basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

SENIOR CERTIFICATE EXAMINATIONS/ NATIONAL SENIOR CERTIFICATE EXAMINATIONS

MATHEMATICAL LITERACY P1

2022

MARKS: 150

TIME: 3 hours

This question paper consists of 12 pages, 1 answer sheet and an addendum with 4 annexures.

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INSTRUCTIONS AND INFORMATION

1. This question paper consists of FIVE questions. Answer ALL the questions.

2. 2.1 Use the ANNEXURES in the ADDENDUM to answer the following questions:

   - ANNEXURE A for QUESTION 2.1
   - ANNEXURE B for QUESTION 3.2
   - ANNEXURE C for QUESTION 4.2
   - ANNEXURE D for QUESTION 5.3

   2.2 Answer QUESTION 4.1.7 on the attached ANSWER SHEET.

   2.3 Write your centre number and examination number in the spaces provided on the ANSWER SHEET. Hand in the ANSWER SHEET with your ANSWER BOOK.

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. Maps and diagrams are NOT necessarily drawn to scale, unless stated otherwise.

10. Write neatly and legibly.

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QUESTION 1

1.1 Yvette runs a small business from home. She makes and sells lunch packs for learners and delivers them to school during their lunch break.

TABLE 1 shows the items per lunch pack and the respective cost prices.

TABLE 1: COST PRICE OF THE ITEMS

ITEM	COST PRICE (IN BULK)	ITEM COST (PER LUNCH PACK)
	**100% fruit juice** 24 per box R135,00	1 fruit juice = R5,63
	**White bread** 18 usable slices R13,99	2 slices of bread = R1,55
	**Cheese slices** 54 slices per pack R84,99	1 slice cheese = R1,57
	**Apples** … apples per bag R22,99	1 apple = R2,87
	**Yoghurt** 6 per pack R10,99	1 yoghurt = R1,83
	**Sweets** 24 per pack R85,00	1 sweet = R3,54
	Fomo tray 75 trays per pack R102,95	1 fomo tray = R1,37

[Adapted from www.checkers.com and www.takealot.com]

Use the information above to answer the questions that follow.

1.1.1 Show how the cost of ONE yoghurt was calculated. (2)

1.1.2 Determine the maximum number of apples per bag. (2)

1.1.3 Show that the total cost to make ONE lunch pack is R18,36. (2)

1.1.4 The profit Yvette makes per lunch pack is R16,64.

Calculate the selling price of ONE lunch pack. (2)

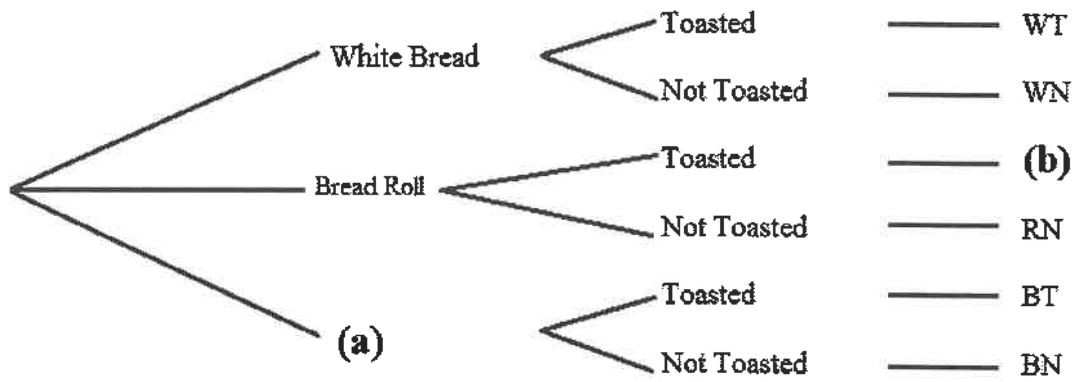
1.1.5 Define the term *profit* in the given context. (2)

1.1.6 Write down, as a simplified ratio, the bulk price of the 100% fruit juice to the bulk price of sweets. (3)

1.2 Yvette's lunch pack has the following bread/bread roll options to choose from:

- White bread (W), brown bread (B) or a bread roll (R)
- The bread or bread roll can be toasted (T) or not toasted (N).

The diagram below illustrates the different options.



Use the above information to answer the questions that follow.

1.2.1 Name the type of diagram illustrated above. (2)

1.2.2 Complete missing labels **(a)** and **(b)**. (4)

1.2.3 Write down the total number of outcomes. (2)

1.2.4 Calculate the number of toasted bread outcomes. (2)

1.3 A company recorded the number of cellphones sold in two of their stores.
The data for the last 12 months is given below.

STORE A:

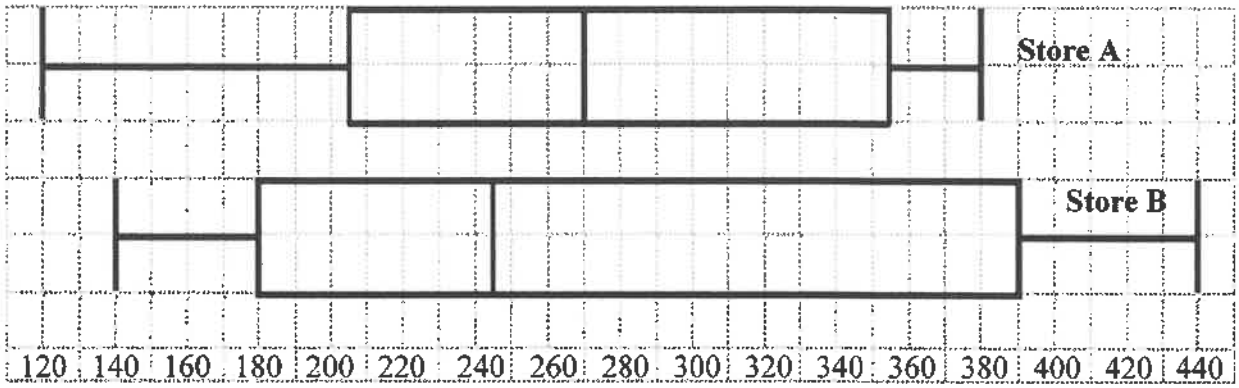
120	350	360	220	290	160	250	210	200	310	380	380

STORE B:

180	260	440	380	180	400	230	320	420	210	170	140

The diagrams below represent the data for each store.

DATA DIAGRAMS FOR STORE A AND STORE B:



Use the information above to answer the questions that follow.

1.3.1 Identify the type of diagram drawn above. (2)

1.3.2 Write out *IQR* in full. (2)

1.3.3 State the median for Store A. (2)

1.3.4 Calculate the difference between the maximum and minimum value for Store B. (3)

[32]

QUESTION 2

2.1 Bongiwe received her levy statement of account from Rango Property Specialist for her rented unit.

ANNEXURE A shows her adapted statement of account.

Use ANNEXURE A to answer the questions that follow.

2.1.1 Write down the reference number that Bongiwe must use when she pays her account. (2)

2.1.2 Give ONE reason why reference numbers are used when making payments. (2)

2.1.3 Calculate the missing value **A**, which has been omitted from the statement. (2)

2.1.4 The total amount due for this invoice is R2 340,73, including 15% VAT.

Calculate the total amount due, excluding VAT. (2)

2.1.5 Calculate (rounded to TWO decimal places) the standard levy for June 2021 as a percentage of the amount due on the statement. (4)

2.1.6 Write down a possible payment option Rango Property Specialist will accept. (2)

2.1.7 Blueberry Gardens have 49 units in total.

Calculate the total amount collected by the body corporate if all 49 units paid their levy CSOS on 1 July 2021. (3)

2.1.8 The Blueberry Gardens body corporate increased the standard levy by 6,45% from 1 August 2021.

Calculate the new standard levy after the increase. (4)

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2.2 Bongiwe has twins, Sandile and Sakhile, who attend a private school.

The total fees payable per child for the school year (January to November) is as follows:

- Charges for aftercare are R7 700 per school year or R700 monthly.
- The first child's school fee is R2 793 per month or R30 723 per school year.
- A 10% discount on school fees is given to a second child.
- A further 7,5% discount is given if school fees are paid in full by 31 January.
- The monthly transport cost is R929.

[Adapted from http://www.schoolcommunicator.com]

Use the information above to answer the questions that follow.

2.2.1 Calculate the total transport cost for the twins for a full school year. (3)

2.2.2 Bongiwe intends on paying the school fees in full on 30 January.

Determine the total amount of money Bongiwe will spend in ONE school year for the twins to attend the private school, including aftercare and transport. (8)

[32]

QUESTION 3

3.1 TABLE 2 below shows the estimated provincial half-yearly livestock numbers (in thousands) for the nine provinces in South Africa for August 2020 and February 2021.

TABLE 2: ESTIMATED PROVINCIAL LIVESTOCK NUMBERS (IN THOUSANDS) IN SOUTH AFRICA (AUG. 2020 AND FEB. 2021)

PROVINCE	ESTIMATED LIVESTOCK NUMBERS (IN THOUSANDS)					
	Cattle		Sheep		Goats	
	Aug. '20	Feb. '21	Aug. '20	Feb. '21	Aug. '20	Feb. '21
Western Cape	466	466	2 545	2 497	202	199
Northern Cape	419	418	5 182	5 079	448	446
Free State	2 054	2 023	4 330	4 362	215	211
Eastern Cape	3 050	3 059	6 513	6 394	1 991	1 968
KwaZulu-Natal	2 380	2 320	628	610	662	651
Mpumalanga	1 248	1 243	1 527	1 508	78	76
Limpopo	860	850	A	192	902	909
Gauteng	246	246	84	83	21	20
North West	1 576	1 545	596	585	651	641
Total	**12 299**	**12 170**	**...**	**21 310**	**5 170**	**5 121**

[Adapted from www.dalrrd.gov.za]

Use TABLE 2 above to answer the questions that follow.

3.1.1 Write down the province with the second highest number of sheep for February 2021. (2)

3.1.2 Calculate Eastern Cape's estimated total number of livestock for August 2020. (3)

3.1.3 The provincial mean number of sheep is 2 400 444.

A farmer in Limpopo stated that the missing value **A** in the table is less than 200.

Verify, showing ALL calculations, whether the farmer's statement is valid. (7)

3.2 South Africa's agricultural sector sales in 2019 amounted to R317,6 billion.

ANNEXURE B shows the distribution of these sales, as well as a further distribution of livestock sales into animals and produce.

Use ANNEXURE B and the information above to answer the questions that follow.

3.2.1 State whether the data displayed on ANNEXURE B is categorical or numerical data. (2)

3.2.2 Determine missing value **A**. (2)

3.2.3 Calculate, in millions, the actual rand value of horticulture sales. (3)

3.2.4 Give a valid reason why there is a category for other livestock under animals. (2)

[21]

QUESTION 4

4.1 The average monthly retail price for orange juice per litre in Canadian dollars (CAD) for 2018 to 2021 is shown on the ANSWER SHEET. The actual data values for each month in 2020 are also indicated.

Use the graphs on the ANSWER SHEET to answer the questions that follow.

4.1.1 Calculate (in CAD) the difference between the price of orange juice in January 2019 and in February 2019. (3)

4.1.2 Write down the month and year in which the price of orange juice was at its lowest. (2)

4.1.3 State the month and years in which the price of orange juice was exactly the same. (2)

4.1.4 Determine the median monthly price of orange juice for 2020. (4)

4.1.5 Describe the trend of the price of orange juice from February 2018 to July 2018. (2)

4.1.6 An analyst predicted that the price of orange juice would drop by 0,16 CAD from February 2021 to March 2021.

Determine the year-on-year percentage increase from March 2020 to March 2021.

You may use the following formula:

$$\textbf{Percentage Increase} = \frac{\textbf{New value} - \textbf{Old value}}{\textbf{Old value}} \times \textbf{100\%}$$

(5)

4.1.7 The analyst's prediction for the price of orange juice for the rest of the year 2021 is shown in TABLE 3 below.

TABLE 3: PREDICTED PRICE OF ORANGE JUICE FOR 2021

Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
4,25	4,28	4,3	4,05	4,35	4,2	4,15	4,27	4,2

Use the ANSWER SHEET to complete the line graph for March 2021 to December 2021. (4)

4.2 John considers moving from Toronto in Canada to either Cape Town or Ekurhuleni in South Africa.

ANNEXURE C shows a comparison of the water tariffs in some of the metropolitan areas in South Africa.

John estimates that he will use an average of 45 kℓ of water per month.

Use ANNEXURE C to answer the question that follows.

John states that if he chooses to live in Cape Town, he will be paying R3 600 more per year compared to a person living in Ekurhuleni who also uses an average of 45 kℓ of water per month.

Show, by means of calculations, whether John's statement is CORRECT. (10)
[32]

QUESTION 5

5.1 Shamila, a teacher at a local high school, is going on retirement. The estimated value of her full pension fund benefit is R3 457 920,00.

She has two options to consider when she retires.

Option 1: Withdraw a third of the full pension fund benefit.

Option 2: Withdraw 100% of her full pension fund benefit.

TABLE 4 below indicates the tax payable on retirement benefits.

TABLE 4: RETIREMENT BENEFIT TAX TABLE
(1 March 2021 to 28 February 2022)

TAXABLE INCOME (R)	RATES OF TAX (R)
1–500 000	0% of taxable income
500 001–700 000	18% of taxable income above 500 000
700 001–1 050 000	36 000 + 27% of taxable income above 700 000
1 050 001 and above	130 500 + 36% of taxable income above 1 050 000

[Adapted from sars.gov.za]

Use the information above to answer the questions that follow.

5.1.1 Write out Shamila's full pension fund benefit in words. (2)

5.1.2 Determine the amount of money that Shamila can withdraw if she chooses Option 1. (2)

5.1.3 Shamila decides to choose Option 2 as she wants to loan money to her daughter, Suraya, who intends on relocating to New Zealand.

(a) Shamila states that the amount of tax she will pay on the estimated value of her pension fund of R3 457 920,00 is more than R1 000 000.

Verify, showing ALL calculations, whether her statement is CORRECT. (6)

(b) The ratio of the estimated value of Shamila's full pension (before tax) to her daughter's loan amount is:
9,8798 : 1.

Determine, to the nearest thousand rand, the amount that her daughter will borrow. (4)

(c) Suraya agrees to borrow the money at a simple interest rate of 7,8% per annum. She intends to repay the total amount with interest at the end of a three-year period.

Determine the total amount she will have to repay after three years. (4)

5.2 Suraya has established that the cost of relocating a family of four to New Zealand is approximately R280 000. Her husband is an entrepreneur and wants to start his own business in New Zealand. Suraya, who is a teacher, would need a skilled migrant resident visa, while her husband will need an entrepreneurs visa.

A skilled migrant resident visa costs €2 093 and a visa for entrepreneurs costs NZ$4 745.

TABLE 5 shows the exchange rate for selected countries on 3 September 2021.

TABLE 5: EXCHANGE RATE ON 3 SEPTEMBER 2021

US dollar	$1	14,455516 ZAR
Euro	€0,0581765	1 ZAR
British pound	£1	20,01924 ZAR
Japanese yen	¥1	0,13156142 ZAR
New Zealand dollar	NZ$0,0969907	1 ZAR

[Adapted from www.new-zealand-immigration and www.businesstech.co.za]

Use the information above to answer the questions that follow.

5.2.1 Determine the exchange rate of the New Zealand dollar (NZ$) in terms of the euro (€) on 3 September 2021 in the form 1 NZD : … (4)

5.2.2 Calculate (rounded to the nearest R100) the total cost of the two visas that they will require on 3 September 2021. (6)

5.3 The graphs on ANNEXURE D represent the monthly exchange rate of the Chinese yuan and the US dollar from July 2020 to December 2020.

[Adapted from www.new-zealand-immigration and www.businesstech.co.za]

Use ANNEXURE D to answer the questions that follow.

5.3.1 State, with a reason, which graph a Chinese citizen would use to explain that his country's currency is strengthening against the US dollar over the six-month period. (3)

5.3.2 The same set of data was used to draw Graph A and Graph B.

Give a VALID reason why the graphs look different. (2)

[33]

TOTAL: 150

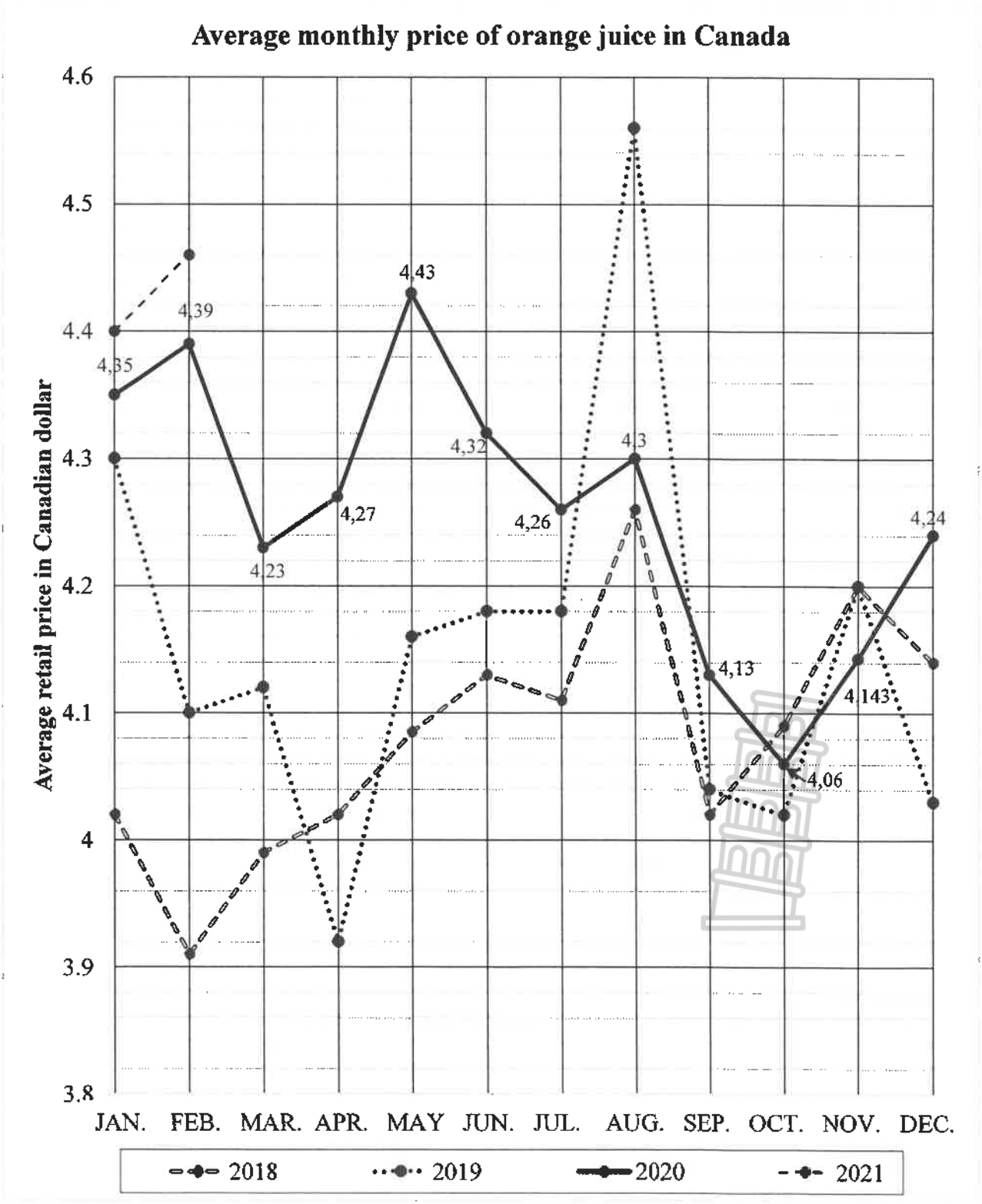
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ANSWER SHEET

QUESTION 4.1.7

CENTRE NUMBER:

EXAMINATION NUMBER:



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MATHEMATICAL LITERACY P1

ADDENDUM

2022

This addendum consists of 5 pages with 4 annexures.

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ANNEXURE A

QUESTION 2.1

Levy Statement/Tax Invoice
Mrs Bongiwe Dlamini
16 Blueberry Gardens
48 Vuuren Road
Glen's Nek
1806

RANGO

Statement Date: 1 July 2021
Payments Up To: 19 June 2021
Premises: UNIT 16

Use the following reference on your payment:	**Amount Due:**
BGD0016	**R2 340, 73**

Transactions

Date	Details	Debit R	Credit R	Balance R
1 June 2021	Balance Brought Forward			894,55
1 June 2021	Standard Levy June 2021	1 498,63		2 393,18
1 June 2021	Insurance Additional June 2021	5,59		2 398,77
1 June 2021	Domestic Effluent June 2021	510,55		2 909,32
1 June 2021	Levy CSOS June 2021	30,90		2 940,22
1 June 2021	Maintenance Plan (10 years) June 2021	265,29		3 205,51
1 June 2021	ACB CREDIT SETTLEMENT – BGD0016		-3 206,00	A
1 July 2021	Standard Levy July 2021	1 498,63		1 498,14
1 July 2021	Meter-reading Fee – Electricity July 2021	15,13		1 513,27
1 July 2021	Insurance Additional July 2021	5,59		1 518,86
1 July 2021	Domestic Effluent July 2021	510,55		2 029,41
1 July 2021	Meter Reading Fee – Water July 2021	15,13		2 044,54
1 July 2021	Levy CSOS July 2021	30,90		2 075,44
1 July 2021	Maintenance Plan (10 years) July 2021	265,29		2 340,73
		Amount Due:		**R2 340,73**

Bank Details

Bank: SLR
Branch Code: 3564900
Account Name: Blueberry Gardens
Account Number: 11 550 22 456

Important: No cash payments

1. Cheques payable to the body corporate
2. All amounts due on the first day of each month

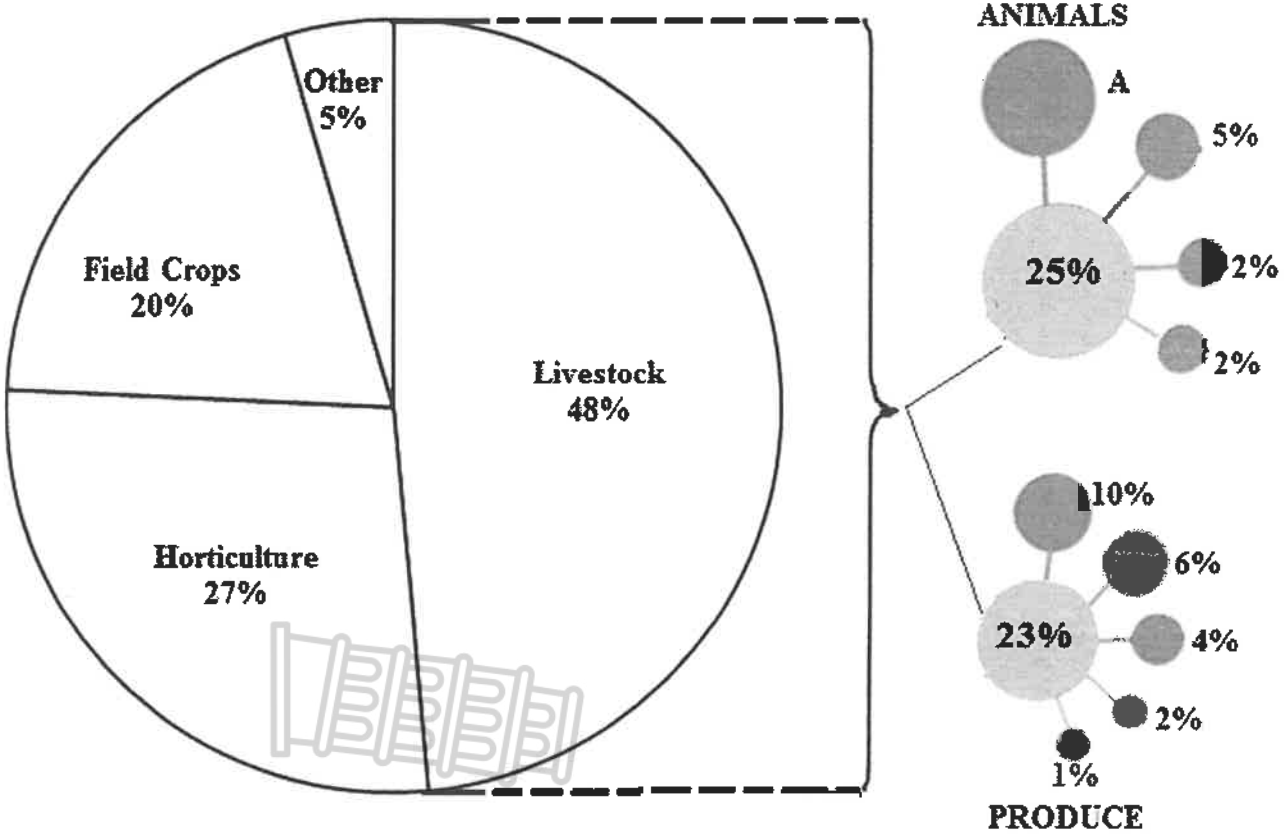
[Adapted from Angor Property Specialists]

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ANNEXURE B

QUESTION 3.2

DISTRIBUTION OF R317,6 BILLION SALES IN SOUTH AFRICA'S AGRICULTURAL SECTOR IN 2019



KEY FOR ANIMALS	
Cattle	A
Chicken	5%
Sheep	2%
Other	2%

KEY FOR PRODUCE	
Chicken meat	10%
Milk and cream	6%
Eggs	4%
Beef	1%
Other	2%

[Adapted from www.statssa.gov.za]

ANNEXURE C

QUESTION 4.2

COMPARISON OF WATER TARIFFS IN SOME METROPOLITAN AREAS IN SOUTH AFRICA									
		CAPE TOWN		**ETHEKWINI**		**EKURHULENI**		**JOHANNESBURG**	
		Monthly use (kℓ)	R/kℓ	Monthly use (kℓ)	R/kℓ	Monthly use (kℓ)	R/kℓ	Monthly use (kℓ)	R/kℓ
RESIDENTIAL	Step	Fixed monthly cost	104,50	Fixed monthly cost	N/A	Fixed monthly cost	N/A	Fixed monthly cost	26,52
	1	0–6	15,10	0–6	23,42	0–6	13,5	0–6	0,00
	2	>6–10,50	20,75	>6–25	27,70	>6–15	22,24	>6–10	18,99
	3	>10,5–35	28,20	>25–30	36,90	>15–30	27,24	>10–15	19,82
	4	>35	52,04	>30–45	56,91	>30–45	33,90	>15–20	27,79
	5	-	-	>45	62,58	>45	41,80	>20–30	38,40
	6	-	-	-	-	-	-	>30–40	42,00
	7	-	-	-	-	-	-	>40–50	52,99
	8	-	-	-	-	-	-	>50	56,79
Commercial & Industrial		Fixed monthly cost	104,50	Fixed monthly cost	291,84	Fixed monthly cost	N/A	Fixed monthly cost	234,07
	1	Not stepped	27,04	Not stepped	36,52	0–5 000	29,17	0–200	44,97
	2					5 001–25 000	29,64	>200	47,44
	3					>25 000	30,92	-	-

[Adapted from Water Market Intelligence Report 2021, faircape.co.za]

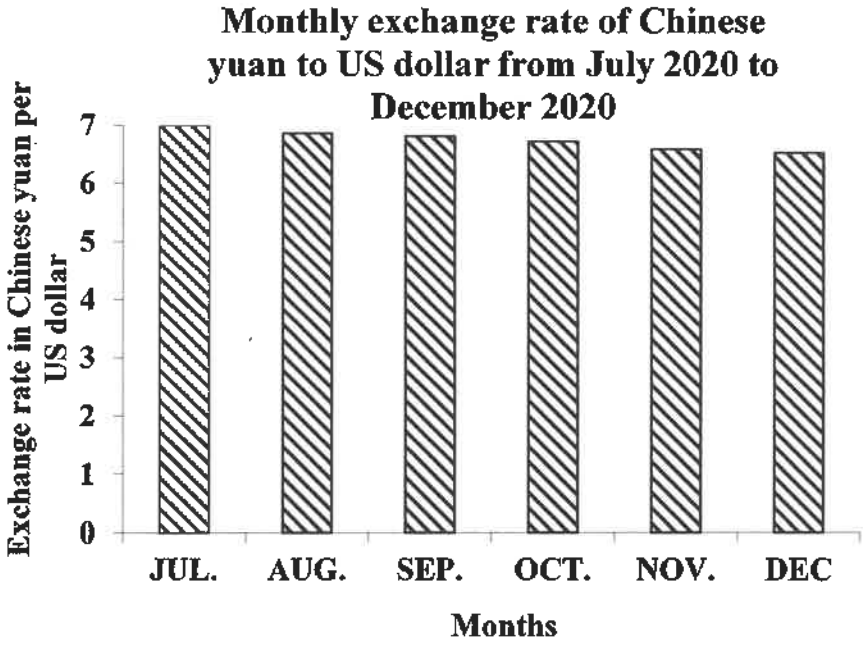
ANNEXURE D

QUESTION 5.3

GRAPH A



GRAPH B



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