electricity Grant	-45,99		-2,77	-19,78
Water Services	11		3,57	25,53
Assessment Rates	Domestic			195,59
Sewer	1		14,08	100,55
Refuse removal	1		6,21	44,34
		Subtotal	**47,28**	**533,28**
		VAT		**47,28**
		TOTAL DUE:		**580,56**

1. **Why is there no VAT charge for the assessment rates?**
   Assessment rates are charges for owning residential property. This is a VAT exempted item on the invoice.

2. **Why is there a negative charge on the invoice?**
   The municipalities allow each household a certain amount of free electricity. The electricity grant is the amount that one does not have to pay for, so it is subtracted from the amount used for that month. Please note the VAT for that amount of electricity is also subtracted.

3. **Are the water and electricity costs VAT inclusive or exclusive?**
   They are VAT exclusive and thus VAT is calculated separately and added to the total at the end.

4. **Why is the account dated in April but is says account for March?**
   The statement was calculated for the month of March but was only issued in April.

Worked example 1

Below find a till slip for Sasha 's groceries. Study the till slip ans answer the questions that follow:

SHANEY STORES
11TH STR, DOODELVILLE
TEL: 031 454 5765
TAX INVOICE: VAT No. 44223377556644

Milk Tart	R17,99
Apple Crumble	R29.99
Carrier bag	R0,40
Carrier bag	R0,40
Marshmallow	R9,99
Dairy Custard	R17,99
Hot dog rolls	R6,65
Lemon Biscuits	R7,99
ENT. Bacon/egg 0,458kg @ R49,99/kg	R22,90
Sunflower Oil 250ml	R14,99*
Popcorn	R7,99
Chicken Mayo Roll	R23,99
Brown Bread	R10,99*
Pumpkin Seed	R6,99*
Sauce Peri Peri	R13,99
Balance before VAT	R193,24
EFT credit card payment	R217,28

Tax Code	Taxable	Tax Value
Zero VAT	R32,97	R0,00
VAT	R160,27	R23,73
Total Tax		R23,73

1.1 Why are some of the items marked with an **asterisk** (*) ? (2)

1.2 Determine the total cost of the items that are VAT inclusive. (2)

1.3 Show, by means of calculations whether you believe the VAT calculations are correct or not. (4)

Solutions

1.1 They are exempted from VAT/zero rated items

1.2 R 193,24 – (R6,99+ 10,99 +14,99)

= R160,27

OR

R 193,24 – R32,97

= R160,27

1.3 R160,27 × 15%

= R24,04

Calculations are incorrect as VAT is supposed to be R24,04 and not R23,73

Worked example 2

The cricket coach of a school would like to buy cricket equipments for the school cricket team. The piece list is shown below

ITEM	COST
Helmet	R350 each
Gloves	R95,50 a pair
Box of 4 cricket balls	R170 a box
Cricket pads	R135 a pair
Cricket bats size 3	R550 each
Cricket bats size 5	R750 each

Use the information above to answer the questions that follow.

2.1 If the coach needs 16 balls, how many boxes of cricket balls woulld he need? (2)

2.2 If the coach orders, 4 helmets; 3 pairs of gloves; 8 of balls; 3 pairs of cricket pads; 2 size 3 bats and 2 size 5 bats, what will the total cost of the items be? (3)

2.3 Determine the amount of VAT at 15% that will be charged on the order. (2)

2.4 If a handling fee of R100 is charged on the goods bought. How much (incl. VAT) will the school have to pay in total for this order? (2)

2.5 The annual budget for cricket is R10 800, what percentage of the budget was spent on equipment for this season? (3)

Solutions

2.1 4 boxes

2.2 $4\times R350 + 3 \times R95{,}50 + 2 \times R170 + 3 \times R135 + 2 \times R550 + 2 \times R750$

$=$ R5 031,50

2.3 VAT = Value added tax: 15% × R5 031,50

= R754,73

2.4 R5 031,50 + R754,73 + R100

= R5 886,23

2.5 $\frac{5\,886{,}23}{10\,800} \times 100$

= 54,5 %

Practice Questions

Question 1

The price of a pair of sandals is
R79,99 excluding VAT.
VAT is charged at 15%

1.1 calculate the amount of VAT charged on the sandals. (2)

1.2 Determine the VAT-inclusive price of the sandals. (2)

Question 2

An advert quotes the i-phone (cellphone) at R13 950 (VAT inclusive).

VAT is charged at 15%

Calculate the original price of the cellphone. (3)

Question 3

The Easter Show is an annual event held in Cape Town. The Elie family, consisting of two adults aged 45 and 48, three children aged 5, 6 and 16 and a grandmother aged 75, planned to visit the Rand Show.

TABLE 1 below shows the duration and ticket prices of the 2017 Easter Show.

DURATION	TICKET PRICING	
	VISITORS AGE CATEGORY	**PRICES INCLUSIVE OF 15% VAT**
Friday 14 April to	Adults (aged 17 to 64)	R150
	Pensioners (65 years and older)	R50
	Teens (aged 13 to 16)	R50
	Children (aged 6 to 12)	R20
	Children (under 6)	free
18 April to 20 April	Adults and pensioners receive a 50% discount	

3.1 Calculate the amount of VAT payable on a teen's ticket. (3)

3.2 If the family visited the Easter Show on 20 April instead of 23 April, they would have saved more than a quarter on the total cost of the tickets. Verify, showing all calculations, whether the statement is valid. (10)

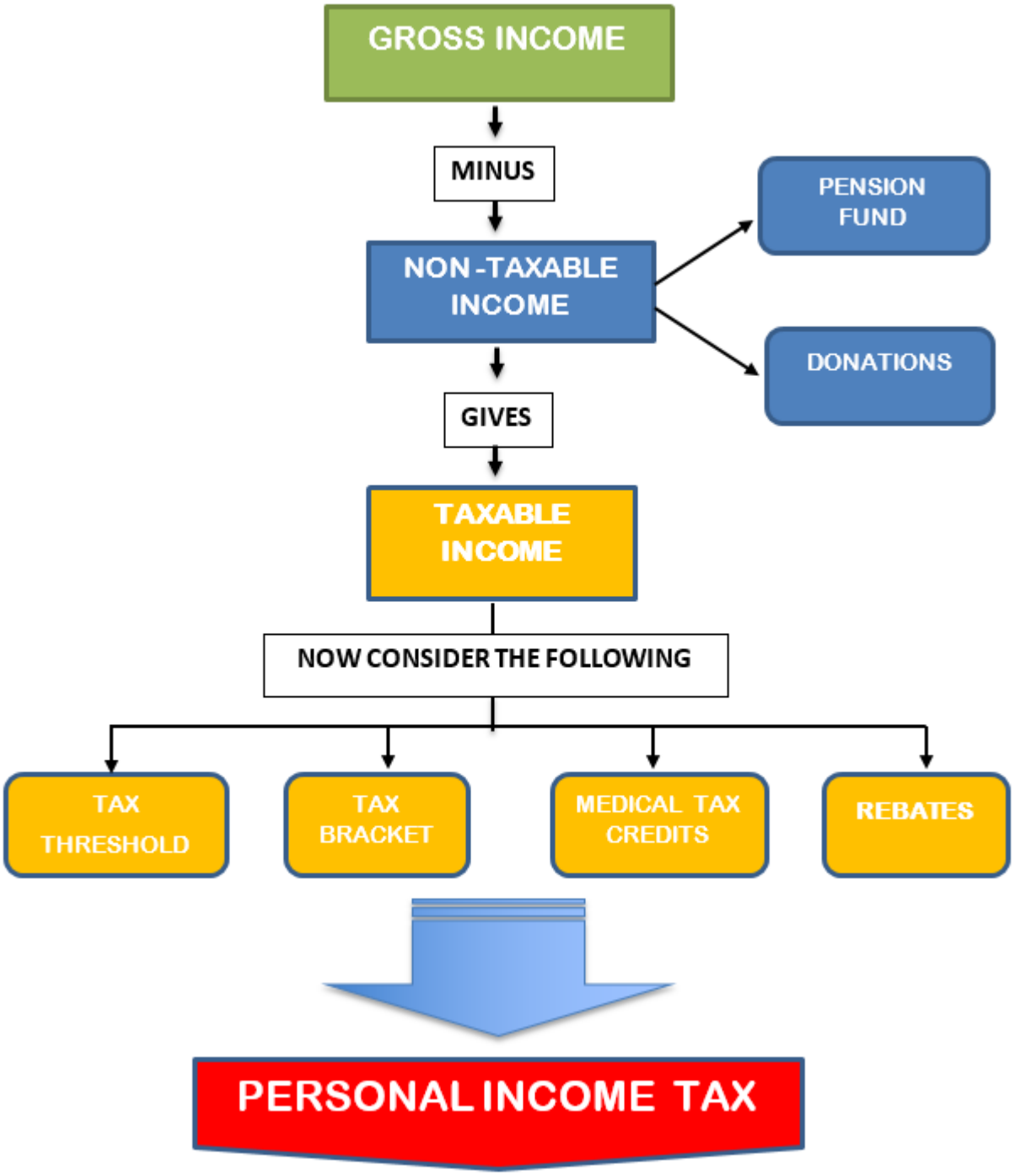
3.3 Provide a reason why pensioners are often offered discounts. (2)

INCOME TAX

Income Tax is defined as a compulsory payment to the state, which is deducted from person or business' earnings for the state to provide services to its citizens.

This amount is paid to the South African Revenue Services (SARS) and can be deducted from taxpayer's salary every month (PAYE).

The process of calculating personal income tax can be illustrated as follows:



GROSS INCOME

The sum of all earnings before any deductions have been made.

TAX DEDUCTIBLE INCOME

PENSION FUND

•Government Employees have GEPF while Private Sector has a Provident Fund.
•7,5% of your basic salary is contributed towards a pension fund and is tax-deductible.
•It should be multiplied by 12 to give the annual contribution.

DONATIONS

* A gift to a person who usually is registered with the authorities under Section 18A.
* The maximum amount allowed for tax deduction is R100 000.

TAX THRESHOLD

- Persons earning more than the tax threshold are liable to pay tax.
- The income level at which someone needs to pay tax.
- Anyone who earns less than this amount does not have to pay tax.
- This amount is determined by the government every year.

TAX THRESHOLD 2020/2021	
Below age 65	R83 100
Age 65 to below 75	R128 650
Age 75 and older	R143 850

Example: A person who is 60 years old and earns less than R83 100 does not have to pay tax.

INCOME TAX TABLE

SARS (South African Revenue Services) issues tables to be used when determining tax to be paid by individuals.

Taxable income = Gross income – Tax deductible expenses.

Tax deductible expenses include contributions to a pension/provident funds and donations.

Rates of tax for individuals

2021 tax year (1 March 2020 - 28 February 2021)

Taxable income (R)	Rates of tax (R)
1 – 205 900	18% of taxable income
205 901 – 321 600	37 062 + 26% of taxable income above 205 900
321 601 – 445 100	67 144 + 31% of taxable income above 321 600
445 101 – 584 200	105 429 + 36% of taxable income above 445 100
584 201 – 744 800	155 505 + 39% of taxable income above 584 200
744 801 – 1 577 300	218 139 + 41% of taxable income above 744 800
1 577 301 and above	559 464 + 45% of taxable income above 1 577 300

Tax Rebates

Tax Rebate	Tax Year						
	2021	**2020**	**2019**	**2018**	**2017**	**2016**	**2015**
Primary	R14 958	R14 220	R14 067	R13 635	R13 500	R13 257	R12 726
Secondary (65 and older)	R8 199	R7 794	R7 713	R7 479	R7 407	R7 407	R7 110
Tertiary (75 and older)	R2 736	R2 601	R2 574	R2 493	R2 466	R2 466	R2 367

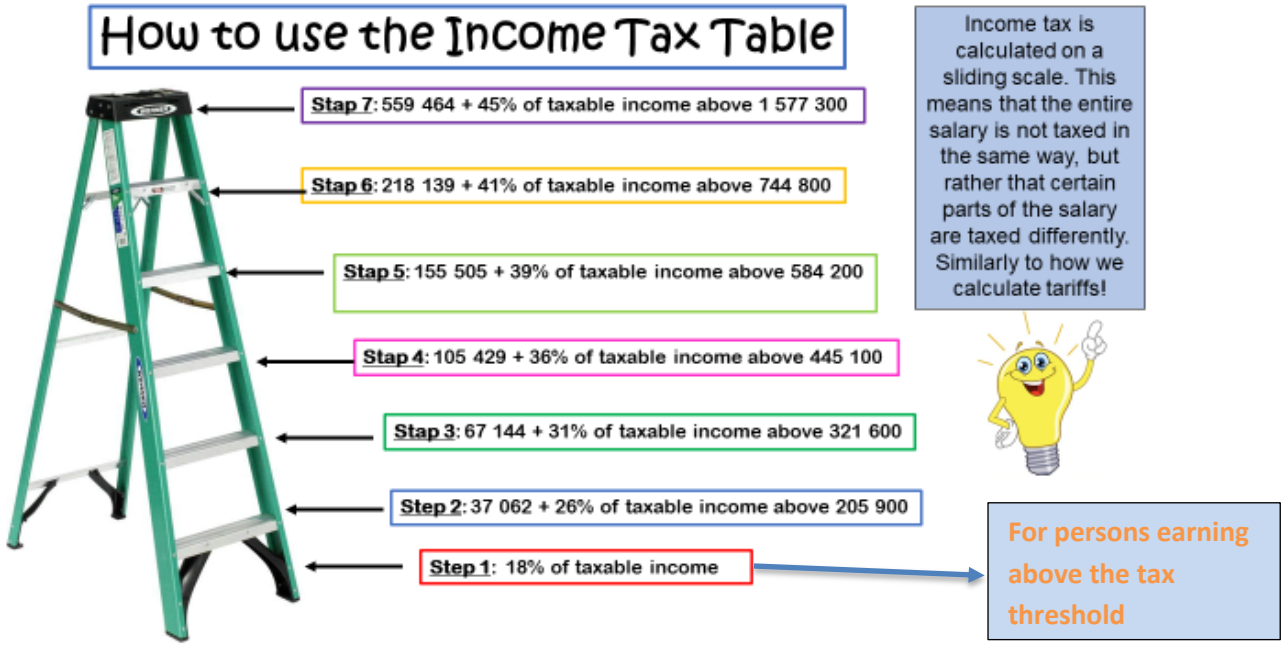
Tax Thresholds

Age	Tax Year						
	2021	**2020**	**2019**	**2018**	**2017**	**2016**	**2015**
Under 65	R83 100	R79 000	R78 150	R75 750	R75 000	R73 650	R70 700
65 an older	R128 650	R122 300	R121 000	R117 300	R116 150	R114 800	R110 200
75 and older	R143 850	R136 750	R135 300	R131 150	R129 850	R128 500	R123 350

Monthly medical tax credits

Main Member	R319
First dependent	R319
Each additional member	R 215

https://www.sars.gov.za/tax-rates/income-tax/rates-of-tax-for-individuals



REBATES

It is the relief individuals who pay tax get according to their age

- Rebates are fixed amounts deducted (taken off) from your annual tax payable.
- Everyone qualifies for the PRIMARY rebate.
- People 65 and over qualify for the PRIMARY and SECONDARY rebates.
- People 75 and over qualify for the PRIMARY, SECONDARY and TERTIARY rebates.
- Rebates are subtracted AFTER you have calculated the annual tax payable.

MEDICAL TAX CREDITS

- Medical tax rebates are received by the main member (The person who pays the medical aid).
- This rebate gets deducted AFTER the annual tax payable has been calculated.
- The medical tax credit allocated for the first dependent equals that of the main member, every member thereafter has the same different medical tax credit.

STEPS TO CALCULATE INCOME TAX

STEP 1:
Determine the annual income
Multiply the monthly income by 12

STEP 2:
Determine the tax deductible income.

STEP 3:
Subtract the tax-deductible items e.g. Pension and donations
Taxable income= Annual Income – tax deductible income

STEP 4:
Check if the person qualifies to pay tax by using tax threshold table.
Those earning less than the threshold do NOT have to pay tax.

STEP 5:
Identify the correct tax bracket and write it down.
Substitute the taxable income into the given formula.
Use BODMAS to find the tax for the year.

STEP 6:
Calculate and subtract the rebates
Remember: check the age of the individual to see which rebate(s) they qualify for

STEP 7:
Calculate and subtract the medical tax credits, remember to check the number of how of dependents.
This value is to be multiplied by 12 for the annual amount.

STEP 8:
To determine the monthly income tax, divide the answer by 12.

ANSWER

Worked example 1

Consult the Tax Table for indiividuals for 2020/2021 tax year to answer the questions that follow:
(See Annexure)

1.1 Into which bracket does a person who earns a taxable income of R454 563 fall?

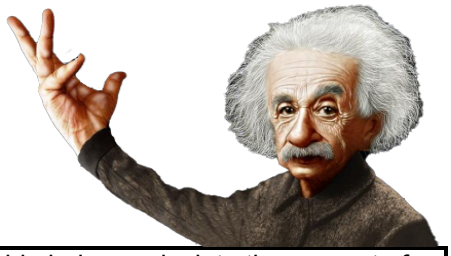
Answer: Bracket 4: 105 429 + 36% of taxable income above 445 100

1.2 Which rebate would a 52 year old person receive?

Answer: Primary rebate

1.3 Expain whether a 65 yr old earning 120 000 should pay tax or not.

Answer: No, they earn below the tax threshold.



Worked example 2

Casy is 25 years old and earns a monthly income of R25 000. Using the table below, calculate the amount of tax payable without considering the rebates.

The tax table will always be given to you, you do not have to memorise it!

Taxable Income (R)	Rates of tax (R)
1 – 195 850	18% of taxable income
195 851 – 305 850	35 253 + 26% of taxable income above 195 850
305 851 – 423 300	63 853 + 31% of taxable income above 305 850
423 301 – 555 600	100 263 + 36% of taxable income above 423 300
555 601 – 708 310	147 891 + 39% of taxable income above 555 600
708 311 – 1 500 000	207 448 + 41% of taxable income above 708 310
1 500 001 and above	532 041 + 45% of taxable income above 1 500 000

Solution

Casey is 25yrs old and earns a monthly salary of R25 000.

R25 000 × 12 = R300 000

The values in the tax table are annual values, thus when we are given the monthly value we have to multiply by 12.

Always use the **Taxable Income** when using the tax table.

From the table = R 35 253 + 26% (300 000 – 195 850)
= R 35 253 + 26% (104 150)
= R 62 332

Use the Taxable Income to determine the category in the Tax Table. Substitute and solve

Worked example 3

Bongani is a 35 year old man who earns an annual taxable income of R236 700.

2019 tax year (1 March 2018 – 28 February 2019)

Taxable income (R)	Rates of tax (R)
1 – 195 850	18% of taxable income
195 851 – 305 850	35 253 + 26% of taxable income above 195 850
305 851 – 423 300	63 853 + 31% of taxable income above 305 850
423 301 – 555 600	100 263 + 36% of taxable income above 423 300
555 601 – 708 310	147 891 + 39% of taxable income above 555 600
708 311 – 1 500 000	207 448 + 41% of taxable income above 708 310
1 500 001 and above	532 041 + 45% of taxable income above 1 500 000

Age	Threshhold 2018/2019
Under ager 65	78150
Age 65 to 75	121 000
Older than 75	135 300

REBATES

Primary rebate	Under ager 65	R 14067
Secondary rebate	Age 65 to 75	R7713
Tertiary rebake	Older than 75	R 2574

2.1 Using the tax table for the 2018/2019 tax year calculate Bongani's annual tax payable.

Solution

2.1 **Step 1**: Find the correct tax bracket according to his annual taxable income of R236 700

- Use the tax bracket to calculate his annual tax payable.

=R 35 253 + (26% of 236 700 – 195 850)

=R 35 253 + (26% x R 40 850)

=R 35 253 + (R 10 621)

= R 45 874

Step 2:Deduct the PRIMARY rebate

= R 45 874 – R 14 067

= R 31 807 is Bongani's annual tax payable

Worked example 4

Cally is a 55 year old woman who earns an annual taxable income of R350 000. She pays medical aid for herself and her daughter. Using the tax table for the 2018/2019 tax year calculate Cally's monthly tax payable.

Solution

Step 1: Taxable Income = R350 000

Step 2: Identify Bracket: R63 853 + 31% (350 000 – 305 850)

= R63 853 + 31% of R 44 150

= R63 853 + R13 686,50

= R77 539,50

Step 3: Now subtract the rebate/s:

Cally is under 65 yrs of age, thus only 1 rebate

Thus: R77 539, 50 – R14 067

= R63 472,50

Step 4: Medical rebates: R310 + R310

= R620 × 12 = R7 440

Step 5: Thus Tax Payable for the year

R63 472, 50 – R7440

= R56 032, 50

Step 6: Monthly tax = R56 032, 50 ÷12

= R4 669,38

Always use the Tax table given to you to work from. Remember they are not all the same!

Practice Questions

Question 1

All employers have an obligation to provide their employees with a payslip monthly. Use the payslip provided to answer the questions that follow:

PAY SLIP			
Employer: Thusa-Batho Construction Company	**Employee:** Mr Kivido	**Position:** Manager	**Date of Birth:** 15/06/1969
Pay date: 30/07/2018	**Gross salary** 31 221,25	**Deductions** 9 362,62	**Nett Salary** M
EARNINGS	**AMOUNT**	**DEDUCTIONS**	**AMOUNT**
Basic salary	R30 021,25	Income Tax	R4 736,90
Housing allowance	R 1 200,00	Pension Fund	R2 251,59
		Medical Aid	N
		Insurance Policy 1	R 245,23
		Insurance Policy 2	R 192,70
		Insurance Policy 3	R 141,95
		Agency	R 90,25

1.1 Explain the term gross income. (2)

1.2 Write down the name of the employee. (2)

1.3 Calculate the values of **M** and **N** on the payslip. (4)

1.4 What percentage of his basic salary was paid toward pension fund contribution? (3)

1.5 Determine the employee's annual taxable income. (4)

1.6 Use the tabel below to identify the employee's tax bracket. (5)

2019 tax year (1 March 2018 – 28 February 2019)

Taxable income (R)	Rates of tax (R)
1 – 195 850	18% of taxable income
195 851 – 305 850	35 253 + 26% of taxable income above 195 850
305 851 – 423 300	63 853 + 31% of taxable income above 305 850
423 301 – 555 600	100 263 + 36% of taxable income above 423 300
555 601 – 708 310	147 891 + 39% of taxable income above 555 600
708 311 – 1 500 000	207 448 + 41% of taxable income above 708 310
1 500 001 and above	532 041 + 45% of taxable income above 1 500 000

Source: https://www.sars.gov.za/tax-rates/income-tax/rates-of-tax-for-individuals

Question 2

Precious is a 40 year old temporary worker at ABC trading. She earns R5 500 per month. Use the table below to answer the questions that follow:

TAX TABLE 2019/2020

	Taxable income (R)	Rates of tax (R)
1.	0 – 195 850	18% of taxable income
2.	195 851 – 305 850	35 253 + 26% of taxable income above 195 850
3.	305 851 – 423 300	63 853 + 31% of taxable income above 305 850
4.	423 301 – 555 600	100 263 + 36% of taxable income above 423 300
5.	555 601 – 708 310	147 891 + 39% of taxable income above 555 600
6.	708 311 – 1 500 000	207 448 + 41% of taxable income above 708 310

Tax Rebate 2019/2020	
Primary (younger than 65 years)	R14 220
Secondary (65 years and older)	R7 794
Tertiary (75 years and older)	R2 601

Tax Thresholds	
Person	**2019/2020**
Younger than 65 years	R79 000
65 years and older	R122 300
75 years and older	R136 750

2.1 Determine, by means of calculations, whether she qualifies to pay tax. (3)

2.2 Show how the value of R 35 253 in the second tax bracket was calculated . (3)

Question 3

Yamkela, a 64-years-old employee, receives a gross salary of R37 537,50 per month.

- He contributes 7,5% per month towards the Government Employees Pension Fund (GEPF) which is tax deductible.
- He also donates R575 per month to a charity organisation, **the donation is tax deductible**.

(adapted from EC Paper 2 September 2020)

Use the 2019/2020 Tax Table in question 2 above.

3.1 Calculate the total amount that Yamkela pays towards the pension fund and donations for the year. (6)

3.2 Hence, calculate Yamkela's annual taxable income. (3)

3.3 Verify, with the necessary calculations, that Yamkela's tax that he pays permonth is more than R6 850. (7)

3.4 Explain why people who are aged 75 years and older pay less tax than people younger than 75 years and earning the same taxable income. (2)

3.5 The monthly gross salary of Yamkela increased by 6,4% in 2019. Calculatewhat his gross salary was in 2018. (2)

Question 4

Pierre (28 years old) started a new job on 1 March 2020 at Expert Systems with a starting salary of R168 000 per year. His letter of appointment states that he is not entitled to a bonus. Refer to his incomplete payslip below and the tax table on ANNEXURE A to answer the questions that follow.

Expert Systems Salary advice	**Tax number:**00654321
Employer: Pierre Tolken	**Date employed:** 01/03/2020
Pay period: 01/03/2020 – 31/03/2020	**ID number:** 8704020035081

ITEM	Earnings	Deductions
	A	
Pension Fund		1 050
UIF employee contribution		B
Net tax payable		C
Total deductions		D
Net salary (R)		E

4.1 Write down Pierre's surname. (2)

4.2 Determine the number of days that Pierre was employed by 28 February 2021. (2)

4.3 On what day of every month is Pierre getting paid? (2)

4.4 What is the name of the company Pierre is working for? (2)

4.5 Calculate **A**, his monthly salary. (2)

4.6 What percentage of his monthly salary is his contribution to the pension fund? (2)

4.7 Calculate **B**, his contribution to the UIF at 1% of his monthly salary. (2)

4.8 Calculate his taxable income. (3)

4.9 Calculate **C**, the monthly tax payable. (4)

4.10 Calculate **D**, the total deductions from his salary. (2)

4.11 Calculate **E**, his net monthly salary. (net salary = salary after all deductions) (2)

Question 5

Joy is a 52-year-old nurse who earns a salary of R286 500 per annum. She contributes 7% of her annual salary to a pension fund. She only has her 2 daughters listed as a dependents on her medical aid. She is concerned that the R4000 monthly income tax deduction is too much.

Use the ANNEXURE A below to verify if this concern is warranted. (9)

ANNEXURE A

Rates of tax for individuals

2021 tax year (1 March 2020 - 28 February 2021)

Taxable income (R)	Rates of tax (R)
1 – 205 900	18% of taxable income
205 901 – 321 600	37 062 + 26% of taxable income above 205 900
321 601 – 445 100	67 144 + 31% of taxable income above 321 600
445 101 – 584 200	105 429 + 36% of taxable income above 445 100
584 201 – 744 800	155 505 + 39% of taxable income above 584 200
744 801 – 1 577 300	218 139 + 41% of taxable income above 744 800
1 577 301 and above	559 464 + 45% of taxable income above 1 577 300

Tax Rebate			
	2020/2021	**2019/2020**	2018/**2019**
Primary	R14 958	R14 220	R14 067
Secondary (65 and older)	R8 199	R7 794	R7 713
Tertiary (75 and older)	R2 736	R2 601	R2 574

Tax Thresholds

Age			
	2021	**2020**	**2019**
Under 65	R83 100	R79 000	R78 150
65 an older	R128 650	R122 300	R121 000
75 and older	R143 850	R136 750	R135 300

Monthly medical tax credits

Main Member	R319
First dependent	R319
Each additional member	R 215

Interest and Hire-purchase

Objectives

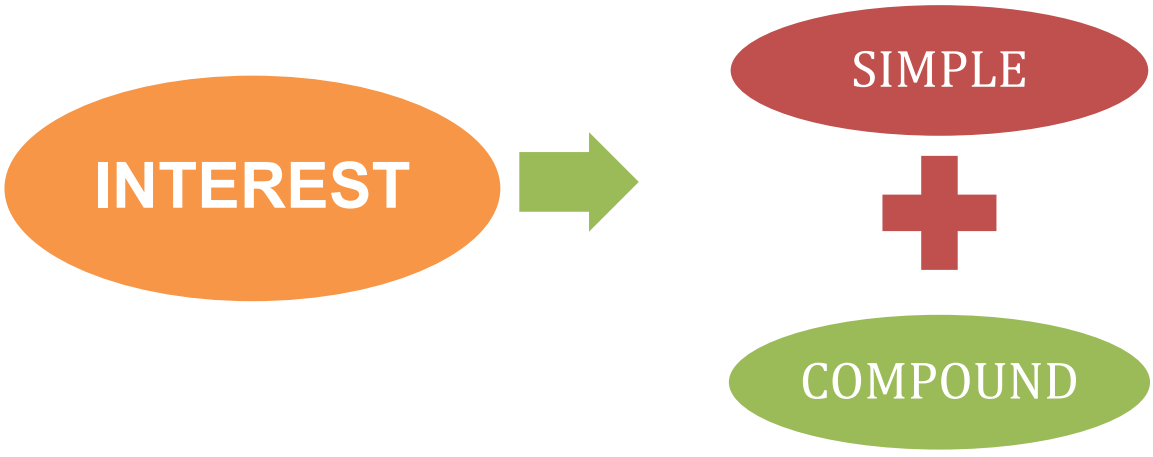
By the end of this section, learners must be able to:

1. Distinguish between “interest rate” values and “interest” values.
2. Investigate through calculation how interest values are calculated using interest rate values.
3. Perform simple and compound interest calculations manually.
5. Interpret and use tables showing compounded values.
6. Represent simple interest growth scenarios using linear graphs.
7. Represent compound interest growth scenarios using graphs showing compound change.
8. Investigate the following scenarios:
   - **8.1** Hire-purchase agreement and loans (e.g. personal, car, house) where a repayment is made every month.
   - **8.2** Other investments (e.g. retirement annuities, funeral plans) where a fixed deposit is made every month.

SUMMARY

- **Interest** is money paid regularly at a particular rate for the use or loan of money.
  - It can be paid to you by a financial organisation or bank (in case of savings); or
  - It may be payable by you to a financial organisation on money you borrowed from the organisation or invested at the organisation.
- **Interest rate** is the percentage used to calculate the amount of interest that is charged from you or paid to you.
- **Interest value** is the actual rand amount of interest that will be added to your loan or investment.

In this section we are going to deal with the following type of interest:



Simple interest

- Simple interest is calculated only on the principal amount, and is the same each time it is paid.

Note:
Principal is the original amount of money initially invested or borrowed

Calculating the amount of interest

- If we know what the interest rate is, we can calculate the amount of interest quite simply.
  ∴ The amount of interest payable depends on the interest rate.
- The lower the interest rate, the lesser the payment and,
- The higher the interest rate, the more the payment.

Worked example 1

Jan wants to buy a bicycle. He then borrowed R800 from his uncle and promised to pay it back in 3 months at a simple interest rate of 5%.

1.1 Write down the principal amount.

1.2 Determine the total amount Jan has to pay.

Solutions

1.1 R800

1.2 Table illustration

Month	Principal	Interest	Total amount
1	R800	$\frac{5}{100} \times$ R800 =R40	R800 + R40 = R840
2	R800	$\frac{5}{100} \times$ R800 =R40	R840 + R40 = R880
3	R800	$\frac{5}{100} \times$ R800 =R40	R880 + R40 = R920

Principal stays the same

Interest also stays the

Now that we have realised that the principal and interest stays the same, we can do the above solution this way:

$$\text{Interest} = \frac{5}{100} \times \text{R800}$$

$$= \text{R40}$$

Then total interest = R40 × 3

= R120

∴ Total to be paid = R800 + R120

= R920

Calculating the interest rate

➢ If you are given the final amount, then you follow these steps to find the interest rate:

- Find the difference between the final amount and the original amount, this gives you the amount of interest.
- Work out what percentage the amount of interest is of the principal amount.

Worked example 2

Jan paid his uncle a total amount R920 after borrowing R800 to buy a bicycle. Determine the interest rate that was charged.

Solution

Total interest amount = R920 – R800

= R120

First calculate the total interest

$$\text{Interest per month} = \frac{\text{R120}}{3}$$

= R40

Then calculate the interest per month

$$\therefore \text{interest rate} = \frac{\text{Interest amount}}{\text{Principal amount}} \times 100$$

$$= \frac{\text{R40}}{\text{R800}} \times 100$$

= 5%

Lastly calculate the percentage of interest on the principal amount

Representing simple interest

➢ Simple interest will always be represented by a straight line graph, where interest represent a constant increase.

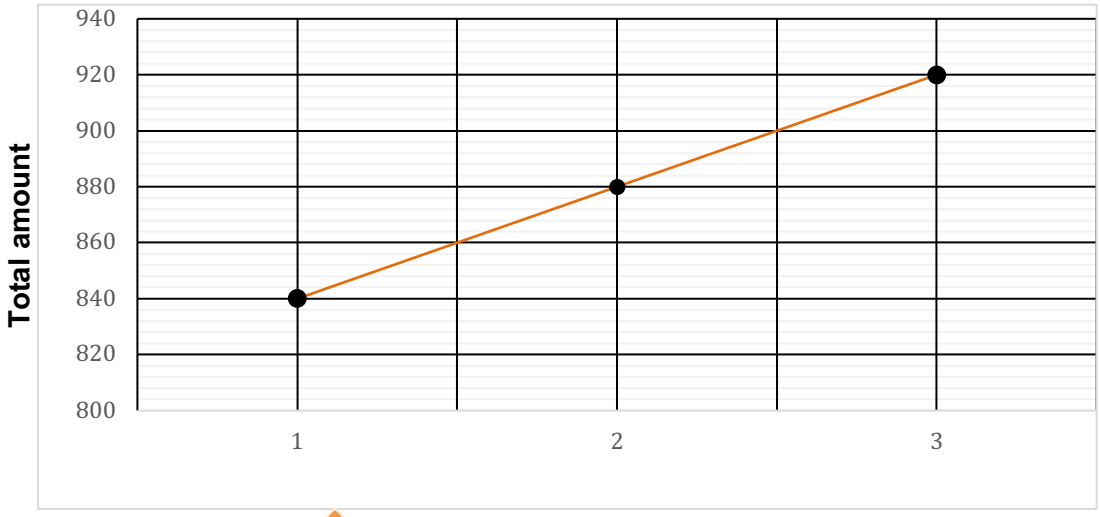
Worked example 3

The table below represents simple interest on R800 borrowed at 5% interest over a period of 3 months.

Month	Principal	Interest	Total amount
1	R800	$\frac{5}{100} \times$ R800 =R40	R800 + R40 = R840
2	R800	$\frac{5}{100} \times$ R800 =R40	R840 + R40 = R880
3	R800	$\frac{5}{100} \times$ R800 =R40	R880 + R40 = R920

Draw a graph of the above information.

Solution



Simple interest graph will always be a **straight line graph**, where the constant increase of R40 represents the interest.

Compound interest

- Unlike simple interest, Compound interest is calculated on the total/accumulated amount.
- Interest increases constantly.
- It yields more interest over time than simple interest.

Note:
Total/Accumulated amount is the principal amount *plus* the interest.

Worked example 4

Jan wants to buy a bicycle. He then borrowed R800 from his uncle and promised to pay it back in 3 months at a compound interest rate of 5%.
Determine the total amount Jan has to pay.

Solution
Table illustration

Month	Starting amount	Interest	Total amount
1	R800	$\frac{5}{100} \times$ R800 =R40	R800 + R40 = R840
2	R840	$\frac{5}{100} \times$ R840 =R42	R840 + R42 = R882
3	R882	$\frac{5}{100} \times$ R882 =R44,10	R882 + R44,10 = R926,10

Starting amount increases

Interest also increases

- **It is therefore safe to say that in compound interest, you also earn interest on interest.**

The above calculation can also be done this way:

1st month starting amount = R800

1st month interest = $\frac{5}{100} \times$ R800

=R40

Total amount = R800 + R40

= R840

2nd month starting value = R840

2^{nd} month interest = $\frac{5}{100} \times$ R840

= R42

Total amount = R840 + R42

= R882

3^{rd} month starting value = R882

3^{rd} month interest = $\frac{5}{100} \times$ R882

= R44,10

∴ Total to be paid = R882 + R44,10

= R926,10

- **In Mathematical Literacy, compound interest is calculated using the step by step method used above.**
- ***NO COMPOUND INTEREST FORMULA.***

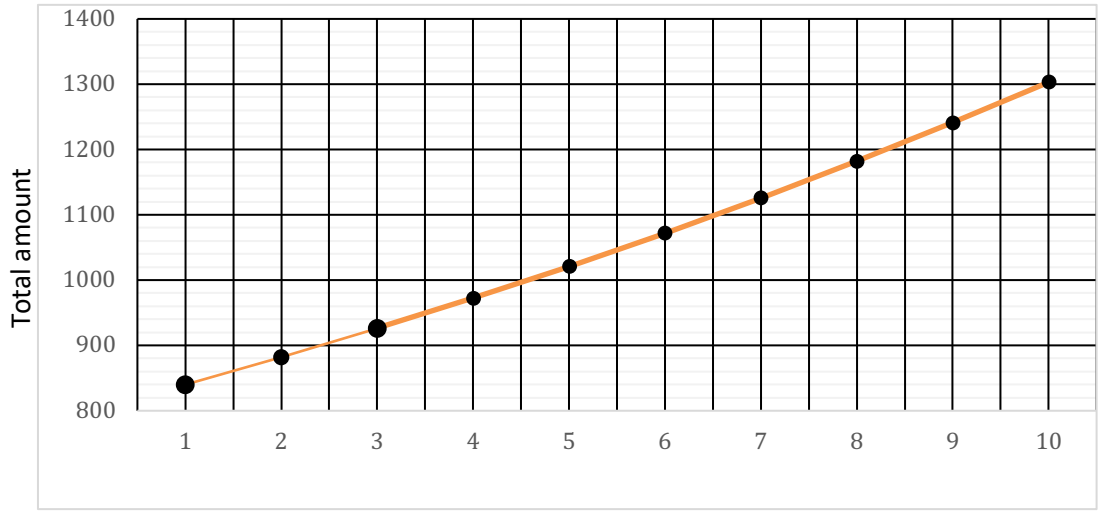
Worked example 5

The table below represents compound interest on R800 borrowed at 5% interest over a period of 3 months.

Month	Starting amount	Interest	Total amount
1	R800	$\frac{5}{100} \times$ R800 =R40	R800 + R40 = R840
2	R840	$\frac{5}{100} \times$ R840 =R42	R840 + R42 = R882
3	R882	$\frac{5}{100} \times$ R882 =R44,10	R882 + R44,10 = R926,10

Draw a graph of the above information.

Solution



Compound interest graph will not be a straight line graph, but an **exponentially curved graph** as the interest constant increases

In compound interest, interest can be compounded:

- Daily
- Monthly
- Quarterly
- Half yearly
- Annually

Hire Purchase Agreement

- Most people don't have the cash up front to purchase items such as TVs, fridges, coaches etc., so they buy them on a hire purchase agreement.
- A hire purchase agreement is therefore a financial agreement between the shop and the customer about how the customer will pay for the desired product.
- The interest on a hire purchase loan is always charged at a **simple interest rate** and only charged on the amount owing.
- Most agreements require that a **deposit** is paid before the product can be taken by the customer.
- The principal amount of the loan is therefore the **cash price minus the deposit.**
- The total loan amount is then divided into monthly payments over the period of the loan.
- Payment period is usually 12, 24, 36, 48, 60, and 72 months

Worked example 6

Me Tsie decided to buy the following lawn-mower which was advertised as follows:

BRILLIANT LAWN-MOWER ON SPECIAL

Now only R 23 099
SAVE R900

Deposit: R2 300
Instalments: R975 x 36 months

2.1 Write down the special cash price of the lawn-mower.

2.2 Determine the price of the lawn-mower before the special.

2.3 What percentage of the original cash price is the SAVED amount?

2.4 Me Tsie decided to buy the lawn-mower on hire purchase. Calculate the total amount that she will pay for the lawn-mower.

2.5 Calculate how much Me Tsie would have saved, had she bought the lawn-mower cash.

Solutions

2.1 R23 099

2.2 R23 099 + R900

= R23 999

2.3 $\frac{\text{R900}}{\text{R23 999}} \times 100$

=3,75 %

2.4 Total amount = Deposit + monthly instalment

= R2 300 + (R975 × 36)

= R2 300 + R35 100

= R37 400

2.5 Saving = R37 400 – R23 099

= R14 301

Practice Questions
Question 1

Tumi has set aside R800 per month for the last two years. He then decided to invest this money in a bank in order to put down a deposit to buy a house. Tumi approached a bank that offered him 12,5 % p.a. simple interest for a period of 36 months.

1.1 Calculate the amount that Tumi will be able to invest in the bank, if he is going to invest the total amount he has set aside. (3)

1.2 Determine the interest he will earn from the bank. (4)

1.3 What is the total amount that he will receive at the end of the investment period? (2)

Question 2

Tumi managed to find the house of his dreams, the price of the house was R549 000. He then applied for a home loan at the bank because he did not have the entire amount. Tumi decided to pay 11,5% deposit.

2.1 Calculate how much Tumi had to put down as a deposit for the house. (2)

2.2 If Tumi uses the money he received from the bank at the end of his investment term, will he have enough to pay for the deposit? Show by means of calculations. (3)

2.3 Tumi learns that he will have to pay a monthly instalment of R5 380 over a period of 20 years.

2.3.1 If the interest rate does not change, Show with calculations that the total amount paid, including the deposit will be R1 354 335. (3)

2.3.2 How much more money would Tumi have paid by the end of the 20 years? (2)

2.3.3 Calculate the percentage interest that Tumi would have paid by the end of 20 years if the monthly instalment did not change.
Round your answer off to one decimal place. (3)

Question 3

Study the advert below and then answer the questions that follow.

Months	Interest rate	Vehicle Price	Deposit	*Residual	Monthly instalments	Total Payment
60	10,5%	R221 180	11%	R99 218	R2 991	R303 007,80

*Residual is an amount that must be paid at the end of the term after all the monthly payments have been made.

3.1 What is the cash price of the NISSAN NP 300? (2)

3.2 If a person decide to pay for the vehicle in instalments, determine the number of years it will take to pay for the vehicle. (2)

3.3 Calculate the amount of the deposit needed. (3)

3.4 Show by means of calculations how the Total Payment of R303 007,80 was calculated. (3)

3.5 How much will the person paying cash save compared to the person paying in instalments? (2)

3.6 What method of payment is the best value for money? Explain. (3)

Question 4

Mr Moleko has two options for borrowing money:

- His uncle has offered to loan him R16 000 for five years at 18% per annum, simple interest.
- His bank will offer him a personal loan of R16 000 for five years at 16% compound interest per annum.

Showing all calculation, determine the option that will be best for Mr Moleko. (10)

Question 5

Mrs. Mhlaba is planning on doing a baking course and therefore decided to buy a food processor.While browsing the internet, she came across the following special promotion:

Kenwood-Titanium Chef Food Processor

Was: R7 139,99
Special price now: R6 499,00

Mrs. Mhlaba doesn't have enough cash to pay for the Kenwood – Titanium Chef food processor.She then decided to buy it on a hire-purchase agreement deal.
The hire-purchase deal entails the following:

- 15% deposit
- 18,5% annual simple interest rate on the remaining balance
- 3 years to repay

5.1 Define the term *hire-purchase*. (2)

5.2 Calculate the discount amount on the Kenwood Titanium Chef. (2)

5.3 Mrs Mhlaba paid R974,85 as a deposit on the food processor. Show how the deposit was calculated. (2)

5.4 Identify the interest rate charged on the financed amount. (2)

5.5 Calculate the amount payable after three years, *excluding* the deposit. (5)

Income and Expenses; Profit and Loss

Objectives:

At the end of this section, you should be able to:

1. Identify and perform calculations involving income and expenses, profit and loss.

2. Identify and work with fixed and variable expenses for businesses and personal use.

3. Analyse income and expense statements

4. Identify costs involved with manufacturing or producing an item

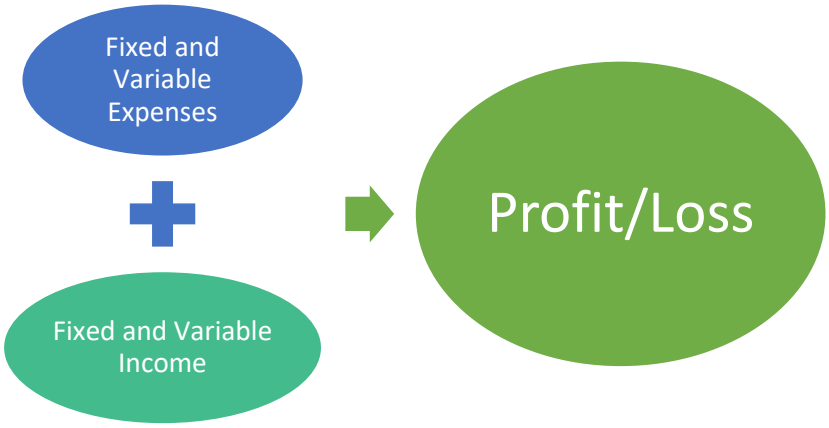
5. Draw graphs on the same set of axes in order to do a break even analysis.

Summary:

Income and Expenses:

Income is exactly as the word states, money that comes in, while expenses is money that leaves an account or business.

Income and expense statements allow us to keep track of our finances. This shows exactly how much money comes into or leaves your business or account.



Fixed vs Variable Expenses/Income

Fixed vs Variable Expenses: Those expenses that do not change are called fixed, while those who change are called variable.

Eg. Rent or salaries could be fixed for a business while insurance or car instalments could be fixed for an individual.

Fixed vs variable Income: Fixed income is income that is constant, while variable income can change monthly.

Budget vs Income and Expense Statement

Budget is a list of expected income and expenses while a statement lists the actual income and expenses.

NB: Profit /Loss = Income - Expenses

$$\textbf{Profit Margin} = \frac{\textbf{Profit}}{\textbf{Income}} \times 100$$

A **quotation** can be given for any goods or services to be delivered in the future. A quotation always has certain conditions which apply and is only valid for a certain period of time.

An **invoice** is issued after work has been done/article(s) is/are sold/services were delivered. The invoice specifies the amount that the consumer has to pay the service provider.

What to do when given Income and Expenditure Statement.

Worked example 1

Cally is the owner of Cally's Corner Shop. She pays rent monthly and draws her own salary. She has three people working for her. One in the deli, one in the bakery and one cleaner. The income and expenditure statement for Cally's Corner Shop is shown on the table below. (All values given are in rand)

	February 2016	March 2016	April 2016
Income			
Deli Sales	8 456	9 678	11 450
Bakery Sales	7 680	7 854	9 876
General Sales	13 450	12 976	13 450
Total income	29 586	30 508	34 776
Expenses			
Cost of goods sold:			
Deli goods	3 680	4 127	5 356
Bakery goods	2 346	2 856	3 799
General goods	4 989	4 125	5 055
Salaries and wages	3 950	3 950	3 950
Electricity, water, rates	3 250	3 140	3 360
Advertising	1 000	1 000	1 000
Maintenance	750	1 250	400
Rent	4 000	4 000	4 000
Total expenses	23 965	24 448	26 920
Net profit / loss	5 621	6 060	7 856

Source: adapted from www.eclassroom.co.za

Use the information on the previous page to answer the questions that follow.

1.1 Show how the total income for March was calculated

1.2 Show how the net profit for February was calculated.

1.3 Calculate the profit made from General sales over the three-month period?

1.4 The property owner has decided to increase rental by 9,8 %. Calculate the new rental amount for the store each month.

1.5 Cally, the owner of the shop, wants to increase his advertising budget by R300 in May. Calculate the new total as a percentage of the total expenses for April

1.6 Is the amount of money spent on advertising every month justifiable? Suggest a reason for your answer.

1.7 Suggest an example of what may be included in 'Maintenance' expenses.

1.8 Calculate the percentage increase in profit from February to April

1.9 Which expenses decreased from February to March?

1.10 How can Freddy use this income and expense statement to budget his expenses for May?

Worked example 2

The following is the income and expenditure statement for Ally's Boutique for a specific month:

EXPENDITURE				**INCOME**	
OPERATING COSTS		**PRODUCTION COST**			
Rental	R5 000,00	Fabric used	R25 000,00	Dresses made	R60 000,00
Electricity	R450,00	Other material used	R10 000,00		
Water	R120,00			Fittings	R3 850,00
Telephone and internet	R900,00	Seamstress wage	**E**		
Total	**R6470**	Total	R42 550	Total	**F**

Source: adapted from grade 12 Math Lit revision workbook

Use the information above to answer the questions that follow.

2.1 Calculate the value of **E**.

2,2 Calculate the value of **F**.

2.3 Provide two fixed costs for the business

2.4 What percentage is the fabric used of the production cost?

2.5 Did Ally make a profit or a loss during this month? Verify your answer showing all calculations.

2.6 A supplier offers Ally fabric that is 10% cheaper than her current supplier. In addition to this the supplier also offers her 5% discount. What would she pay for fabric if she decided to make use the new supplier's offer?

Solutions

1.1 R9678 + R7854 + R12976 = R30 508

1.2 Profit = R29586 –R23965

= R5621

1.3 GSI: R13450 + R12976 + R 13450 = R39876

GSE: R4989 + R4125 + R 5055 = R14169

Thus: R 39876 – R 14169 = R25 707

1.4 $\mathrm{R}4000 \times 1{,}098 = \mathrm{R}4392$

1.5 $\frac{\mathrm{R}1300}{\mathrm{R}26920} \times 100 = 4{,}8\%$

1.6 Yes, there could be several other stores in competition with her.

OR

No her sales have increase and she is making a profit already

1.7 Equipment repairs; cleaning or general fixing or painting of structure

1.8

$\frac{7856 - 5621}{5621} \times 100 = 39{,}76\%$

1.9 General good; electricity; water

1.10 She can make decisions around the performance for the next month based on the trends she noticed over the last three months.

Question 2

2.1 R42550 – R 25 000 – R 10 000

=R 7550

2.2 R60 000 + R3850 = R 63850

2.3 Rental; Seamstress wage

2.4 $\frac{\mathrm{R}25\ 000}{\mathrm{R}42550} \times 100 = 58{,}75\%$

2.5 Profit = R63850 – (R42550 + 6470)

= R 14830

2.6 $R25\ 000 \times 0{,}1 = R2500$

$R25\ 000 - R2500 = R\ 22\ 500$

Discount: $R22\ 500\ \times 0{,}05 = R1125$

New Price: $R22\ 500 - R1125 = R21\ 375$

Practice Questions

Question 1

Study Layla's Delicious Sea Food business budget given below and answer the questions that follow:

DELICIOUS SEA FOOD Budget for the year ending 29 February 2021	
Income	**Expenditure**
Income from sales: R385 000	Fixed expenses: Rent R 25 000 Salaries R **A** Repayment (Delivery scooter) R 9 500
	Variable Expenses: Electricity & water R 8 200 Consumables R 120 000
Total Income: R385 000	**Total Expenditure: R327 700**

Source: adapted from grade 12 Math Lit revision workbook

1.1 Assist Layla to complete the budget and calculate the profit or loss.

1.2 The business had a profit of R28 000 during the previous year. Layla has a partner with whom she shares the profit in the ratio 3:1, where the biggest share goes to Layla. Calculate each partner's share of the profit of R28 000.

1.3 Their rent for the next year will increase by 7,5%. What will their total rent be for the following year?

1.4 Calculate the value of A?

1.5 13.5% of their total salaries bill is usually paid to casual delivery personnel. Calculate the average monthly amount paid out to casual workers.

Question 2

The table below shows the summary of Income and Expenses statement with notes of the South African National Blood Service (SANBS) for the financial year ending 31 March 2016. Some of the amounts have been omitted.

SUMMARY OF INCOME STATEMENT AND EXPENDITURE STATEMENT FORTHE YEAR ENDED 31 MARCH 2016

	Notes	2016 R'000	2015 R'000
Primary income	1	2 403 509	2 250 041
Other income		120 915	86 609
Primary expenses	2	(2 163 571)	(1 993 476)
Other expenses: Interest paid		(202)	(172)
Total annual profit		**360 651**	**342 534**

NOTES TO THE ANNUAL FINANCIAL STATEMENTS

	2016 R'000	2015 R'000
1. Primary income		
Service fees	...	2 249 081
Product sales	...	960
Total annual primary income	**2 403 509**	**2 250 041**
2. Primary expenses		
Advertising and promotions	(67 257)	(56 401)
Communication costs	...	(32 187)
Consumables	(640 601)	(582 823)
Depreciation	(69 866)	(64 748)
Employee benefits	(953 592)	(888 662)
Freight	(135 768)	(125 736)
Rent	(34 087)	(30 115)
Product testing	(55 267)	(54 252)
Other expenses – Includes bad debts written off, computer costs, foreign exchange variance, insurance, repairs and maintenance	(176 363)	(158 552)
Total annual primary expenses	**(2 163 571)**	**(1 993 476)**

NOTE: Brackets ( ) indicate deduction.

source: adapted from SANBS annual report

Use the table and he information above to answer the questions that follow:

2.1 Communication costs decreased by 4,402% from 2015 to 2016. Calculate, to the nearest thousand rand, the communication costs for 2016. (4)

2.2 The SANBS expects a 17,5% increase in the costs of its product testing materials and consumables. Explain what possible impact this could have on their profit for the year. (2)

2.3 Compare, showing all calculations, the 2015 and 2016 percentage profit for the SANBS. (5)

Question 3

Callan invites Lauren to Shezam Cinema to watch a **3D Movie**. The table below shows the pricelist at the cinema. He decides to go on Friday and buys two large cooldrinks and two boxes of popcorn.

Shezam Cinema Prices			Cooldrink prices		
Ticket	2D Movie	3D Movie	Small	R15	250ml
Normal	R50	R75	Medium	R20	340ml
Budget Tuesday	R25	R35	Large	R25	500ml
			Combo deal on Tuesday: 1 popcorn + 1 large cooldrink for R40		

3.1 If the popcorn costs R15 each. Calculate the total amount that David paid. Use the formula:

Costs = Cost of movie tickets + Cost of cooldrinks+ Cost of popcorn.

(3)

3.2 Calculate the amount that David would save if he went on Tuesday and got the Tuesday combo deal. Use the formula:

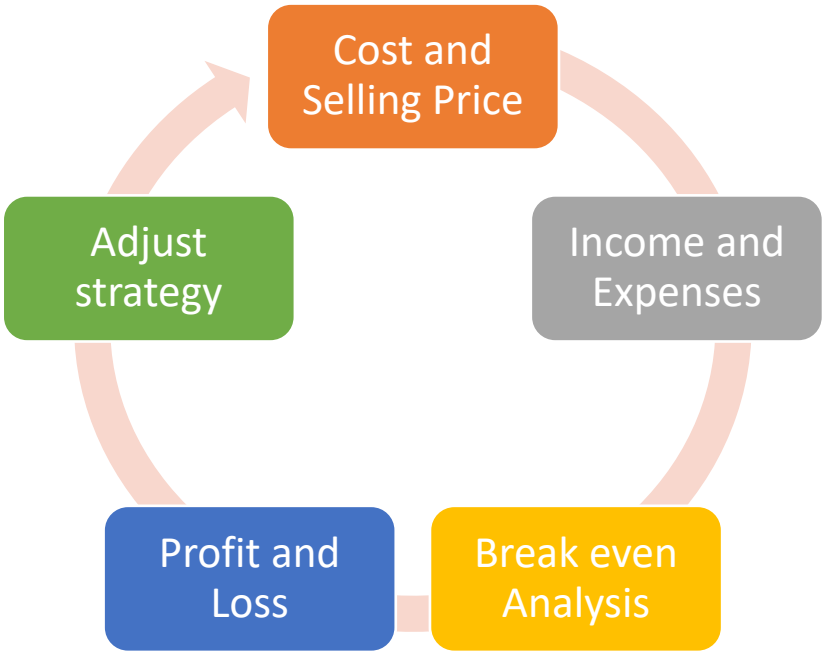
Savings = Cost of Friday – (Cost of movies + Tuesday Refreshments)

(3)

3.3 Which size cooldrink is the most value for money in your opinion? (2)

3.4 Provide a reason why the budget deal is on a Tuesday? (2)

Cost and Selling Price; Break Even Analysis



In order for a business to show a profit, the Income needs to exceed the expenses.
For this to happen, the owner needs to know how much to sell the goods for.

For this we need to set up equations that can help us project how the business will perform

What are equations and how are they used?

A business can use formula/equations, tables and graphs to determine profit or loss.

An **equation** is a **mathematical** expression that shows the relationship between two items. It contains letters (variables) and an equal sign

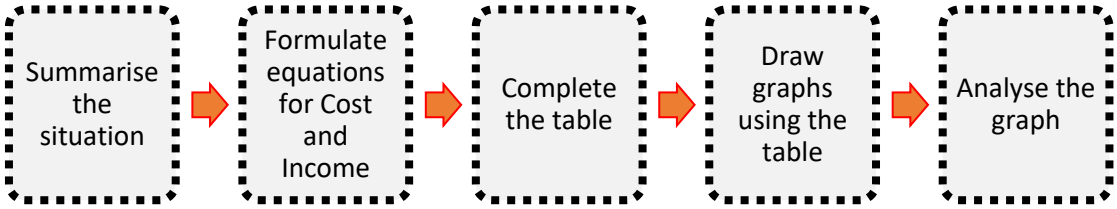
- ☆ *Variables* − a variable is a symbol or letter used to describe the relationship being represented by the equation. Variables do not have a fixed value and their value can vary or change.
- ☆ The *equal sign* shows how the variables and/or numbers are related to each other.

Variables can be dependent or independent

- ☆ The value of the dependent variable is dependent on the value of other variables.
- ☆ The independent variable(s) is a variable whose value is not dependent on the value of any other variable.

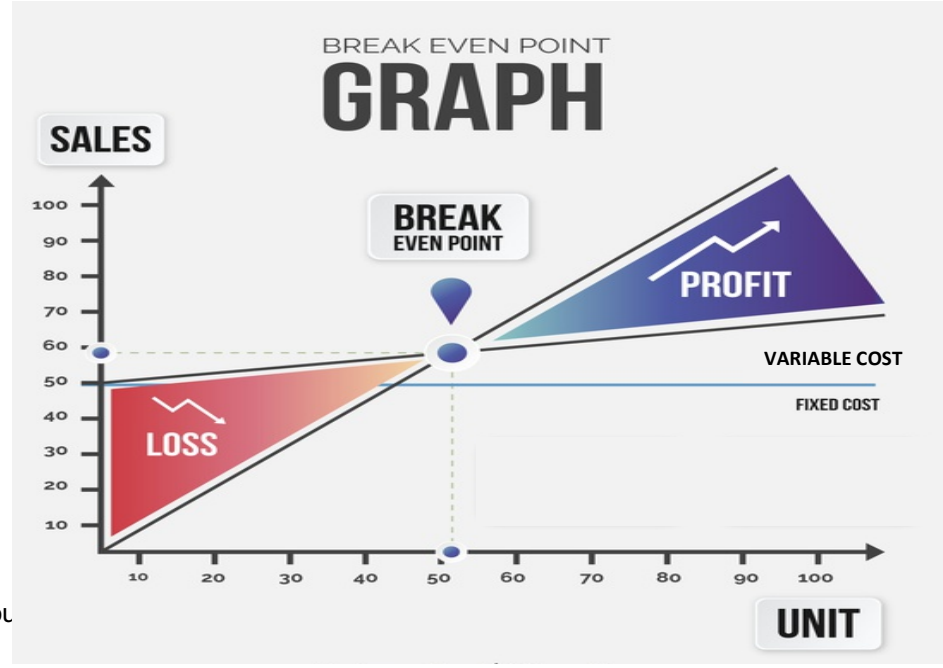
Finding the Break Even Point

Follow these steps when doing break-even point questions:



- ☆ When you run a small business, you must be able ***to calculate the number of items you need to sell in order to make a profit***.
- ☆ Two graphs are drawn on the same grid, the point where these ***two lines intersect is called the BREAK-EVEN POINT***.
- ☆ You must be able to read the profit or loss from the graph

Break-Even Analysis Model



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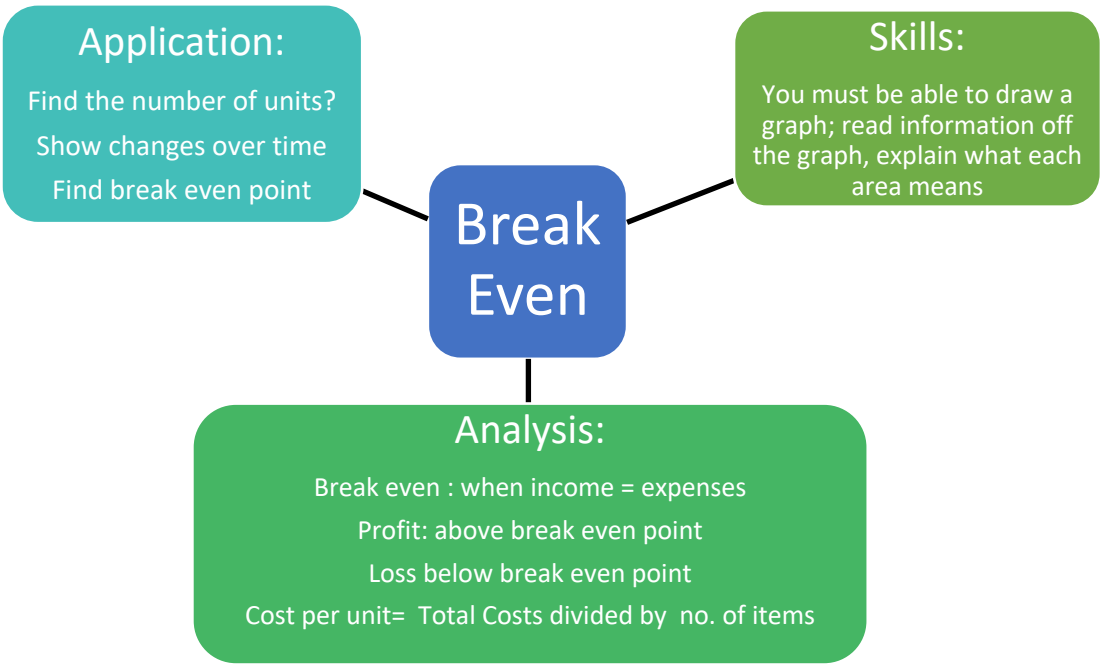
Break-Even Analysis Model



Worked examples
Example 1

Maddy's needs to know how her new business is performing. She has set up a pop-up hamburger stall outside the mall. She has a fixed cost of R500 per month for the stall. The cost price of the ingredients is R10 per hamburger. She sells the hamburgers for R25 each.
The table below shows her income and expenses for the sale of the hamburgers.
Use the information above, as well as the table to answer the questions that follow:

	Number of hamburgers made					
	0	10	20	40	50	**C**
Cost (in rand)	500	600	700	**A**	1000	1250
Income (in rand)	0	250	**B**	1000	1250	1875

STEP 1: Finding the costs and determining the income

Solution:

Your first equation will be constructed based on the Total Expenses for the hamburgers.

- Expenses:
  Fixed Cost = R500.00
  Variable Cost = R10.00 X no. made (Use N as the variable)

  Total Costs (TC)= Fixed cost + Variable costs

  TC= R 500 + (R10 x N)

The second equation will be constructed based on the Total Income of the hamburgers.

Income = R25 x number sold (Use N as the variable)

I = R25 x N

STEP 2: Using a table

A table is a useful way of summarizing information.
Use the table below and the equations to answer the following questions.

	Number of hamburgers made					
	0	10	20	40	50	**C**
Cost (in rand)	500	600	700	**A**	1000	1250
Income (in rand)	0	250	**B**	1000	1250	1875

1. Use the following equation to calculate the value of A

TC = R 500 + (R10 x H)

2. Use the following equation to calculate the value of B

I = R25 x N

3. Use the Income equation to determine C, the number of hamburgers that are made.

Income = R25 x N

R1875 = 25 X N

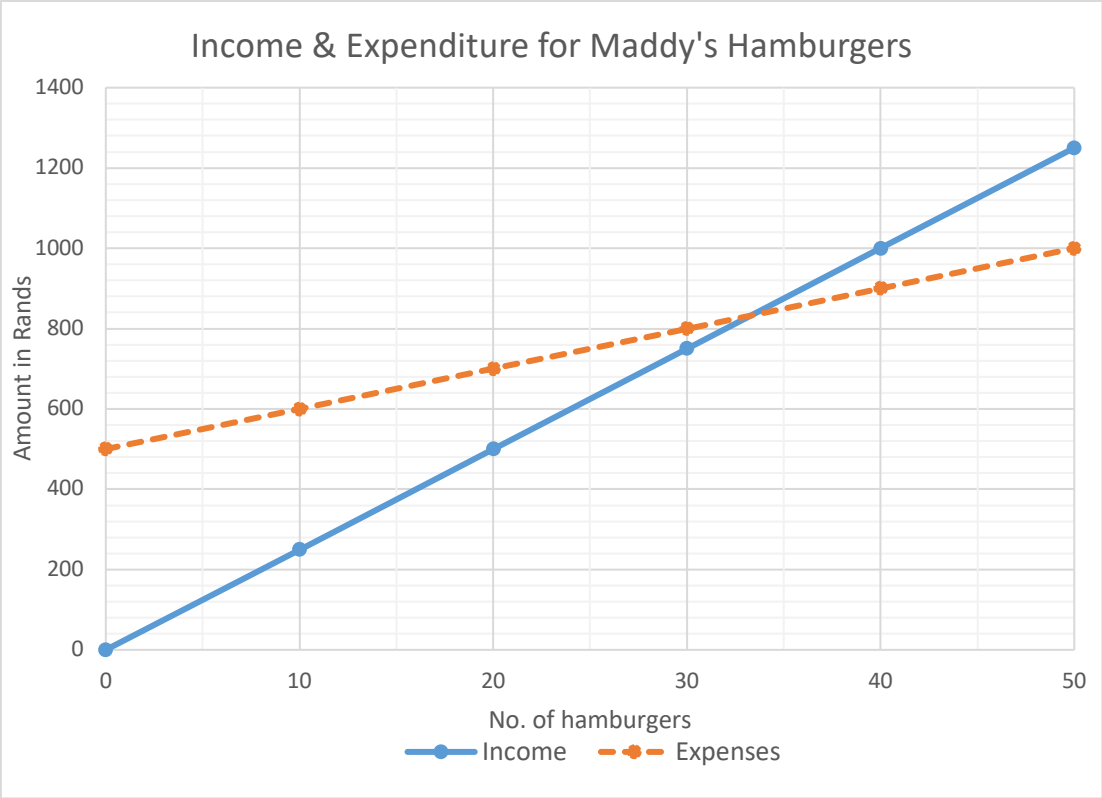
Thus N = $\frac{\text{R1875}}{25} = 75\ \text{Hamburgers}$

Step 3: Drawing a Graph

We can now plot these values on a set of axes to give two graphs − one to represent the income and the other for the total costs.

4. Draw a graph indicating the income and expenses for Maddy's hamburgers sales.

Solution:



Step 3: Analysis of the Graph

5. Determine what the total cost would be if Maddy sold 45 hamburgers for the month.

6. Calculate the total income if Maddy sold 45 hamburgers.

7. Verify with the necessary calculations that Maddy has made a profit of R175 if he sold 45 hamburgers a month.

8. Use the graph to determine how many burgers she would have to sell to cover her expenses?

9. What do we call this point?

Solutions:

6. Costs/Expenses = R 500 + (R10 x H)
= R500 + (R10 x 45)
= R 950

7. Income = R25 x 45 = R1125

8. Profit = Income – Expenses
= R1125 -950
= R175

Therefore it is correct.

9. Approximately 33 hamburgers

10. Break Even Point.

LOOK OUT for questions which ask," how many products must be sold to start showing a profit."

The answer is NOT the break-even point, but actually the first integer AFTER the break-even point.

Worked example 2 ***(Using real life examples to make decisions)***

Let us consider the school approaching a printing company to lease new photocopier machines. The invoice below shows the costs involved for three different contracts with a particular company.

DRAFTWORX Photocopier Suppliers
Tel: 011 7567 536
26 Lances Lane, Florida, 7576
26 January 2021
Quote valid for 14 days

Proposed Rental Options

Description	Contract 1	Contract 2	Contract 3
Machine	XP 121	XP 122	XP 123
Monthly Rental	R500	R650	R1050
Per page fee	35c	25c	10c
Allocation of free copies	0	500	1000

Adapted from: Via Africa Mathematical Literacy

2.1 Provide equations for the cost involved with renting from each of the companies above.

Solution:

Setting up the equations for the costs involved

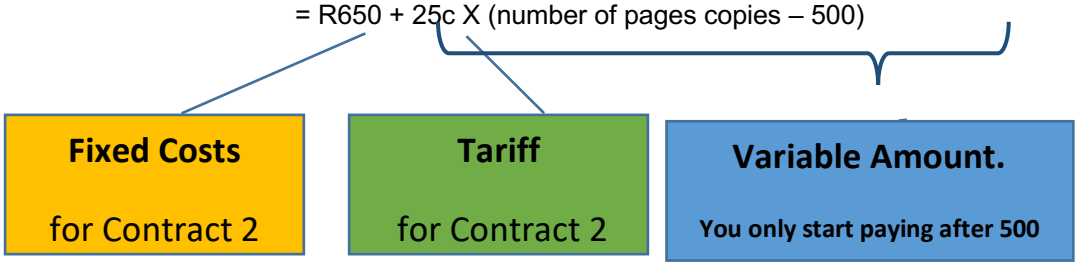
Contract 1: Has a Fixed monthly fee and a further 35c per page.

Thus, Costs= R500 + R0.35 X every page copied(P)

Contract 2: Has a fixed charge of R650 per month, but only starts charging for prints after 500 free pages have been copied.

Thus, Costs = R650 + 25c X (number of pages above 500)

= R650 + 25c X (number of pages copies – 500)



Contract 3: Has fixed cost of R1050 and only charges after 1000 copies

Thus, Costs = R1050 + 10c X (every page above 1000)

= R1050 + 10c X (number of pages copied – 1000)

Using these formulae we can complete the following table:

2.2 Complete the table below using the equations above.

Solution:

Complete a table to analyse the data

In the following example shows the data for various photocopier contracts

Always try to include this value to ground the graphs

First Charging point after 500 free copies

Charging point after 1000 free copies

Copies	0	100	200	400	500	501	1000	1001	3500
Contract 1	R500	R535	R570	R640	R675	R675,35	R850	R850,35	R1750
Contract 2	R650	R650	R650	R650	R650	R650,25	R775	R775,25	R1400
Contract 3	R1050	R1050	R1050	R1050	R1050	R1050	R1050	R1050,10	R1300

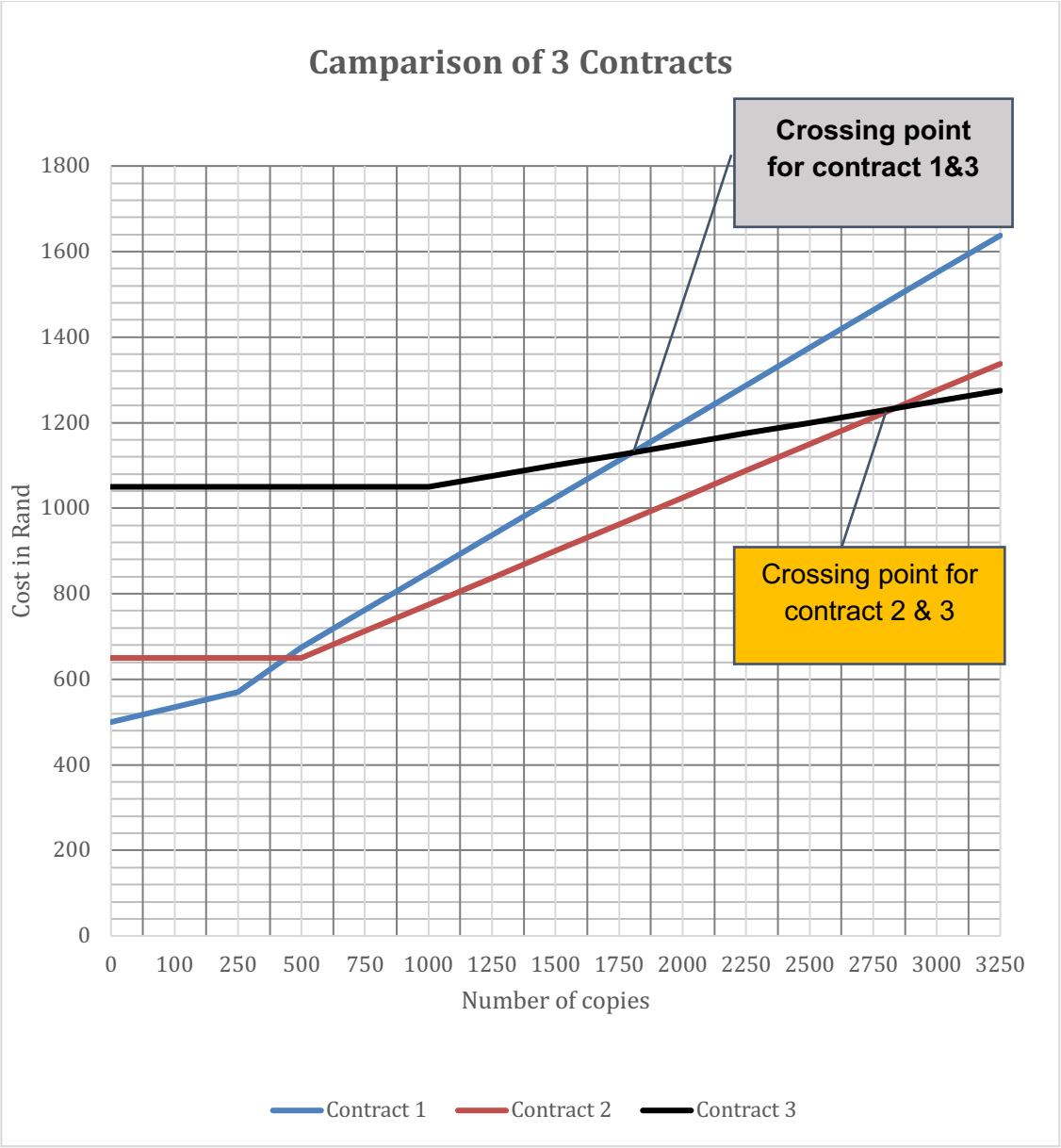
Notice that the table includes 501 and 1001 copies. On contract 2 the page fee only applies for more than 500 copies (i.e 501 and more). So the cost on this contract will change after 500 copies. A similar situation happens on contract 3 when there are more than 1000 copies (i.e. 1001 or more)

No look again at the invoice presented by the company. NOTICE how IMPORTANT it is to complete an analysis of the costs involved before you choose a contract?

2.3 Draw a graph to illustrate the three different contracts.

Solution:

Draw a graph to give you a visual idea of what is happening



Source: adapted from Via Africa grade 12

2.4 Analyse the graph and provide the school with a recommendation as to which option would be best.

Now to Interpret the data

Contract 1	• The graph starts at R500 on the vertical axis, representing the fixed cost of rental • The increase is constant since the amount increases with a constant tariff
Contract 2	• The graph starts at R650,00 on the vertical axis, indicating the fixed monthly rental fee. • The graph stays horizontal up to 500 copies since the first 500 copies are free. • The graph then increases sharply as you are now charged another 25 c per page.
Contract 3	• The graph starts at R1050 on the vertical axis. This is the monthly rental fee. • The graph is a horizontal up to 1000 copies since the first 1000 are free • The graph then increases sharply as you are now chargedanother 10c per page

Now you are ready to make a decision based on the above information

Region 1	Region 2	Region 3
From 0 – about 430 pages contract 1 is the cheapest	From 430 to 2850 copies contract 2 is the cheapest	Any amount of copies above 2850 Contract 3 will be best

Solution:

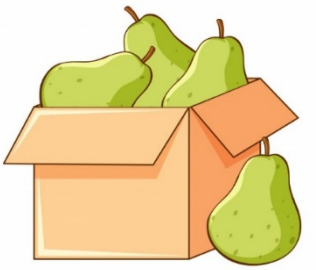
Thus if the school makes more than 3500 copies in a month, contract 3 would be cheaper, even though it is more expensive initially.

However, if the contracy was for home use where between 400 and 3000 copies were made a month, contract 2 would be best.

Practice Questions

Question 1

Tally High School tuckshop sells pears during lunch to raise funds for a sports tour. They bought a crate of 250 pears for R255,00. They sold them at R3.00 each.



1.1 Explain what is meant by Break-even point? (2)

1.2 Calculate the cost price for one pear. Round your answer up to nearest 10 cents. (3)

1.3 The Selling Price for one pear is R 3,00. Explain the meaning of the term Selling Price in the given context. (2)

1.4 Calculate the profit they made, if 250 pears were sold (3)

1.5 They normally sell 120 pears per day:

1.5.1 Calculate the income for that day (2)

1.5.1 How many days did they take to raise an amount of R14 400,00 for the function? (2)

Question 2

Shelly manufactures (makes) cute bags in her spare time. She decides to sell her product at the Willow Dam Sunday Market. To rent a stall (space) at the market costs R 80,00 per day. The production costs of a bag is R75,00. Shelly wants to sell her bags at R100,00 each.

2.1 What is Shelley's selling price for one bag? (2)

2.2 What is Shelly's cost price for one bag? (2)

2.3 Identify Shelly's fixed costs . (2)

2.4 Complete the following tables for INCOME and COSTS for Shelley's business:

Expenses:

No. of Bags	0	1	5	10	20
Costs	**A**	155	**B**	830	1580

Income:

No. of Bags	0	1	**D**	10	20
Income	**C**	100	500	1000	2000

(4)

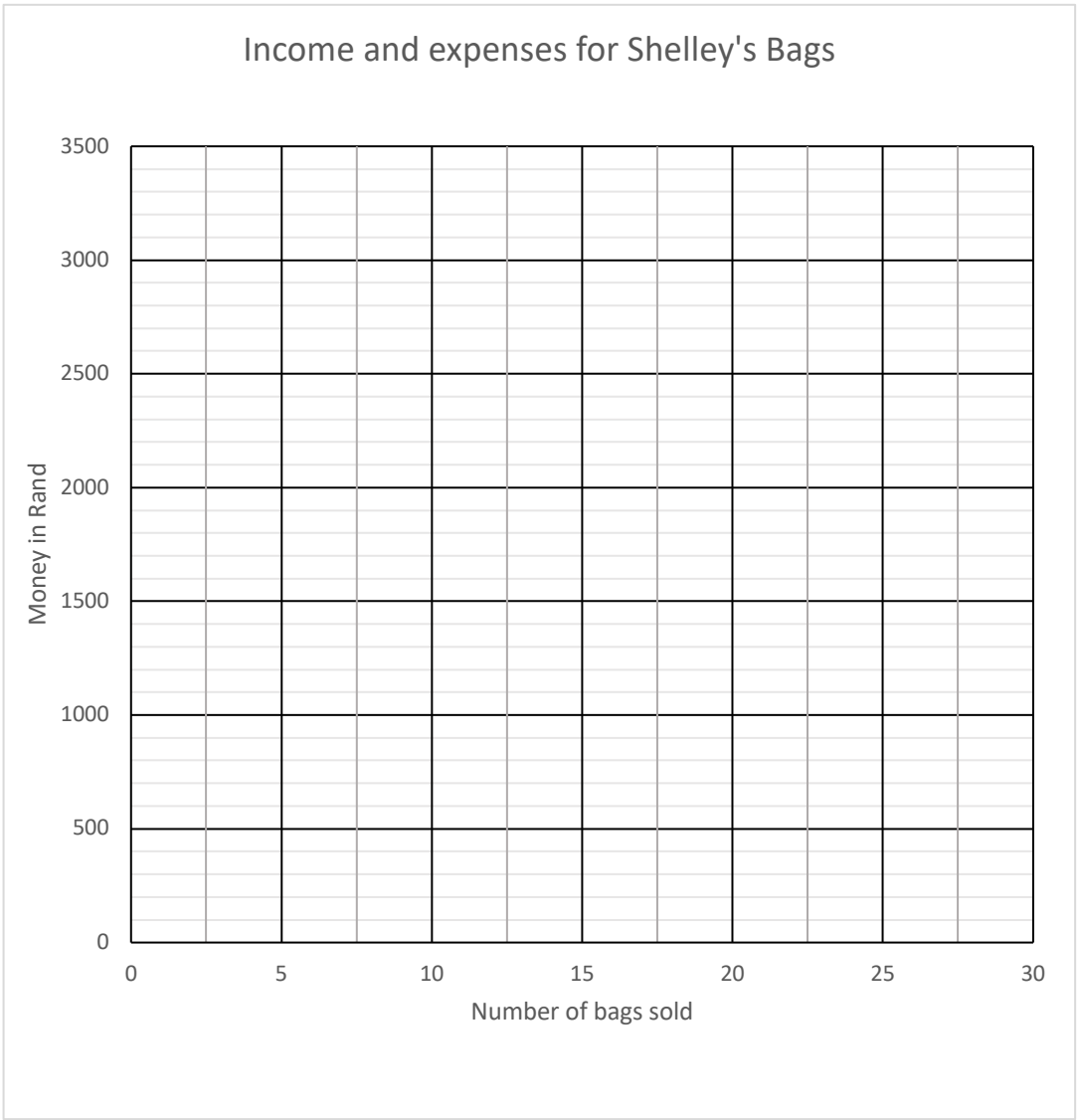
2.5 Use the information provided in the tables to draw line graphs for COSTS and INCOME on the set of axes provided below. Label your graphs appropriately. (6)

2.6 What is the point of intersection of the graphs called? (2)

2.7 Explain what is meant by this point of intersection. (2)

2.8 How many bags must Shelly sell to start showing a profit? (2)

2.9 Calculate the amount of profit on 17 bags. Show all your calculations. (3)



Question 3

Mary intends selling cups of coffee at the local taxi rank for extra money. She has organised to set up her stall at R40 per day and her travelling costs are R14,20 per day. Mary decided to exclude the cost of water when calculating the cost price per cup of Coffee.

The table below shows how Mary calculated the cost price of ONE cup of Coffee.

QUANTITY BOUGHT	COST OF INGREDIENTS	AMOUNT USED FOR ONE CUP	COST PER CUP OF COFFEE
1 kg Coffee	R97,95	0,04 kg	**A**
1 ℓ milk	R11,99	**B**	R1,20
2,5 kg sugar	R33,20	0,01 kg	R0,13
25 foam cups	**R1.78**	ONE	R1,78
50 spoons	R12,75	ONE	R0,26
TOTAL COST			**C**

3.1 Explain the meaning of the word *cost price*. (2)

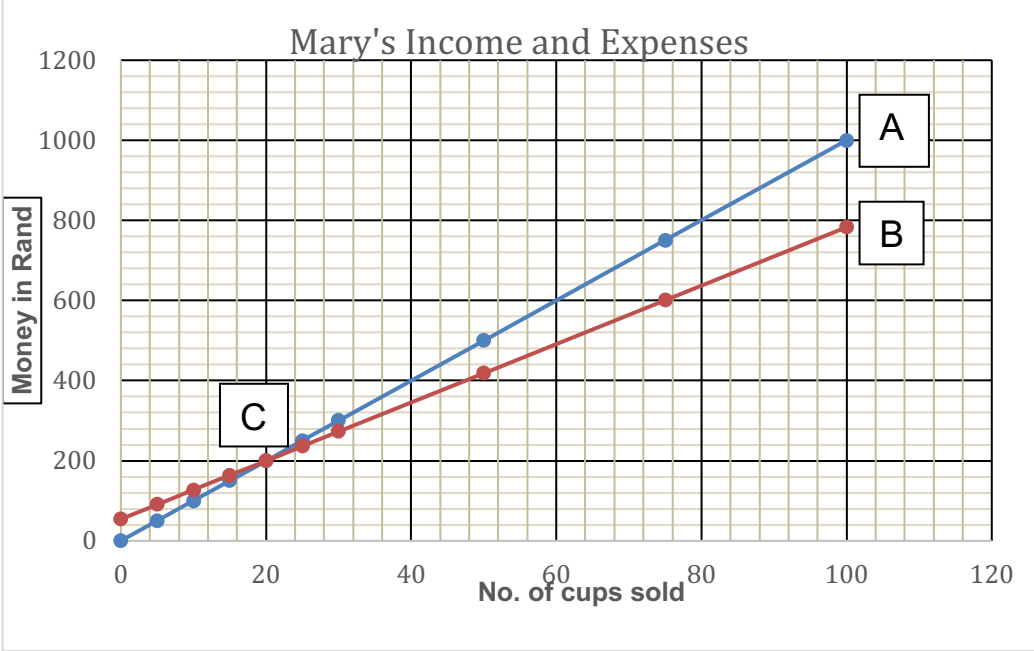
3.2 Now calculate the values A, B and C. (6)

3.3 Determine the selling price of one cup of coffee if she wants to have a profit margin of 25% (3)

3.4 Determine Mary's fixed costs per day (3)

3.5 Provide an equation for the expenses of selling coffee per day (3)

3.6 Mary decides to sell the coffee at R10,00 per cup. Her income and expenses graphs are provided below. Use the graphs to answer the questions that follow:



Use the information on the previous page to answer the questions that follow.

3.6.1 Provide the labels for graph A and B and point C (3)

3.6.2 Explain the value given by C in this context. (2)

3.6.3 Approximately how much profit is made when she sells 50 cups of coffee? (4)

3.6.4 Explain whether you believe that Mary should continue with the business if she is able to sell at least 40 cups a day? (3)

Question 4

Lester rents a hall on the private farm at a fixed cost of R3600 per function. He then hires out the hall and charges R50 per person (per ticket).

Number of tickets sold	0	10	D	100
Amount received (Income)	0	500	2500	5000

Use the table and the information above to answer the questions that follow:

4.1 Calculate the value of D. (2)

4.2 Determine the cost that Lester will have to pay if the hall is rented out to 120 people. (2)

4.3 The income graph has been drawn on the annexure below. Draw the cost graph for renting the hall on the same set of axes. (3)

4.4 Use your graph, or otherwise, to determine the difference between the income and costs for renting the hall for a function for 60 people. Indicate whether it is profit or loss. (3)

4.5 Explain the meaning of break even in this context. (2)

4.6 The cost for renting the hall is VAT inclusive (at 15%). Calculate the amount of VAT. (3)

Question 5

Meikhe and his friends plan a tour across South Africa. The tour is set to stretch from Port Elizabeth down the Garden route to Cape Town. They investigate the rates for GoGo Car hire and eNIGMA Car Rental. The distance from Port Elizabeth to George is 335km and from George to Cape Town is 434km.

TABLE 1. FEES FOR CAR RENTAL COMPANIES

	GO GO CAR HIRE	eNIGMA CAR RENTAL
BOOKING DEPOSIT	None	R2000
FREE KILOMETERS	None	First 350km
TARIFF	R3,50 PER KM	R1,50

Use the tables above to answer the questions that follow.

5.1 Provide equations for the cost for both options. (4)

5.2 Show, by calculation, which option would be the best rental for the boys to tour with? (5)

5.3 The table below gives the cost for the two rental options. Provide the values for A and B.

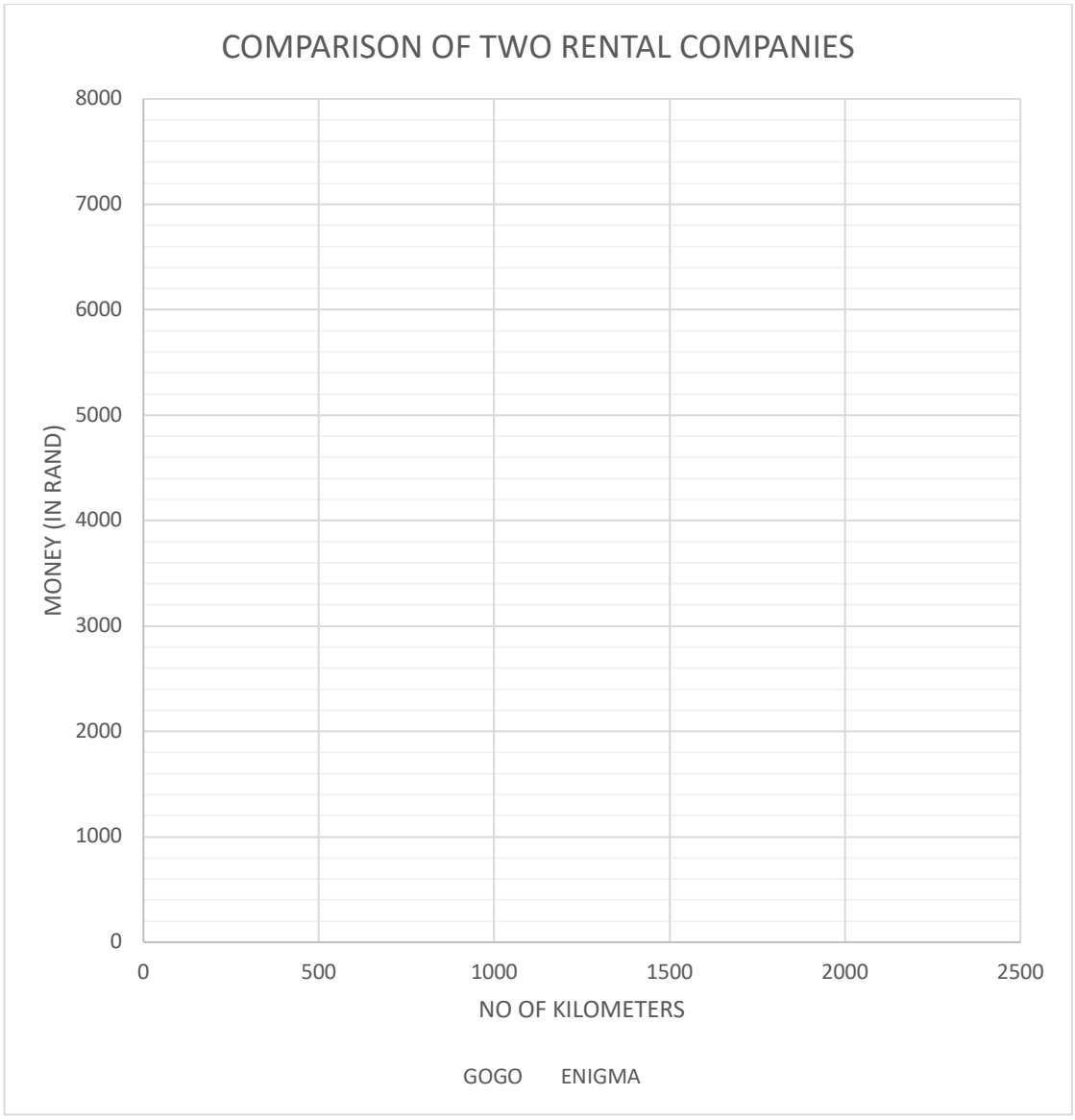
COMPANY	O km	50km	100km	**B** km	1000km	2000km
GOGO CAR HIRE	0	175	375	1400	3500	7000
ENIGMA CAR HIRE	**A**	2000	2000	2075	2975	4475

(4)

5.4 Use the table to complete the graphs for both companies on the same set of axes (5)

5.5 Provide the amount of kilometers you could travel when both companies cost the same. (2)

5.6 With the aid of your graph, explain which company you would recommend if the boys decide to go to George instead? (3)


COMPARISON OF TWO RENTAL COMPANIES
8000
7000
6000
5000
4000
3000
2000
1000
0
MONEY (IN RAND)
0
500
1000
1500
2000
2500
NO OF KILOMETERS
GOGO
ENIGMA

3.2 SOLUTIONS TO PRACTICE QUESTIONS

3.2.1 Tariffs

Q	Solution	Explanation	T/L
1.1	Amount = (50 x R0,76) ✓MA + (200 x R0,97) ✓MA = R38,00 + R194,00 = R232,00 ✓CA	1MA multiplying 50 by the correct rate 1MA multiplying 200 by the correct rate 1CA amount to be paid (3)	2
1.2	Amount for January = (50 x R0,76) ✓MA + (300 x R0,97) ✓MA + (1 x R1,16) ✓MA = R38,00 + R291,00 + R1,16 = R330,16 ✓CA Difference = R330,16 – R232,00 = R98,16 ✓CA ✓A	1MA multiplying 50 by the correct rate 1MA multiplying 300 by the correct rate 1MA multiplying 1 by the correct rate 1CA January payment 1CA difference (5)	2
2.1	Basic Charge is a compulsory monthly amount that one must pay whether you use electricity or not.	1A compulsory monthly amount 1A whether you use electricity or not. (2)	1
2.2	✓A $\frac{11}{100}$ × 17 ✓MA = 1,87 + 17 ✓M = R18,87	1MA calculating percentage 1M adding values **(No mark for R18,87 as it was given)** (2)	2
2.3	First 6kℓ x R7,46 = R44,46 ✓MA Next 9kℓ x R17,39 = R156,51 ✓MA ∴ R44,46 + R15,51 = R200,97 Then R205,24 – 200,97 = R4,27 ✓M Remaining kℓ = R4,27÷R18,87 ✓M = 0,23kℓ Kilolitres used = 6kℓ + 9kℓ + 0,23kℓ = 15,23 kℓ ✓CA	1MA calculating cost for 6kℓ 1MA calculating cost for 9kℓ 1M calculating the difference 1M dividing by R18,87 1CA number of kℓ (5)	3
2.4	133kℓ ✓MA - 53,7kℓ = 79,3kℓ ✓A	1MA subtracting correct values 1A amount of water used (2)	2

Q	Solution	Explanation	T/L
3.1	Total cost (in rands) = ✓A 300 + (the number of persons - 15) x 50 ✓A	1A fixed cost 1A variable cost (2)	2
3.2.1	✓A 900 = 300 + (n – 15 persons) x 50 (n – 15 persons) x 50 = 600 ✓M n – 15 persons = 12 ✓M n = 27 ✓CA	1A substituting total cost (900) 1M subtracting 300 from 900 1M getting 12 1CA number of passengers (4)	2
3.2.2	✓A Group 1 = 10 learners + 1 teacher Group 2 = 10 learners + 1 teacher Group 3 = 4 learners + 1 teacher ✓A 24 learners and 3 teachers 24:3 ✓M 8:1 ✓CA	1A group 1 1A group 3 1M ratio of learners to teachers 1CA ratio in the simplest form (4)	2
4.1	Total cost (in rands) = ✓A R300 + R0,50 × number of minutes more than 500 ✓A	1A R300 1A R0,50 × number of minutes more than 500 (2)	2
4.2	Total cost = R300 + R0,50 x (510 - 500) ✓MA = R300 + R0,50 x 10 ✓M = R300 + R5,00 ✓M = R305,00 ✓CA	1MA subtracting minutes 1M multiplying by the tariff 1M adding values 1CA total cost (4)	2
4.3	**CALL PACKAGE 1** Total cost = R150 + R0,50 x (300 - 100) ✓MA = R150 + R0,50 x 200 ✓M = R150 + R100,00 ✓M = R250,00 ✓CA **CALL PACKAGE 2** Total cost = R300 + R0,50 x (0) = R300 + R0,00 = R300,00 ✓A Call Package 1 will be cost effective ✓O	1MA subtracting minutes 1M multiplying by the tariff 1M adding values 1CA total cost 1A total cost 1O conclusion (6)	4

5.1	From 7:30 of 06 Jan to 7:30 of 10 Jan it is four full days ✓A From 7:30 to 09:15 it is 1 hour 45 minutes. Expect to pay = 100× ***d*** ✓A + R44 for part thereof = R100 × 4 + R44 = R444 ✓CA	1A 4 days / 48 hours 1A basic R100 1CA amount (3)	3
5.2.1	If stopping for a short time you pay much more than the amount due. ✓✓O	2O reason (2)	4
5.2.2	Open parking: R67 × ***d*** + R29 = R500,00 ✓SF ***d*** = 7,03 days ✓A ≈8 days Shaded parking: 5 days = R500. ✓A So, **more than five days** you win. ✓A	1SF substituting into correct formula 1A number of days 1A five days 1A more than 5 days (4)	3
5.2.3	The cost escalates quickly. ✓✓A **OR** It is costing more after just 15 minutes than in any other type of parking. ✓✓A	2O rate of increase. (2)	4

3.2.2 Tax

VAT			
Q	**Solution**	**Explanation**	**T/L**
1.1	$VAT: \frac{15}{100} \times R79{,}99 = \text{R12,00}$ ✓MA ✓A	1MA multiply by 15% 1A Answer (2)	2
1.2	Final Price : $R79{,}99 + R12 = R\ 91{,}99$ ✓MA ✓A	1MA adding values 1A Answer (2)	2
2	$\frac{R13950}{1{,}15} = R12130{,}43$ ✓MA ✓A	1 MA divide by 1,15 1A Answer (2)	2
3.1	$\frac{\text{R50}}{1{,}15}$ ✓MA = R43,48 ✓CA R50 – R43,48 = R 6,52 ✓CA	1MA divide by 1,15 1CA Answer 1 CA VAT (3)	2
3.2	20 April 2 x R150 = R300 x 50% = R150 ✓RT ✓CMA 1x R50 = R50 x 50% = R25 ✓RT ✓CMA 1 x R50 = R50 1 x R20 = R20 Total: R150+R25+R50+R20 = R245 ✓M ✓CA 23 April 2 x R150 = R300 1 x R50 = R50 1 x R50 = R50 1 x R20 = R20 Total : R300 +R50+R50 +R20 = R420 ✓M ✓CA R420 – R245 = R175 ✓CA R175 R420 ✓MA = 0,4167 ✓CA A quarter is 0,25 thus the statement is correct. ✓O	1RT correct tarrif 1CMA correct discounted amount 1RT correct tarrif 1CMA correct discounted amount 1M adding all values 1CA simplification 1M adding all values 1CA simplification 1CA difference 1MA dividing by 420 1CA answer 1O Conclusion (12)	3
3.3	Pensioners often live only on a pension or a grant, thus the discounts allow them to also enjoy some of the fruits of their labour. ✓✓O	2O Opinion (2)	4

Income Tax			
Q	**Solution**	**Explanation**	**T/L**
1.1	All the money earned before deductions ✓✓O	2O explanation (2)	1
1.2	Mr KIVIDO ✓✓A	2RT answer (2)	1
1.3	**M** = Gross – Deductions = R31 221,25 – R9 362,62 ✓RT ✓M = R21858,63 ✓CA **N** = R9 362,62 – (R4 736,90 + R2251,59 + R245,23 + R192,70 + 90,25) ✓M ✓RT = R1 845,95 ✓CA	1 RT correct values 1 M subtracting values 1CA answer 1 RT correct values 1 M adding and subtracting values 1CA answer (6)	2
1.4	$\frac{R2\ 251,59}{R30\ 021,25}$ × 100% ✓ MA ✓M = 7,5% ✓CA	1MA divide by correct values 1M multiply by 100 1CA percentage (3)	2
1.5	Taxable Income= (R31 221,25 – R1 151,59) X 12 ✓ MA ✓ M = R360 835,92 ✓CA	1MA subtracting pension fund 1M multiply by 12 1CA answer (3)	2
1.6	Tax Bracket: 63 853 + 31% of taxable income above 305 850 ✓✓RT	2RT correct bracket (2)	2
2.1	R 5 500 × 12 = R66 000 ✓MA ✓A Threshold for tax year is R 79 000, thus she will not pay tax ✓O	1MA multiply by 12 1A simplification 1O conclusion (3)	4
2.2	The fixed value in the tax bracket is usually the maximum amount of tax payable from the previous tax bracket. Thus, 18% of R195 850 ✓M ✓RT = 0,18 × R195 850 = R 35 253 ✓A	1RT R195 850 1M calculating 18% 1A simplification (3)	4

Q	Solution	Explanation	T/L
3.1	✓MA Pension = $\frac{7,5}{100} \times 37\ 537,75$ = R2 815,33125 × 12 ✓MA = R33 783,98 ✓CA Donation = 575 × 12 ✓MA = R6 900 ✓A Total = R33 783,98 + R6 900 = R40 683,98 ✓CA	1MA calculating 7,5% 1M multiply by12 1CA pension amount 1MA multiplying by 12 1A donation 1CA total amount (6)	3
3.2	Taxable income = (37 537,75 × 12) – R40 683,98 ✓MA = R450 453 – R40 683,98 ✓MCA = R409 769,02 ✓CA	**CA from 3.1** 1MA multiply by 12 MCA subtract pension and donations 1CA taxable income (3)	2
3.3	Tax payable = 63 853 + 31% of taxable income above 305 850 ✓SF ✓RT = 63 853 + 0,31 × (409 769,02 – 305 850) = 63 853 + 0,31 × 103 919,02 = 63 853 + 32 214,90 = R96 067,90 ✓CA = R96 067,90 – R14 220 ✓M = $\frac{81\ 847,90}{12}$ ✓M = R6 820,66 ✓CA Invalid **OR** less than R6 850 ✓O	**CA from 3.2** 1RT correct tax bracket 1SF amount above 1CA simplification 1M subtract rebate 1M divide by 12 1CA monthly tax 1O conclusion (7)	4
3.4	They receive 3 rebates ✓✓O **OR** Their total rebate is higher ✓✓O	2O Explanation (2)	4
3.5	Gross monthly salary in 2018/2019 = $\frac{37\ 537,75}{1,064}$ ✓MA = R35 279,84 ✓CA **OR** Gross monthly salary in 2018 = $37537,75 \times \frac{100}{106,4}$ ✓MA = R35 279,84 ✓A	1MA divide by1,064 1CA simplification 1MA calculating percentage 1CA simplification (2)	2

Q	Solution	Explanation	T/L
4.1	Tolken ✓✓RT	2RT correct surname (2)	1
4.2	365 days ✓✓RT	2RT Answer (2)	1
4.3	On the last day of the month ✓✓RT	2RT Answer (2)	1
4.4	Expert systems ✓✓RT	2RT Answer (2)	1
4.5	Monthly salary = R168 000 ÷ 12 ✓M = R14 000 ✓ A	1MA divide by 12 1A Answer (2)	2
4.6	Percentage contribution $= \frac{1\ 050}{14\ 000}$ x 100% ✓M = 7,5% ✓CA	**CA from 4.5** 1M calculating percentage 1CA answer (2)	2
4.7	UIF contribution = 0,01 x R14 000 ✓M = R140 ✓CA	**CA from 4.5** 1M calculating 1 % 1CA Answer (2)	2
4.8	Monthly taxable income = R14 000 – R1050 ✓M = R12 950 ✓CA Annual Taxable income = R12 950 × 12 =R155 400 ✓CA	1M subtracting pension 1CA answer 1CA annual taxable income (3)	2
4.9	Annual tax payable = 18% of R155 400 ✓RT = R27 972,60 ✓CA = R27 972,60 – R14 958 = R13 014 ✓CA Monthly tax payable $= \frac{R13\ 014}{12}$ = R1 084, 50 ✓CA	1RT Correct bracket 1CA simplification 1CA annual tax payable 1CA monthly tax payable (4)	3
4.10	Total deductions = R1 050 + R140 + R1 084,50 ✓M = R2 274,50 ✓CA	1M adding all values 1 CA answer (2)	1
4.11	Net monthly salary = R14 000 – R2 274,50 ✓M = R11 725,50 ✓CA	1M subtracting values 1 CA Answer (2)	1

Solution		Explanation	T/L
5	Joy: Age:52; Salary: R286 500 per annum ; 7% pension; 1 dependent on Medical Aid Taxable income = Annual Income – Pension Pension = 0.07 × R 286 500 = R20 055 ✓A Taxable income = R286 500 – R20 055 = R 266 445 ✓CA Tax payable: R37062 + 26% × (R266 445 – R205 900) ✓RT = R37 062 + 0,26 (R60 545) = R52 803,70 ✓CA ✓M ✓M Now: R52 803,70– (R14 958+(319×2+215) × 12) = R 27 609,70 ✓CA Monthly = R27 609,70 ÷ 12 = R2 300,81 ✓CA Yes she is correct ✓O	1A correct pension amount 1CA taxable Income 1RT correct tax bracket 1CA simplification 1M subtract tax rebate 1M subtract MTC 1CA simplification 1CA monthly tax 1O conclusion (9)	4

3.2.3 Interest and Hire-purchase

Q	Solution	Explanation	T/L
1.1	R800 x 24 ✓M ✓A =R19 200 ✓MA	1A calculating 24 months 1M multiplying by R800 1CA amount saved (3)	1
1.2	Interest per year = $\frac{12,5}{100}$ × R19 200 ✓MA =R2 400 ✓A Interest for 3 years = R2 400 x 3 ✓A =R7 200 ✓CA ✓M	1MA calculating percentage 1A interest per year 1A for 3 years CA total interest (4)	2
1.3	R19 200 + R7 200 =R26 400 ✓CA	1M adding correct values 1CA total amount (2)	2
2.1	$\frac{11,5}{100}$ × R549 000 ✓MA =R63 135 ✓A	1MA calculating percentage 1A interest per year (2)	1
2.2	Amount received from investment = R26 400 Deposit needed = R63 135 Difference = R63 135 – R26 400 ✓M =R36 735 ✓CA No, he will not have enough, he will run short of R36 735. ✓O	1M subtracting amounts 1CA difference 1O explanation (3)	4
2.3.1	Number of months = 20 ×12 = 240 ✓A Total paid = (R5 380 x 240) + R63 135 ✓MA ✓M =R1 354 335 **(No mark here)**	1A number of months 1MA multiplying instalment by months 1M adding the deposit (3)	3
2.3.2	Difference = R1 354 335 – R549 000 ✓M =R805 335 ✓M	1M subtracting amounts 1CA difference (2)	2
2.3.3	% interest = $\frac{R1\,354\,335 - R549\,000}{R549\,000} \times 100$ ✓M = 146,6912568% ✓M =146,7% ✓M	1M calculating percentage 1CA percentage 1R correct rounding (3)	2

Q	Solution	Explanation	T/L
3.1	R221 180 ✓✓A	2A correct amount (2)	1
3.2	Number of years = $\frac{60}{12}$ ✓MA = 5 years ✓A	1MA dividing 60 by 12 1A number of years (2)	1
3.3	Deposit needed = $\frac{11}{100}$ ✓A × R221 180 ✓M = R24 329,80 ✓CA	1A correct percentage 1M multiplying by the amount 1CA deposit needed (3)	2
3.4	Total payment = Deposit + monthly instalment + residual = R24 329,80 + (R2991 x 60) ✓MA + R99 218 = R24 329,80 + R179 460 ✓M + R99 218 ✓M = R303 007,80 (no mark here)	1MA multiplying 2991 by 60 1M adding deposit amount 1M adding residual (3)	3
3.5	Saving = R303 007,80 – R221 180 ✓MA = R81 827,80 ✓CA	1MA subtracting correct values 1CA saving amount (2)	2
3.6	Cash Payment. ✓A A customer will not have to pay 10,5% interest rate ✓✓A **OR** There will be no residual/balloon.	1A method of payment 1O reason (3)	4

Q	Solution	Explanation	T/L
4	**Uncles option** Interest = $\frac{18}{100} \times$ R16 000 $\times 5$ ✓MA = R14 400 ✓A Total amount = R16 000 + R14 400 = R30 400 ✓CA **Personal loan option** 1st year interest = $\frac{16}{100} \times$ R16 000 ✓MA = R2 560 2nd year amount = R16 000 + R2 560 = R18 560 ✓CA 2nd year interest = $\frac{16}{100} \times$ R18 560 = R2 969,60 3rd year amount = R18 560 + R2 969,60 = R21 529,60 ✓CA 3rd year interest = $\frac{16}{100} \times$ R21 529,60 = R3 444,74 4th year amount = R21 529,60+ R3 444,74 = R24 974,34 ✓CA 4th year interest = $\frac{16}{100} \times$ R24 974,34 = R3 995,89 5th year amount = R24 974,34 + R3 995,89 = R28 970,23 ✓CA 5th year interest = $\frac{16}{100} \times$ R28 970,23 = R4 635,24 Total amount = R28 970,23 + R4 635,24 = R33 605,47 ✓CA The personal loan is be best ✓O	1MA calculating percentage 1A amount of interest 1CA total amount 1MA calculating percentage 1CA 2nd year amount 1CA 3rd year amount 1CA 4th year amount 1CA 5th year amount 1CA total amount 1O correct option (10)	4

Q	Solution	Explanation	T/L
5.1	Hire purchase agreement is a financial agreement between the shop and the customer about how the customer will pay for the desired product. ✓✓O	2O explanation (2)	1
5.2	Discount = R7 139,99 – R6 499,00 ✓MA = R640,99 ✓CA	1MA subtracting correct values 1CA discount amount (2)	1
5.3	Deposit = $\frac{15}{100}$ ✓A × R6 499,00 ✓MA = R974,85 **(No mark here)**	1A correct percentage 1MA multiplying by correct amount (2)	2
5.4	18,5% ✓✓A	2A correct percentage	1
5.5	Balance after deposit = R6 499,00 – R974,85 ✓M = R5 524,15 ✓CA Interest charged = $\frac{18,5}{100}$ × R5 524,15 × 3 ✓M = R3 065,90 ✓CA Amount payable = R5 524,15 + R3 065,90 = R8 590,05 ✓CA	1M subtracting amounts 1CA balance after deposit 1M calculating the interest 1CA interest 1CA amount payable (5)	3

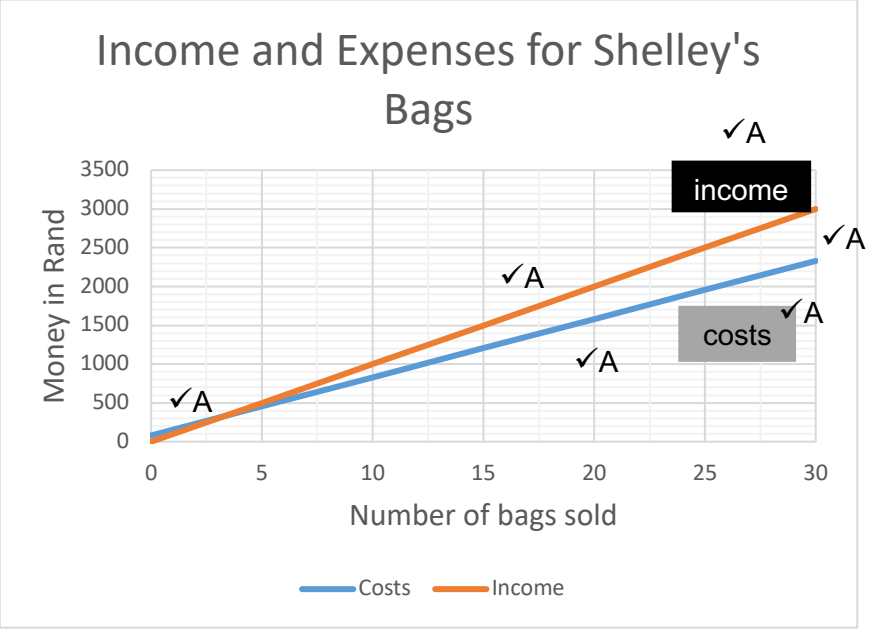
3.2.4 Income and expenses; Profit and loss

Q	Solution	Explanation	T/L
1.1	P = R385 000 – R327700 ✓M = R 57 300 ✓A	1M subtraction 1A answer	2
1.2	Ratio is 3:1 Thus $\frac{1}{4}$ ✓A × R28 000 = R7 000 ✓CA Partner $\frac{3}{4}$ × R28 000 = R21 000 ✓CA **OR** Ratio is 3:1 Thus $\frac{1}{4}$ ✓A × R28 000 = R7 000 ✓CA Partner R28 000 – R 7000 = R21 000 ✓CA	1A correct Fraction 1CA simplification 1 CA Layla's portion	3
1.3	$\frac{107,5}{100}$ ✓MA × R25 000 = R26 875 ✓A	1MA calculating a percentage 1A answer	2
1.4	A: R 327 700 – (R25 00 + 9 500 + 8 200 + 120 000) ✓M = R 165 000 ✓CA	1M adding and subtraction 1CA answer	2
1.5	$\frac{13,5}{100}$ × R165 000 ✓M = R22 275 ✓CA	1M calculating a percentage 1CA Answer	2
2.1	Decrease amount in thousands = R 32 187 × 4,402% ✓M = R 1416, 871 ✓CA Communication costs in thousands = R32 187 – R1416,87 ✓M = R30 770,13 = R30 770 ✓R OR = R32187 000 – R1416870 = R30 770 000	1M % calculation 1CA decreased amount 1M subtracting 1R rounding	3
2.2	Profits would possibly decrease if income does not change drastically. ✓✓O	2 O Explanation	4

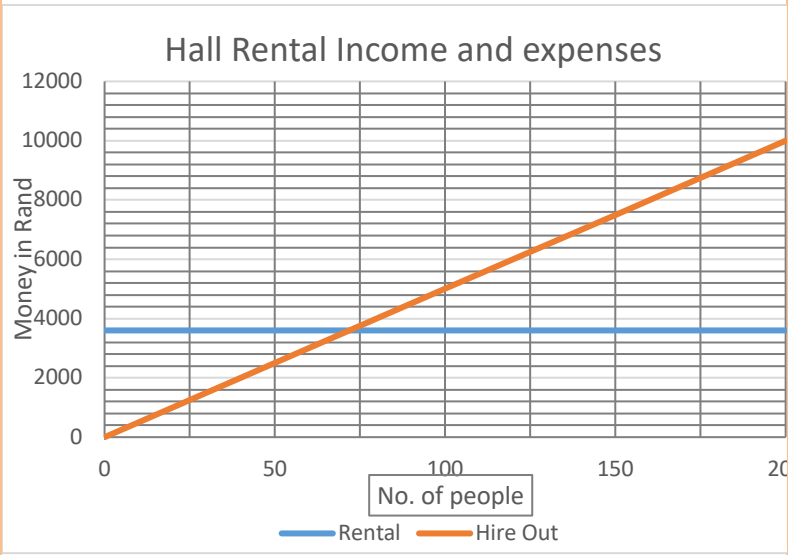
2.3	For 2015: ✓RT Percentage profit = $\frac{342\,534}{2250\,041} \times 100$ ✓SF $= R\ 15{,}22345593\%$ ✓A For 2016: Percentage Profit = $\frac{360651}{2403509} \times 100$ $= R\ 15{,}00518617\%$ ✓A The profits decrease slightly ✓O	1RT Correct values 1SF substitution 1A percentage for 2015 1A Percentage for 2016 1O Comparison	4
3.1	✓RT Friday Costs = 2(R75) + 2(R15+ R25) ✓SF = R230 ✓A	1RT Correct values 1SF substitution 1A Answer	2
3.2	✓RT Savings = R230 – 2(R35 + R40) ✓SF = R80 ✓A	1RT Correct values 1SF substitution 1A Answer	2
3.3	The large cooldrink $\frac{500}{25}$= 20ml/R ✓M The medium $\frac{340}{20}$= 17ml/ R ✓M Thus large is best ✓O	2M Division 1A Opinion	4
3.4	Tuesdays are slow business days, thus they are trying to draw customers ✓✓O	2O Opinion	4

3.2.5 Cost and selling price; Break-even analysis.

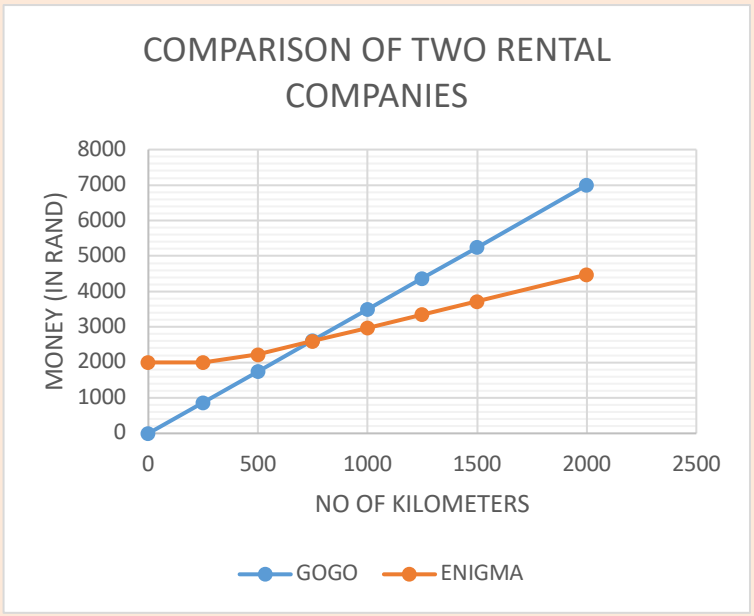
Q	Solution	Explanation	T/L
1.1	Break-even is when the expense is equal to the income received. There is no profit and no loss. ✓✓M	2A Explanation (2)	1
1.2	Cost price for one pear = (255 ÷ 250) ✓MA = R 1,02 ✓A = R 1,10 ✓R	1MA Divide by 250 1A Answer 1R Rounding (3)	2
1.3	The selling price is the amount that the customer is paying for the item/product. ✓✓A	2A Definition (2)	1
1.4	Profit = (R 3,00 × 250 pears) - R 255,00 ✓SF = R 750,00 - R 255,00 ✓S = R 495,00 ✓A	1SF Profit 1S Simplification 1A answer (3)	2
1.5.1	Income = 120 apples × R 3,00 ✓MA = R 360,00 ✓A	1MA Multiply by R3,00 1A Answer (2)	2
1.5.2	Number of days ✓A = R 14 400,00 ÷ R 360,00 ✓A = 40 days ✓A	1A Numerator 1A Denominator 1A Answer (3)	2

Q	Solution	Explanation	T/L
2.1	Selling price = R 100,00 per bag ✓✓A	2 RT (2)	1
2.2	Cost price = R 75,00 ✓✓MA	2MA Adding fixed costs (2)	1
2.3	Fixed Costs = Rent at R 80,00 ✓✓A	2 RT (2)	1
2.4	A. Cost for 0 bags = R 80,00 + (R 75,00 × 0) ✓SF = R 80,00 ✓A	1SF Substit. 0 1A answer (2)	2
	B. Cost for 5 bags = R 80,00 + (R75,00 × 5) ✓SF = R 455,00 ✓A	1SF Substit correct values 1A answer (2)	2
	C. Income for 0 bags = R 100,00 × 0 = R 0,00 ✓✓RT	2RT (2)	2
	D. Number of bags = $\frac{R500}{R100}$ ✓SF $= 5bags$ ✓A	1SF Correct values 1A Answer (2)	2
2.5		2A Labels for cost and income 1A starting value of costs 1 A Any other correct value costs 2 Any 2 values for Income (6)	2
2.6	Break-even point ✓✓RG	2 RG (2)	2
2.7	The number of bags she needs to sell to cover her expenses✓✓EG	2 E Explanation (2)	1
2.8	Approximately 4 bags ✓✓RT	2RT (2)	2

Q	Solution	Explanation	T/L
2.9	Profit = Income – Expenses ✓A Profit = (R100,00 × 17) ✓SF – (R80,00 + (R75,00 × 17) ✓SF Profit = R 1 700,00 – R 1 355,00 Profit = R 345,00 ✓CA	1A Profit equation 1SF Income 1SF Costs 1CA Answer (4)	3
3.1	Cost price of an item is the cost of making that item/ **OR/*OF*** This is the amount that it costs per unit to either manufacture, purchase the item or to prepare for a service that will be delivered. This amount is pure cost, no markup or profit added yet ✓✓A	2A Explanation (2)	1
3.2	**A**: $\frac{R97,95}{1000} \times 4$ ✓M $= R3,92$ ✓A **B**: $\frac{R11,99}{R1,20} = 9,99ml \text{ or } 10ml$ ✓M ✓A **C**: R3,92 + R 1,20 + R0,13 + R1,78 + R0,26 ✓A = R7,29 ✓CA	A: 1M division 1A Answer B: 1M Division 1 A Answer C: 1 Addition of correct values 1CA Answer (6)	2
3.3	Cost = R7,29 × $\frac{25}{100}$ ✓M = R1,83 + R7,29 ✓M = R9,11 ✓CA = R9,15 OR R9,20 ✓R	1M 25% of R7,29 only 1M adding 1CA simplification 1R rounding Accept R9,15 and R9,20 (4)	2
3.4	Fixed Costs = R40 + R14,20 ✓A = R54,20 ✓CA	1 A Correct values 1CA Answer (2)	2
3.5	Cost = R54,20 ✓SF + R7,29 ✓SF × $No.of\ cups$	1SF Fixed cost 1SF Variable costs (2)	2
3.6.1	A= Income ✓A B = Costs/Expenses ✓A C= Break even point ✓A	1A per label (3)	2
3.6.2	The number of cups she needs to sell to cover her costs ✓✓A	2A answer (2)	1
3.6.3	For 50 cups: Profit = Income – expenses = R500 ✓RT – R418,70 ✓M = R81,30 ✓CA	1RT correct values 1M subtraction 1 CA Answer (3)	2
3.6.4	✓O Yes, she will make a profit if she sells more than 20 cups per day. ✓O	1O conclusion 1 O justification (2)	4

Question 4			
Q	**Solution**	**Explanation**	**T/L**
4.1	✓MA D = $\frac{2500}{50} = 50\ tickets$ ✓CA	1MA Division by correct values 1CA (2)	2
4.2	R3600 ✓✓A	2 Reading from information.	1
4.3		1A plotting Cost 2 Any two points for cost 1 A Graph 1A starting point Hiring (5)	2
4.4	✓MA Difference = R3000 - R3600 = - R 600 ✓A It is a loss ✓O	1MA subtracting correct values 1A Answer 1O Conclusion (2)	4
4.5	When the income from the number of tickets sold is equal to the cost of renting the hall. ✓✓A	2O explanation (2)	1
4.6	✓MA $\frac{R3600}{1,15} = R3130,43$ ✓CA ✓MCA R3600 – 3130,43 = R469,57 ✓CA	1MA divide by 1,15 1 CA Answer 1 MCA subtraction 1CA Answer (4)	3

Question 5

Q	Solution	Explanation	T/L
5.1	✓SF ✓MA Enigma: Cost = R2000 + R1,50 X (distance -350) GoGo: Cost = R3,50 X distance ✓MA	1SF correct Fixed cost 1MA variable cost 1MA equation (3)	3
5.2	Distance: 769km ✓SF Enigma: R2000 + R1,50 X (769km – 350km) = R 2628 ✓A GoGo = R3,50 X 769 = R 2961,50 ✓CA ∴ Enigma is the best option ✓O	1SF correct values 1A answer 1CA answer 1O conclusion (4)	3
5.3	A: R2000✓A B: $\frac{1\,400}{3,5}$ ✓MA = 400km ✓A	1A Fixed Costs 1MA Division by 3,5 1A Answer (3)	2
5.4		1M Starting point for Enigma 2 Any two points 2 Any two points for GoGo 1 A Graph is a straight line (6)	2
5.5	approximately 750 km ✓✓RT	2RT (2)	2
5.6	George Distance = 335 km ✓RT Thus GoGo is cheaper as the graph is lower ✓✓O NOTE: Even though you are given free km, the fixed cost for Enigma is still R2 000	1RT distance 2 O opinion (3)	4

4. EXAMINATION GUIDANCE

PAPER 1	
Weighting oftopics	**Finance 60% (±5)** **Data Handling 35% (±5)** **Probability 5%** **Including Growth Charts (CAPS page 65) assesses application of measures of spread in data handling.**
Structure and scope of contentand/or skills	**Question 1:30 marks ± 5 marks** **Level 1 questions from Finance and** **Data Handling** **Question 2** **Finance** **Question 3** **Data Handling** **Question 4** **Integrated context on Finance and Data** **Handling** **Including Growth Charts (CAPS page 65) assesses application of measures of** **spread in data handling.** **Question 5** **Finance, data handling or integrated** **question** **Probability will be examined in thecontext of one or more of the other questions.** **Each question can contain more than one context.**
N.B Each paper may have 4 or 5 questions	

WEIHTING

Topics		%	150 marks			
Finance	**PAPER 1**	60%	90	**Taxonomy levels**	Level 1: Knowing	30% (±45 marks)
Data handling		35%	53		Level 2: Applying routine proceduresin familiar contexts	30% (±45 marks)
Probability		5%	7		Level 3: Applying multi-step procedures in a variety of contexts	20% (±30 marks)
		100%	**150 marks**		Level 4: Reasoning and reflecting	20% (±30 marks)

Time and mark allocation

Paper 1

Duration	Marks
3 hours	150 Marks

Time management for Examination preparation:

If you have 100 hours to prepare for the examination, the following can be used as a guide on how to use your hours:

Application Topics	Number of hours
Finance	60
Data handling	35
Probability	5

Order of the questions in the question paper

Each paper may have 4 or 5 questions.

Paper 1:

QUESTION 1 (30 marks ± 5 marks ONLY taxonomy Level 1.) Short context – mixed questions(Finance and Data Handling.)

QUESTION 2 – Finance

QUESTION 3 – Data Handling

QUESTION 4 – Finance and Data Handling QUESTION

5 – Finance, Data Handling or integrated

Probability will be integrated in all five questions, where it is appropriate**.**

GUIDANCE

Set a goal (marks you would like to see on your Matric Certificate) at the beginning of the term,

If for example your aim is to achieve 60% for Mathematical Literacy.

One way of getting it is as follows:

Paper 1: 90 marks out of a possible 150

Paper 2: 90 out of a possible 150

A total of 180 out of 300 = 60%

5. GENERAL EXAMINATION TIPS

1. Study the matric timetable. Know when you are going to write the papers you have registered for. There are sometimes two exams on one day so you will have to be super sharp and alert. **Be sure to check the final timetable in case there are any changes.**

2. There are less than 123 days to the start of the final exams. This includes all weekends and holidays. Start today and work every day. Set targets for achievement.

3. Do not miss **one day of studying** between now and your exams. Work at least two to three hours per day. Keep healthy and alert.

4. **Reading** is a hot skill. Reading will change your life. Read at least 1000 words every day. Read everything you can get your hands on. Read accurately and quickly.

5. **Writing** is power**,** but it requires practice. We are all judged, every day, on our writing. We can inspire, impress, persuade, congratulate and express love in writing. Write at least 400 words every day carefully, accurately and beautifully.

6. **Resources** are an essential student companion. Work systematically through your question papers and Self Study Guide. Don't wait for your face-to-face classes or broadcasts to explain it all. Look at what you have to cover for the subject and plan accordingly.

7. Your **BMI** can help you in matric. Your Body mass Index (BMI) is an indication of how healthy you are. Calculate your BMI and then exercise and eat healthy throughout the year to keep an optimum BMI.

8. Academic work requires **concentration and focus**. Every day you should be engaged in intensive, focused, individual academic work. Turn off iPods, music centres, the TV, the cell phone and have an intensive and rewarding academic work out every day. Except of course if you are using it to access the resources. Be diligent and don't be tempted to watch or access non – academic material. Technology is a fabulous platform to learn and prepare for the examinations but it can also be a deterrent if you are not focused and dedicated. Build your brain cells and be the envy of all your friends.

9. Good vibes are good for success. Surround yourself with positive people who want you to succeed. Your family and friends will be important ibn supporting you in the next 123 days. Be grateful for their support.

10. Matric success requires **Planning and hard work.** Start planning and working today. Read every day. Write and calculate every day. Stick to your year plan.

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