basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

MATHEMATICAL LITERACY P1

NOVEMBER 2022

MARKS: 150

TIME: 3 hours

This question paper consists of 13 pages and an addendum with 2 annexures.

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INSTRUCTIONS AND INFORMATION

1. This question paper consists of FIVE questions. Answer ALL the questions.
2. Use the ANNEXURES in the ADDENDUM to answer the following questions:

   ANNEXURE A for QUESTION 2.1
   ANNEXURE B for QUESTION 4.2

3. Number the answers correctly according to the numbering system used in this question paper.
4. Start EACH question on a NEW page.
5. You may use an approved calculator (non-programmable and non-graphical), unless stated otherwise.
6. Show ALL calculations clearly.
7. Round off ALL final answers appropriately according to the given context, unless stated otherwise.
8. Indicate units of measurement, where applicable.
9. Diagrams are NOT necessarily drawn to scale, unless stated otherwise.
10. Write neatly and legibly.

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QUESTION 1

1.1 Martha needs to buy school uniforms for her son and daughter. She compares the prices of three different stores as shown in TABLE 1 below.

TABLE 1: COST OF SCHOOL UNIFORMS AT THREE DIFFERENT STORES

ITEMS	STORE A	STORE B	STORE C
White shirt	R110,00 for 2	R44,99 each	R110,00 for 2
Grey skirt	R163,00 for 2	R54,99 each	R130,00
Grey shorts	R186,00	R39,99	R99,95
Grey school socks	R40,50 for 2 packs	R18,99 per pack	R89,99 for 3 packs
White school socks	R85,00 for 5 packs	R11,99 per pack	R85,99 for 5 packs
School shoes (girls)	R349,00	R159,99	R170,00
School shoes (boys)	R318,00	R169,99	R275,00
TOTAL	**P**	---	---

[Adapted from www.news24.com/fin24/money/education]

NOTE:
There are two pairs of socks in each pack.

Use TABLE 1 above to answer the questions that follow.

1.1.1 Identify whether the prices given in TABLE 1 are numerical or categorical data. (2)

1.1.2 Arrange, in ascending order, all the prices given for Store B. (2)

1.1.3 Name the store that sells the cheapest grey shorts. (2)

1.1.4 Calculate the price for a pack of white school socks at Store C. (3)

1.1.5 Determine the missing value **P**, if Martha bought all the school items as advertised at Store A. (2)

1.1.6 The probability of selecting Store C to buy all the school items is 0,3333333333.

(a) Define the term *probability* in the given context. (2)

(b) Write down this probability as a percentage rounded to the nearest whole number. (2)

1.2 One of the many investment options in South Africa is the stokvel option. TABLE 2 below shows two stokvel plans (Plan A and Plan B) over a 24-month period.

TABLE 2: TWO STOKVEL PLANS

UNITED AFRICAN STOKVEL

PLAN A (MONTHLY FIXED TERM PLAN)	PLAN B (ONCE-OFF SAVING PLAN)
Choose how long you want to save for.	Choose how long you want to save for.
Saving period: **24 months**	Saving period: **24 months**
How much do you want to save **monthly?**	How much do you want to save **once-off?**
Monthly contributions: **R2 500** Total amount at the end of 24 months: **R74 286,84**	Once-off amount: **R60 000** Total amount at the end of 24 months: **R92 065,71**

[Adapted from https://uasv.co.za]

Use TABLE 2 above to answer the questions that follow.

1.2.1 Define *investment* in the given context. (2)

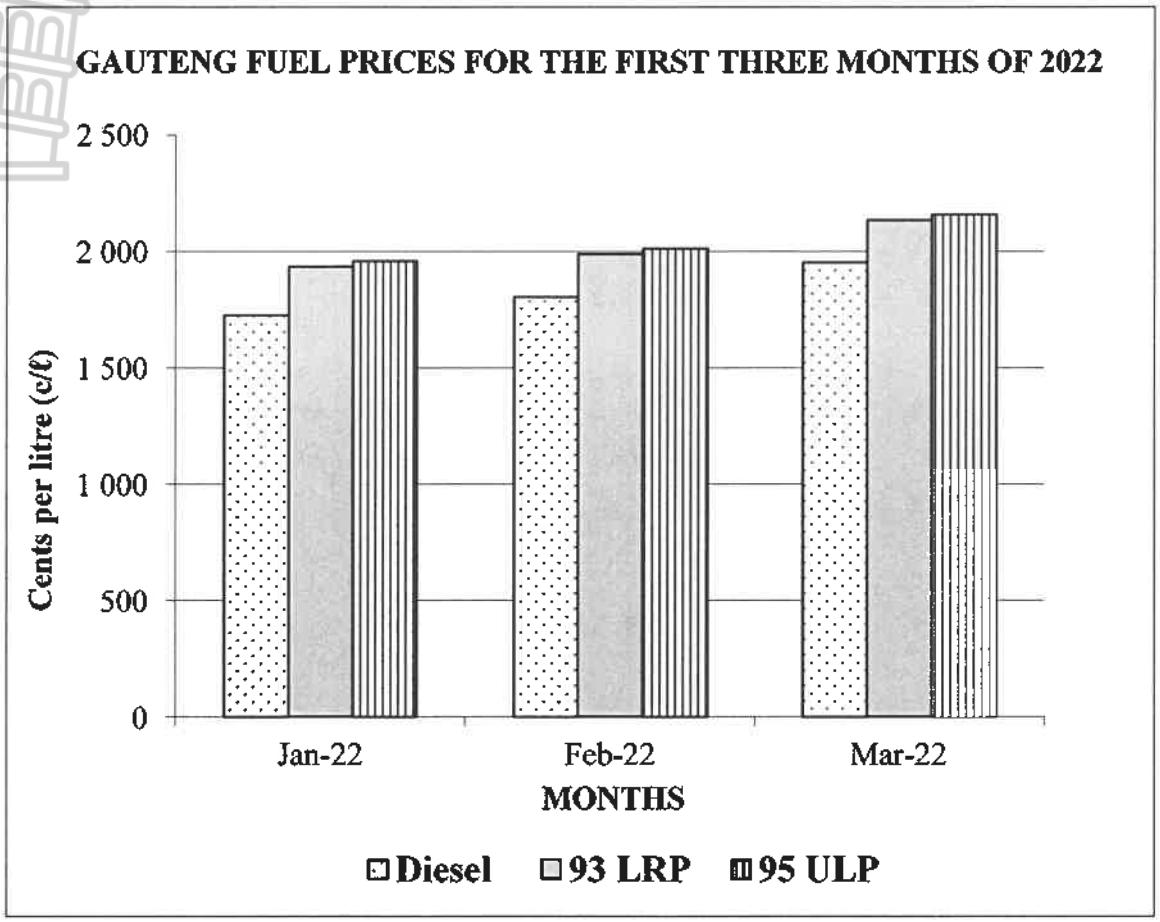
1.2.2 Calculate the total contributions for Plan A over the 24-month period. (2)

1.2.3 Calculate the interest earned if a person invests in Plan B over the 24-month period. (2)

1.2.4 Determine how much more interest a person will earn investing in Plan B compared to investing in Plan A over the same 24-month period. (2)

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1.3 The graph below shows (in cents/litre) the prices of three types of fuel in Gauteng for the first three months of 2022.



NOTE:
93 LRP = Lead Replacement Petrol
95 ULP = Unleaded Petrol

[Adapted from www.sapia.org.za]

Use the graph above to answer the questions that follow.

1.3.1 Name the type of graph drawn above. (2)

1.3.2 Identify the type of fuel that cost the most in February 2022. (2)

1.3.3 The price of diesel in March 2022 was 1 955,28 c/ℓ.

Write this price in rand per litre. Round off your answer to the nearest R0,50. (3)

[30]

QUESTION 2

2.1 ANNEXURE A shows a summary of Bomvana's Vehicle and Household Insurance Policy.

Use ANNEXURE A to answer the questions that follow.

2.1.1 Write down the policy number of Bomvana's insurance policy. (2)

2.1.2 Determine the missing value **A**, the monthly premium for the VW Polo. (4)

2.1.3 Bomvana qualifies for a discount on his insurance premiums as he has insured many items.

Calculate the percentage discount that he receives if the total monthly premium before the discount was R2 450,36. (3)

2.1.4 Bomvana was involved in a motor vehicle accident during July 2022. The quotation for damages from the panel beaters was R43 520,00.

Determine the amount the insurance company will pay the panel beaters. (2)

2.1.5 Calculate the amount of VAT included in the total monthly premium. (3)

2.1.6 The premium for the Toyota Corolla is much lower than that of the VW Polo.

Give ONE possible reason for this big difference in the premium amount. (2)

2.1.7 Bomvana pays a MiHome premium for household content cover to the value of R200 000. After the household contents were evaluated for insurance purposes, he bought an additional lounge suite.

Explain how the purchase of this new item will affect his MiHome content premium. (2)

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2.2 The sanitation tariffs for Johannesburg and Cape Town are presented in TABLE 3.

Johannesburg uses the area of a property to determine the sanitation bill. Cape Town uses a percentage of the total water usage to determine the sanitation bill (the same way as they calculate the water bill.)

TABLE 3 shows the tariffs of Johannesburg (excluding VAT) and Cape Town (including VAT).

TABLE 3: SANITATION TARIFFS FOR JOHANNESBURG AND CAPE TOWN

JOHANNESBURG: SANITATION TARIFFS – DOMESTIC (VAT excl.)		
	Up to and including 300 m^2	R228,06
	Larger than 300 m^2 to 1 000 m^2	R443,96
	Larger than 1 000 m^2 to 2 000 m^2	R671,63
	Larger than 2 000 m^2	R967,71

CAPE TOWN: SANITATION TARIFFS – DOMESTIC (VAT incl.)			
	USAGE	**TARIFF**	**INCREASE FROM PREVIOUS**
	0–4,2 kℓ	R16,03 per kℓ	R0,66 increase per kℓ
	4,2–7,35 kℓ	R22,02 per kℓ	R0,91 increase per kℓ
	7,35–24,5 kℓ	R30,92 per kℓ	R1,28 increase per kℓ
	24,5–35 kℓ	R48,65 per kℓ	R2,01 increase per kℓ

[Adapted from www.pikitup.co.za and www.capetown.gov.za]

NOTE: Sanitation refers to waste water that is drained from a household.

Use the information above to answer the questions that follow.

2.2.1 Write down, to the nearest ten cents and excluding VAT, the cost for sanitation in Johannesburg if a property is 175 m^2. (2)

2.2.2 Calculate the cost for 4,1 kℓ sanitation in Cape Town before the increase. (4)

2.2.3 Mr Jones lives in Johannesburg and Ms Brown lives in Cape Town. They both own a property with an area of 550 m^2 and each was billed for 22 kℓ sanitation.

Use the table above to determine the difference in the cost of sanitation for the two properties. (8)

2.2.4 Explain how the tariff system used in Johannesburg is beneficial to home owners in terms of water usage. (2)

[34]

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QUESTION 3

3.1 TABLE 4 below shows the number of people per province working in TWO workplaces, namely Usual Workplace (UWP) and Work From Home (WFH) for the last quarter of 2020 and the first quarter of 2021.

TABLE 4: PEOPLE PER WORKPLACE BY PROVINCE

PROVINCES	LAST QUARTER 2020 (IN TEN THOUSANDS)			FIRST QUARTER 2021 (IN TEN THOUSANDS)		
	UWP	WFH	Total	UWP	WFH	Total
Western Cape	147,7	21,7	**169,3**	150,8	18,4	**169,2**
Eastern Cape	72,3	7,2	**79,6**	84,9	5,6	**90,5**
Northern Cape	24,2	0,5	**24,7**	23	0,5	**23,5**
Free State	56,9	3,2	**60,1**	53,4	2,9	**56,3**
KwaZulu-Natal	199,9	9,4	**209,3**	193,1	9,5	**202,6**
North West	46,4	2,4	**48,8**	51,3	3,1	**54,4**
Gauteng	342,4	36,6	**379**	365,9	33,1	**399,0**
Mpumalanga	93,8	5,8	**99,6**	98	5,7	**103,7**
Limpopo	91,4	6,3	**97,7**	95,6	4,7	**100,3**
TOTAL	**1 075**	**---**	**1 168,1**	**1 116**	**83,5**	**1 199,5**

[Adapted from www.statssa.gov.za]

Use TABLE 4 above to answer the questions that follow.

3.1.1 Show how the total value of 83,5 for South Africa was calculated. (2)

3.1.2 Give ONE reason why the values in the table will differ from the actual workplace values. (2)

3.1.3 Write down the number of people who worked at their usual workplaces (UWP) in Gauteng during the first quarter of 2021. (2)

3.1.4 Give ONE example of a job that cannot be done by working from home. (2)

3.1.5 Calculate the mean number of people in the WFH category for South Africa in the last quarter of 2020. (4)

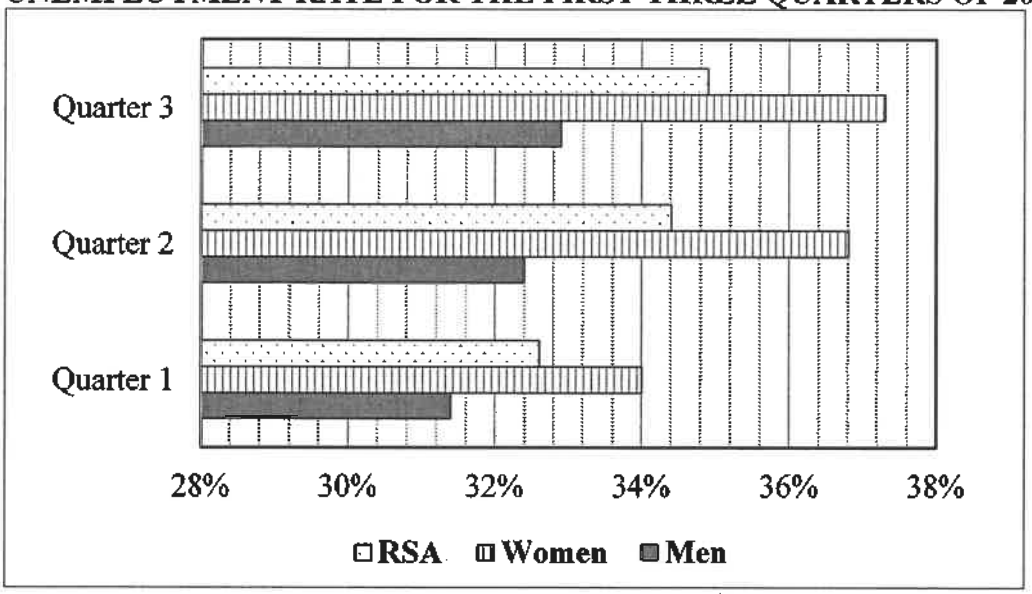
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3.2 South Africa's unemployment rate increased from 34,4% in Quarter 2 to 34,9% in Quarter 3 of 2021.

The number of unemployed people in Quarter 2 was 7,6 million, which is 183 000 less than in Quarter 3.

The graph below indicates the unemployment rate for the different genders and the total for South Africa for the first three quarters of 2021.

UNEMPLOYMENT RATE FOR THE FIRST THREE QUARTERS OF 2021



[Adapted from Statistics South Africa]

Use the information above to answer the questions that follow.

3.2.1 Write down the quarter which showed the highest rate of unemployed men. (2)

3.2.2 Calculate the number of unemployed people in Quarter 3. (3)

3.2.3 Determine the increase in percentage of unemployed women from Quarter 1 to Quarter 3 in 2021. (3)

3.2.4 The unemployment rate for Quarter 2 was 34,4%.

Determine the number of people employed in South Africa during Quarter 2. (4)

[24]

QUESTION 4

4.1 Mr Louw, aged 53, earned an annual taxable income of R495 602 for the year ending 28 February 2022. He does not contribute to any medical aid.

Use the above information to answer the questions that follow.

4.1.1 The following formula can be used to calculate annual tax payable before the rebate:

Annual Tax Payable before the rebate
= R115 762 + [36% × (annual taxable income – 488 700)]

Use this formula to calculate Mr Louw's annual tax payable before the rebate. (3)

4.1.2 Mr Louw feels that the monthly tax table is an easier option for him to calculate his monthly tax payable.

TABLE 5 below shows the monthly deductions for three income categories for the year ending 28 February 2022.

TABLE 5: MONTHLY DEDUCTION TAX TABLE FOR THREE INCOME CATEGORIES FOR THE YEAR ENDING 28 FEBRUARY 2022

Monthly Income	Tax payable per age group		
	Under 65	65–74	Over 75
R41 241–R41 291	R8 473	R7 723	R7 473
R41 292–R41 342	R8 491	R7 741	R7 491
R41 343–R41 393	R8 510	R7 760	R7 510

The monthly rebate for a person younger than 65 years old is R1 368,75.

Verify, showing ALL calculations, whether his monthly tax will be correct according to the monthly deduction table. (6)

4.1.3 Write down the probability of selecting a monthly tax amount of R8 473 for a person over 75 years from this monthly tax table. (2)

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4.2 The pie charts on ANNEXURE B compare the five best-selling vehicles in South Africa, America and Canada for 2021.

Use ANNEXURE B to answer the questions that follow.

4.2.1 Write down, in words, the total number of vehicles sold in America. (2)

4.2.2 Express as a ratio in the form __ : __ : __, the number of Toyota RAV4s sold in America, Canada and South Africa respectively. (2)

4.2.3 Write down the median number of the best-selling vehicles in South Africa. (2)

4.2.4 Determine the number of Ford F-series vehicles sold in Canada. (3)

4.2.5 The interquartile range for the top 10 vehicles sold in South Africa is 7 669 and the value of Quartile 1 is 11 408.

Calculate the value of Quartile 3. (4)

4.2.6 The inflation rate in America for 2021 was 7% and in 2020 it was 1,4%. The price of a Ford F-series vehicle in 2022 is $32 332.

It is stated that the price of the Ford F-series vehicle in 2020 was more than $29 800.

Verify, showing ALL calculations, whether this statement is valid. (6)

4.2.7 Determine, as a percentage, the probability of purchasing a Ram Pickup in America. (3)

[33]

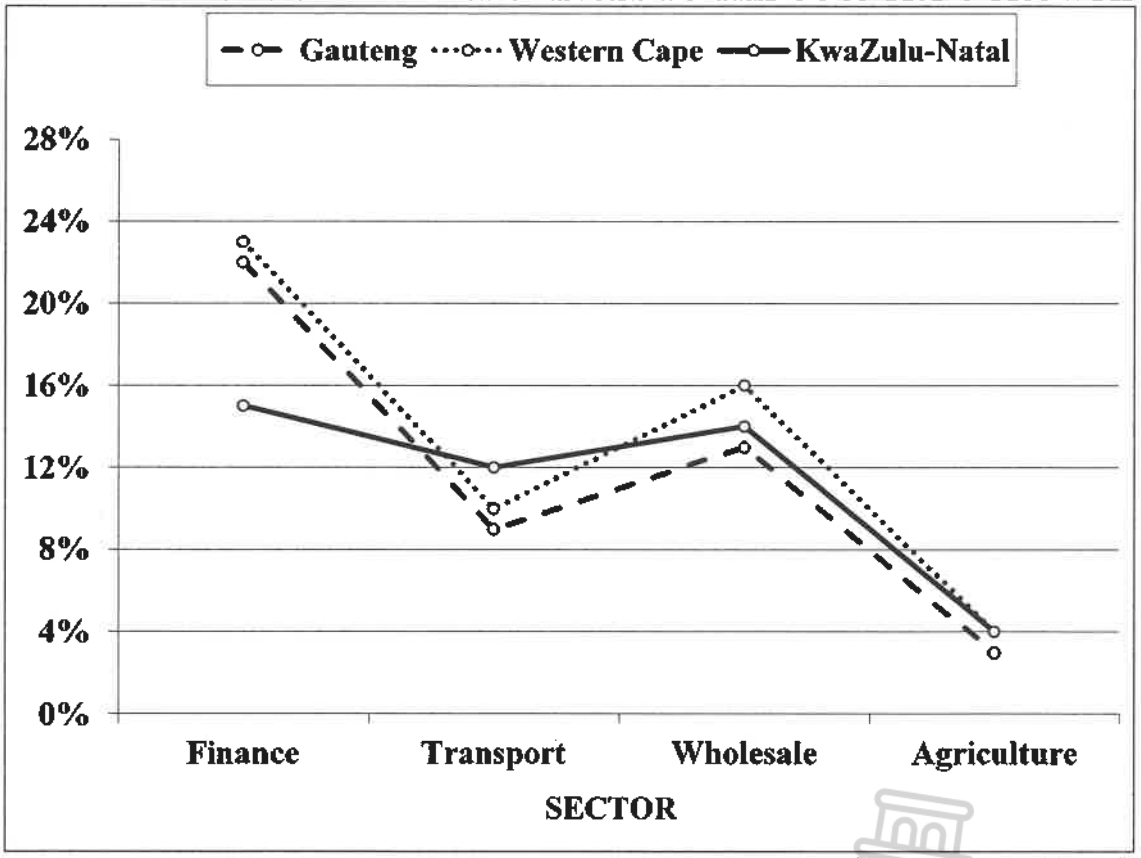
QUESTION 5

5.1 During the 2008–2012 period, South Africa recorded an average growth rate of just over 2%, largely due to the global economic recession.

Gauteng, KwaZulu-Natal and the Western Cape collectively contributed a significant portion to the country's growth.

The graph below shows the contributions of these three provinces towards the different sectors.

CONTRIBUTIONS OF THREE PROVINCES TO THE COUNTRY'S GROWTH



[Adapted from www.statssa.gov.za]

NOTE: A global economic recession leads to a drop in a country's economy.

Use the above information to answer the questions that follow.

5.1.1 Write down the province that contributed the most to the wholesale sector. (2)

5.1.2 The total amount contributed by the three provinces to agriculture was R8,3 billion. Determine which part of this amount Western Cape contributed. (4)

5.1.3 Identify the sector in which KwaZulu-Natal made a 12% contribution. (2)

5.1.4 Name the sector that has the largest range. (2)

5.1.5 Name ONE province that made the most significant contribution towards the growth of most of the sectors. (2)

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5.2 Ryan is a South African citizen who owns a company in South Africa and wants to buy shares in a company in Canada.

TABLE 6 shows the exchange rate for five countries on 17 March 2022.

TABLE 6: EXCHANGE RATE FOR FIVE COUNTRIES ON 17 MARCH 2022

CURRENCY	UNITS PER ZAR	ZAR PER UNIT
Euro	0,060673	16,480
British pound	0,050862	19,662
Japanese yen	7,9596	0,12565
Canadian dollar	0,084845	11,785
Russian rouble	6,97481	0,143373

[Adapted from www.xe.com/currencyconverter]

NOTE: A share is a unit of ownership of a company.

Use TABLE 6 to answer the questions that follow.

5.2.1 Identify the currency which is the weakest against the rand. (2)

5.2.2 Show how the Russian rouble of 0,143373 ZAR per unit was determined. (2)

5.2.3 Ryan decides to invest R1 230 000 in shares in a Canadian company.

Convert R1 230 000 into Canadian dollar (CAD). (3)

5.2.4 Give ONE reason why you would motivate Ryan to invest in a Canadian company. (2)

5.2.5 After 2 years and 8 months, Ryan sold his shares and received a final amount of R1 529 360.

In South Africa Ryan would have received an interest rate of 8,1%, compounded annually, for 2 years and 8 months.

Ryan stated that he earned more than R14 000 return on his foreign investment compared to a potential South African investment.

Verify, showing ALL calculations, whether Ryan's statement is valid. (8)
[29]

TOTAL: 150

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ADDENDUM

NOVEMBER 2022

MARKS: 150

This addendum consists of 3 pages with 2 annexures.

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ANNEXURE A

QUESTION 2.1

SUMMARY OF CAR AND HOUSEHOLD INSURANCE POLICY

Car & Household Insurance BiWay.co.za

Client Number	22506623	**Commencement Date**	1 September 2013
Policy Number	23388350	**Statement Date**	30 August 2022

☑ Policyholder

It's all about you!

Name	BOMVANA	ID number	780801*******
Physical address	2* Patr*** S*r*et; R*s**l,Bl**d*w**	Work number	021***8***
E-mail address	we*******@gmail.com		
Mobile number	083***118*		

Summary of Cover

Insured Items		**Premium**
MiPersonal Accident	R25 000	R7,16
MiWheels – Car 1	KIA PICANTO 1.1 LX -2004	R200,41
– Car 2	TOYOTA COROLLA 1.6 -2013	R520,41
– Car 3	FORD IKON 1.6i -2005	R133,16
– Car 4	VW POLO 1.0 TSI -2019	A
MiHome Content	BOMVANA'S RESIDENTIAL ADDRESS	R201,79
MiMovables		R23,30
RoadCover		R9,07
Total Discount	For having the above noted multiple insured items on cover	–R266,15
Total Monthly Premium (including 15% VAT)		**R2 184,21**

Excess Value:
The excess is the amount payable by YOU to the service provider whenever you make a claim.
The values below show the excess amount that you will have to pay in case of a specific claim event.

• Accident and Intentional Damage	R7 000,00
• Theft and Hijacking	R7 000,00
• Window glass only claim (not glass forming part of roof)	R1 490,00
• Earthquake, Storm, Hail, Flood and Snow	R7 000,00
• Fire and Explosion	R7 000,00

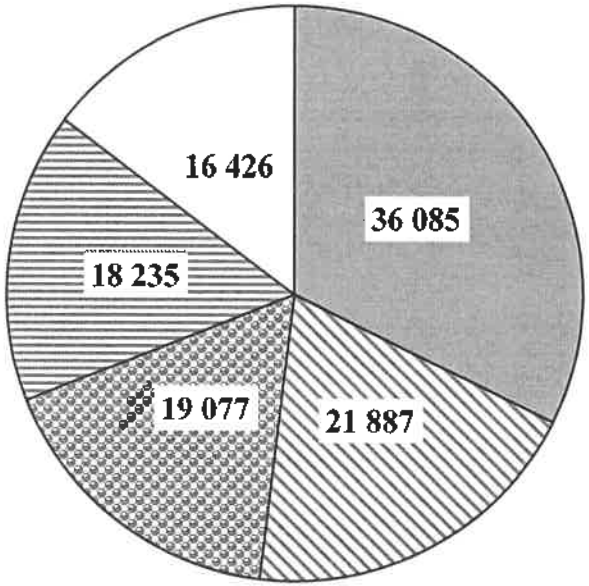
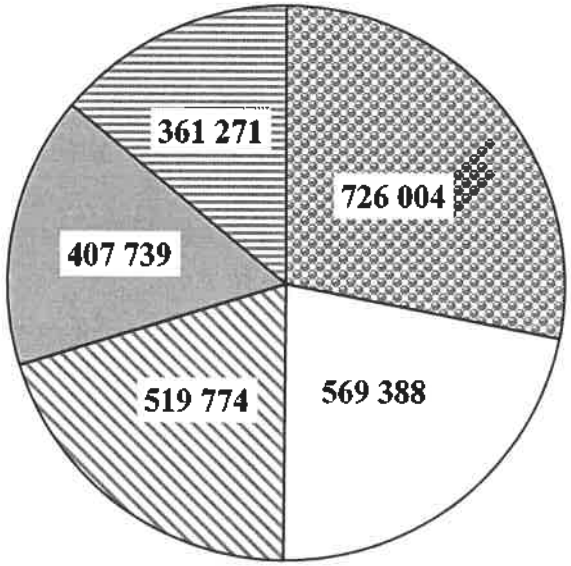
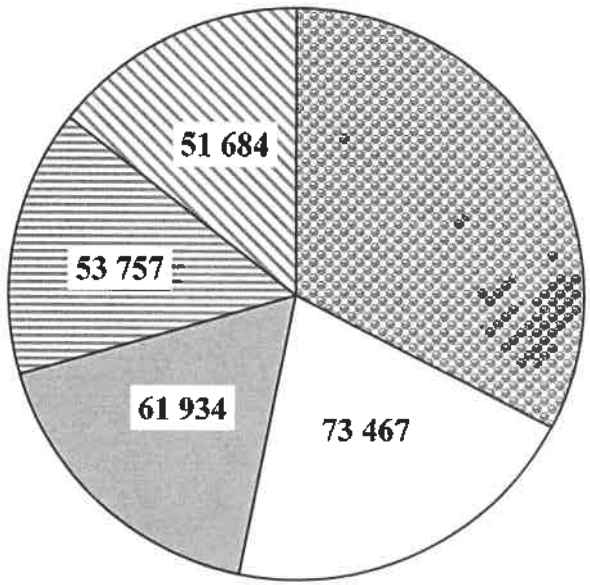
[Adapted from miway.co.za]

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ANNEXURE B

QUESTION 4.2

COMPARISON OF THE FIVE BEST-SELLING VEHICLES IN SOUTH AFRICA, AMERICA AND CANADA FOR 2021

SOUTH AFRICA	AMERICA	CANADA
		
Toyota RAV4 VW Polo Vivo Ford Ranger VW Polo Isuzu D-Max	Ford F-series Ram Pickup Chev Silverado Toyota RAV4 Honda CR-V	Ford F-series Ram Pickup Toyota RAV4 GMC Sierra Chev Silverado
TOTAL NUMBER OF VEHICLES SOLD = 111 710	**TOTAL NUMBER OF VEHICLES SOLD = 2 584 176**	**TOTAL NUMBER OF VEHICLES SOLD = 357 243**

[Adapted from www.driving.ca, www.forbes.com and www.businesslive.co.za]

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