



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

**SENIOR CERTIFICATE/
NATIONAL SENIOR CERTIFICATE**

GRADE 12

MATHEMATICAL LITERACY P1

NOVEMBER 2020

MARKS: 150

TIME: 3 hours

**This question paper consists of 14 pages,
1 answer sheet and an addendum with 4 annexures.**



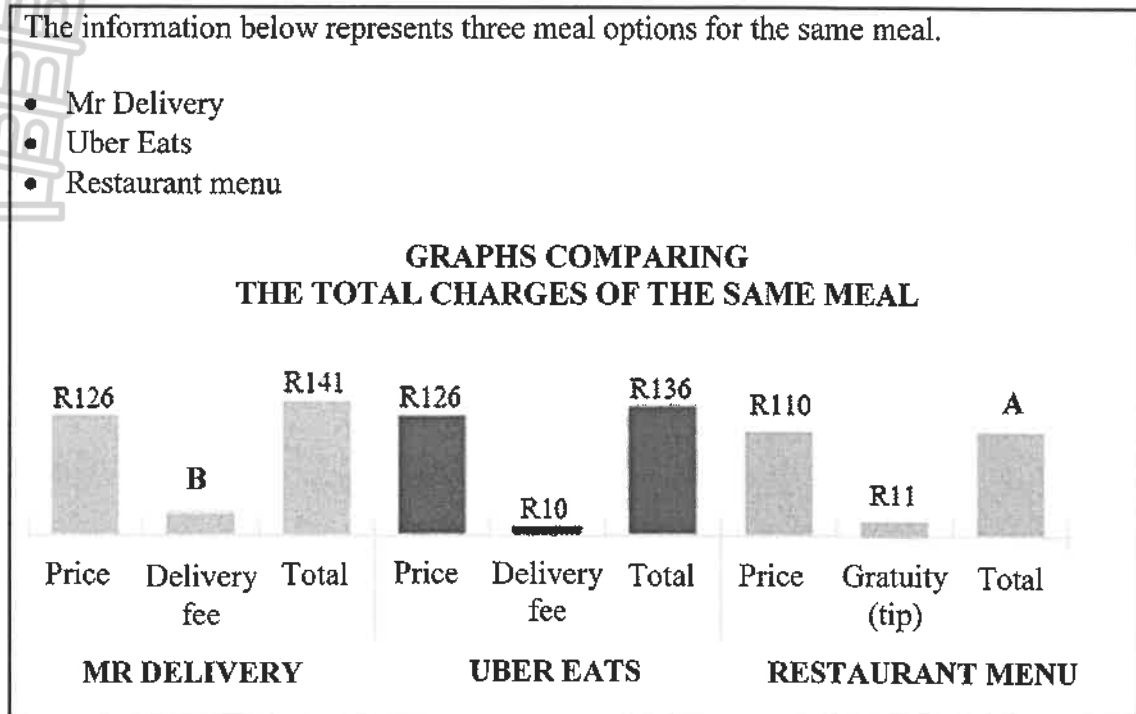
INSTRUCTIONS AND INFORMATION

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 2.3.4
 - ANNEXURE C for QUESTION 3.2
 - ANNEXURE D for QUESTION 4.1
- 2.2 Answer QUESTION 5.2.4 on the attached ANSWER SHEET.
- 2.3 Write your centre number and examination number in the spaces 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.

QUESTION 1

1.1 The information below represents three meal options for the same meal.

- Mr Delivery
- Uber Eats
- Restaurant menu

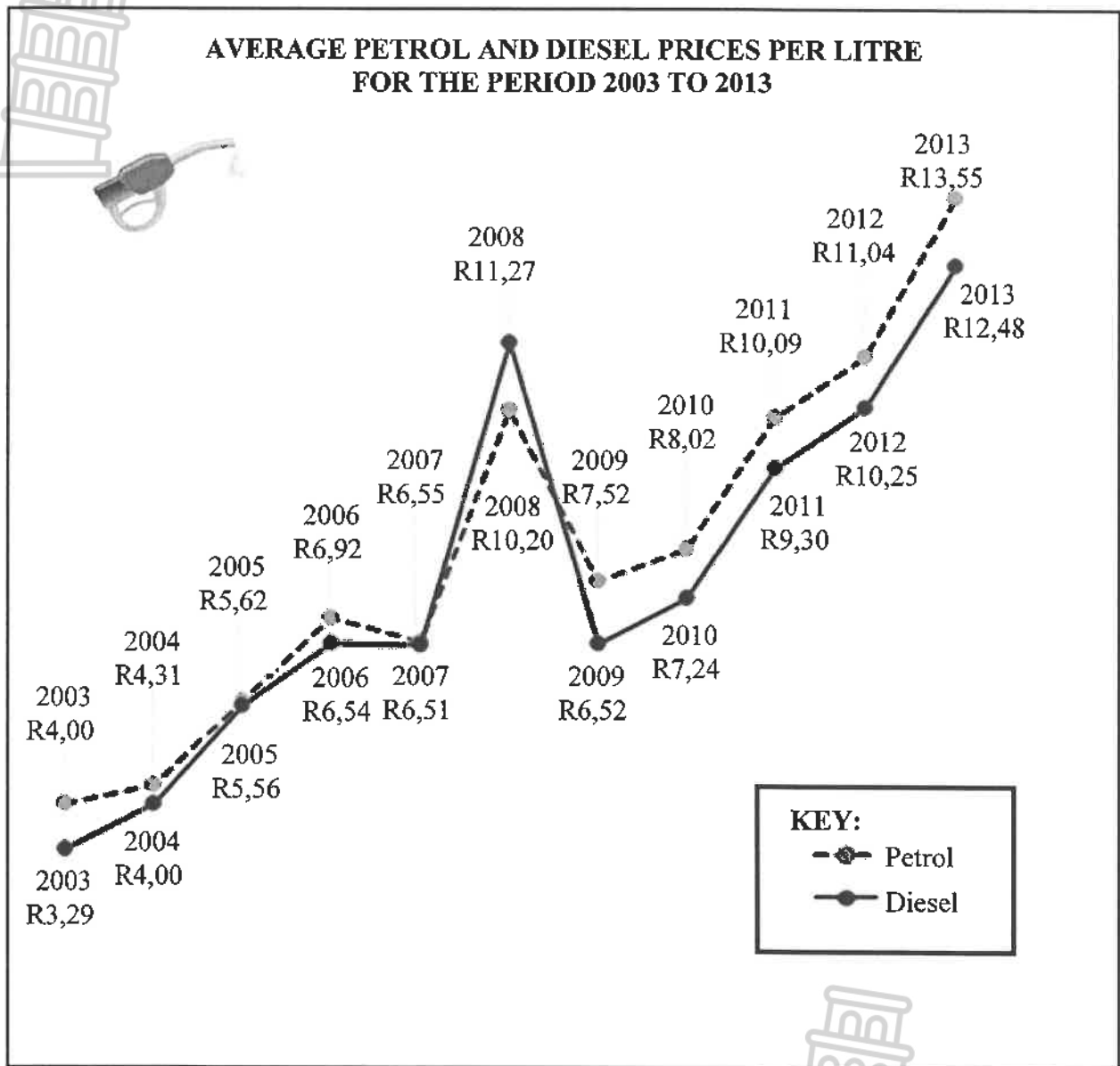


[Adapted from www.graphics24.co.za]

Use the above information to answer the questions that follow.

- 1.1.1 Identify the type of graph used. (2)
- 1.1.2 Calculate **A**, the total for the restaurant menu. (2)
- 1.1.3 Calculate **B**, the delivery fee for Mr Delivery. (2)
- 1.1.4 Write down the difference between the highest price and the lowest price of the meal, excluding delivery/gratuity. (2)
- 1.1.5 If the delivery fee for Uber Eats increases by 6,32%, calculate (in rand) the increase in the delivery fee. (2)

1.2 The two line graphs below represent the average petrol and diesel prices per litre for the period 2003 to 2013.



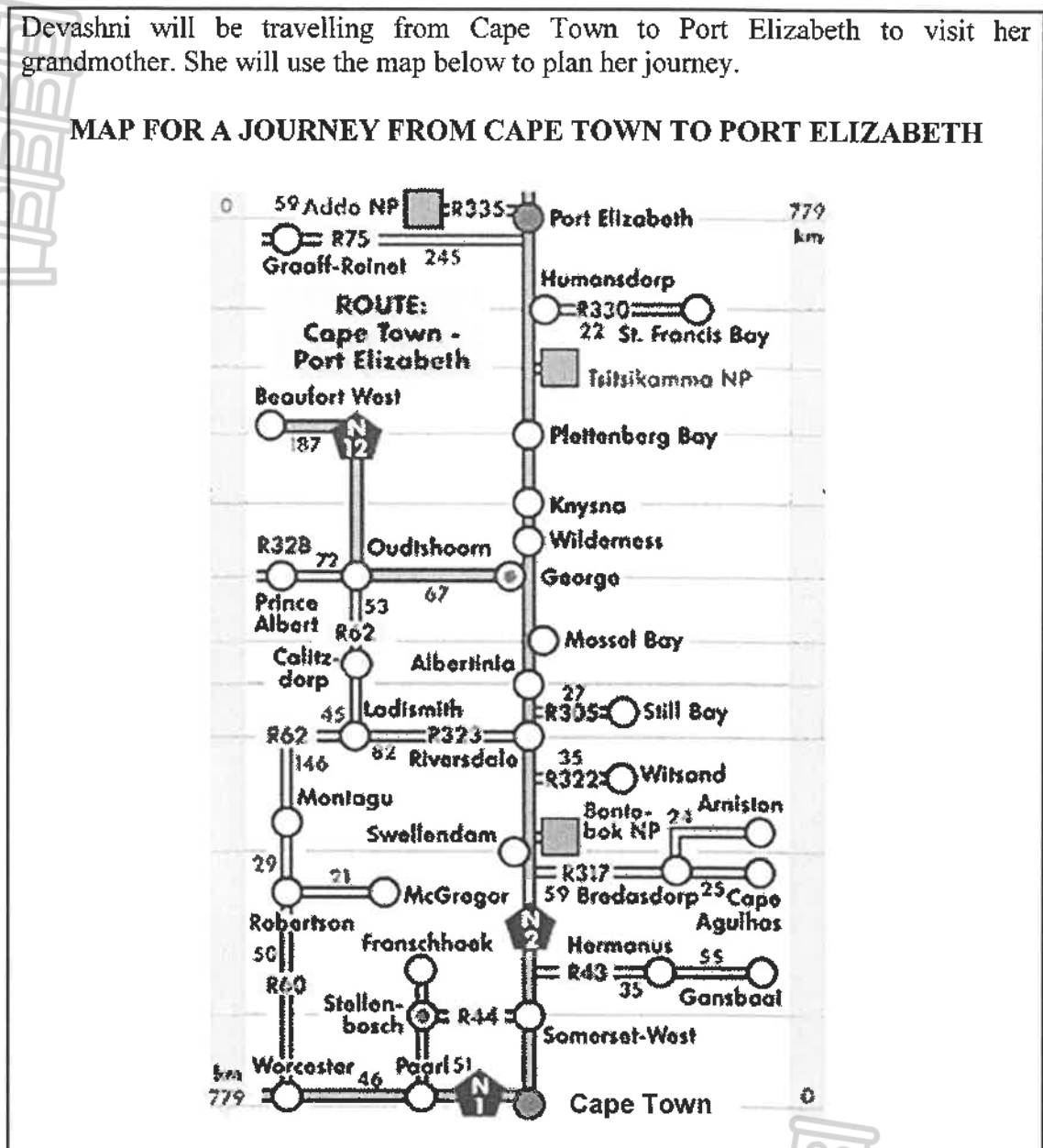
[Adapted from www.cars.co.za]

Use the above information to answer the questions that follow.

- 1.2.1 Write down the year in which the diesel price was higher than the petrol price. (2)
- 1.2.2 Calculate the difference between the price of petrol in 2012 and in 2004. (3)
- 1.2.3 Determine, to TWO decimal places, the unit ratio of the diesel price in 2005 to the diesel price in 2013. (3)
- 1.2.4 Calculate the total cost of 13,45 litres of petrol in 2003. (2)
- 1.2.5 Write down the year in which the difference between the petrol price and the diesel price was less than five cents. (2)

1.3 Devashni will be travelling from Cape Town to Port Elizabeth to visit her grandmother. She will use the map below to plan her journey.

MAP FOR A JOURNEY FROM CAPE TOWN TO PORT ELIZABETH



[Source: www.southafrica-travel.net]

Use the above map to answer the questions that follow.

- 1.3.1 Identify the type of map used above. (2)
- 1.3.2 Determine, in metres, the actual distance between Cape Town and Port Elizabeth. (2)
- 1.3.3 Along the route Devashni will visit a friend in Oudtshoorn. At Riversdale she will take a detour via the R323 to Oudtshoorn.
 - (a) Name the towns she will pass when traveling from Riversdale to Oudtshoorn. (2)
 - (b) Calculate the total distance she will travel from Riversdale to Oudtshoorn. (2)

[30]

QUESTION 2

2.1 Dean Peterson has a clothing account at Markham clothing store. At Markham a customer can choose either a 6-month or a 12-month revolving (ongoing) payment option.

ANNEXURE A shows Dean's clothing store statement from Markham for a certain period of the year.

Use ANNEXURE A to answer the questions that follow.

- 2.1.1 Write down the total balance owing on Dean's account. (2)
- 2.1.2 Give the full date on which the current installment is due. (2)
- 2.1.3 State the opening balance of the 12-month revolving account option. (2)
- 2.1.4 Write down the price of the item that was returned. (2)
- 2.1.5 Determine the total amount paid using FNB electronic payments. (3)
- 2.1.6 The selling price of an item includes 15% VAT.

Calculate the price of the item purchased on 19 December 2018, excluding VAT. (3)



2.2 Dean, a 25-year-old male, earns a taxable income of R305 174,44. He started his first job on 1 March 2019.

Tax payable by an individual for the tax year 1 March 2019 to 29 February 2020 is indicated in TABLE 1 below.

**TABLE 1: INCOME TAX RATES FOR INDIVIDUALS
 2019/2020 TAX YEAR (1 MARCH 2019 TO 29 FEBRUARY 2020)**

TAX BRACKET	TAXABLE INCOME (R)	TAX RATES (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
7	1 500 001 and above	532 041 + 45% of taxable income above 1 500 000

[Adapted from www.treasury.gov.za/Rapport]

NOTE: Dean is not a member of a medical aid.

Use TABLE 1 to answer the questions that follow.

- 2.2.1 Name the government institution responsible for collecting tax return forms. (2)
- 2.2.2 Write down the tax bracket that will be used to calculate Dean's tax payable. (2)
- 2.2.3 Calculate the monthly tax payable by Dean before any rebates are deducted. (5)
- 2.2.4 TABLE 2 below indicates the rebates for the 2018/2019 and 2019/2020 tax years.

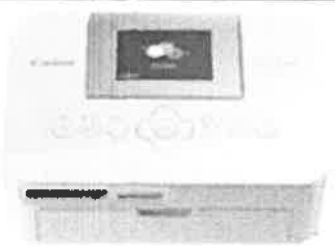

TABLE 2: REBATES FOR 2018/2019 AND 2019/2020 TAX YEARS

TAX REBATES	TAX YEAR 2019/2020	TAX YEAR 2018/2019
Primary (age below 65)	R14 067	R14 220
Secondary (age 65 and above)	R7 713	R7 794
Tertiary (age 75 and older)	R2 574	R2 601

[Adapted from www.treasury.gov.za/Rapport]

- (a) Identify the tax rebate(s) that Dean qualifies for in the 2019/2020 tax year. (2)
- (b) State the number of tax rebates a 75-year-old man will qualify for in any tax year. (2)

2.3 Dean's mother, Ella, started her own instant photography business by taking photographs on the beach. She has a camera, but needs to buy a printer, photo paper and ink cartridges for printing.

Canon Selphy CP100 photo printer  Price = R1 125	Canon photo paper + 3 print cartridges 
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[Adapted from www.takealot.com and www.amazon.com]

TABLE 3 shows Ella's income and expenses for producing and selling up to 200 photographs.

TABLE 3: INCOME AND EXPENSES OF ELLA'S PHOTOGRAPHY BUSINESS

NUMBER OF PHOTOGRAPHS	0	25	50	80	100	125	150	170	200
Income (rand)	0	500	1 000	1 600	2 000	2 500	3 000	...	4 000
Expenses (rand)	1 125	1 250	1 375	A	1 625	1 750	1 875	1 975	2 125

[Adapted from www.computermania.co.za]

Use TABLE 3 above to answer the questions that follow.

2.3.1 Determine the selling price of ONE photograph. (2)

2.3.2 Write down the formula that could be used to calculate the total income received. (2)

2.3.3 The total expenses can be calculated using the following formula:

$$\text{Expenses (in rand)} = 1\,125 + \text{number of photographs} \times 5$$

(a) Write down the variable cost for taking ONE photograph. (2)

(b) Calculate missing value A. (3)

2.3.4 ANNEXURE B shows two graphs, X and Y, which can be used to represent the business.

Use ANNEXURE B to answer the following questions.

(a) Give a suitable heading for the graphs that were drawn. (2)

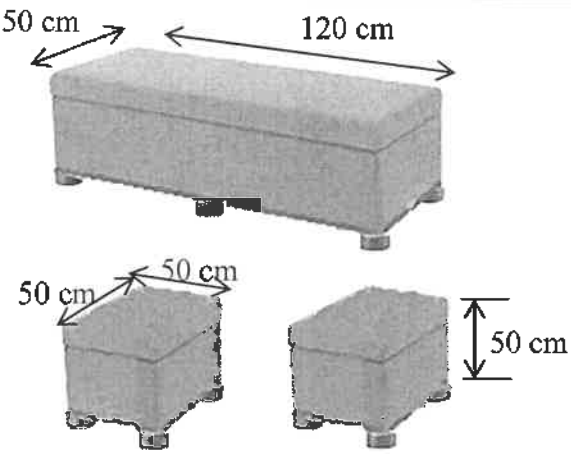

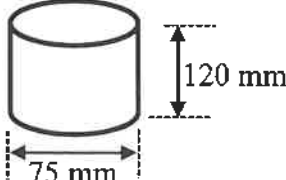
(b) State which graph (X or Y) represents the income received by the business. (2)

(c) Determine how many photographs must be sold to break even. (2)

[42]

QUESTION 3

3.1 Ten years ago, John bought a rectangular prism-shaped ottoman and two matching cubic-shaped ottomans¹. He wants to refurbish each of them by having the side surfaces (excluding the top and bottom) repainted. He will also employ an upholsterer² to re-cover the top of each ottoman and to attach cylindrical-shaped legs to the base of each ottoman. Each cubic-shaped ottoman will have 4 legs, while the rectangular prism-shaped ottoman will have 6 legs.

RECTANGULAR AND CUBIC SHAPED PRISM-SHAPED OTTOMANS		INFORMATION
		<p>DIMENSIONS:</p> <p>Rectangular ottoman Length = 120 cm Width = 50 cm Height = 50 cm</p> <p>Cubic-shaped ottomans Side = 50 cm</p>
PICTURE OF A LEG	DIAGRAM OF A LEG	DIMENSIONS OF A LEG
		Diameter = 75 mm Total height = 120 mm

[Source: www.takealot.com]

¹Ottoman: a piece of furniture like a large box with a soft top, used as a seat

²Upholsterer: someone whose job it is to cover furniture with material

Use the above information to answer the questions that follow.

- 3.1.1 Determine the total number of legs for the ottomans John has to purchase. (3)
- 3.1.2 Calculate the radius of the ottoman's leg. (2)
- 3.1.3 Calculate, in centimetres, the total height (including the legs) of ONE cubic-shaped ottoman. (2)
- 3.1.4 Calculate, in cm^2 , the total surface area of the side surfaces of all three ottomans that need to be painted.

You may use the following formulae:

Area of a rectangle = length \times width

Area of a square = side \times side

(5)



3.1.5 John bought a one-litre tin of luxurious silk paint to paint the side surfaces. The paint has a spread rate of 8 m^2 per litre.

Calculate, in millilitres, the amount of paint needed to paint ALL the ottomans with TWO coats of paint.



(4)

3.1.6 The tin has an inner radius of 6,5 cm.

Calculate the height (in cm) of the paint in the tin, if $1 \text{ litre} = 1\,000 \text{ cm}^3$.

You may use the following formula:

$$\text{Height} = \frac{\text{Volume}}{3,142 \times (\text{radius})^2} \quad (3)$$

3.2 The upholsterer can use the following materials to cover the tops of ALL the ottomans: synthetic leather (S), genuine leather (G) or canvas (C). The materials are available in the following colours: red (R), brown (B) and white (W).

ANNEXURE C shows a tree diagram that represents the choice and colour of the material to be used to cover the ottomans.

Use ANNEXURE C to answer the questions that follow.

3.2.1 Write down missing items (a) and (b). (4)

3.2.2 Determine (as a fraction in simplest form) the probability of NOT selecting red material. (3)

3.3 John asked the upholsterer to use synthetic leather to cover each of the ottomans. The upholsterer uses large sheets of synthetic leather, which he then cuts into smaller pieces to fit the top of each ottoman. Alibaba.com is an online store that sells the sheets of synthetic leather with a width (W) of 60 inches and a length (L) of 5 m.

<p>Diagram of one sheet of synthetic leather</p> <p>$L = 5 \text{ m}$</p> <p>$W = 153,6 \text{ cm}$</p>	<p>Sheets of synthetic leather</p>
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[Source: www.hangzhougeyi.cn]

Use the above information to answer the questions that follow.

3.3.1 Given that $60 \text{ inches} = 153,6 \text{ cm}$, complete:
1 inch = ... cm (2)

3.3.2 Calculate, in cm, the perimeter of one large sheet of synthetic leather.
 You may use the following formula: **Perimeter** = $2 \times (\text{length} + \text{width})$ (3)

[31]

QUESTION 4

4.1 Peet and his friend, Roland, plan a camping trip using their motorcycles along Cape Route 62. This is a popular tourist route passing through the Western Cape and Eastern Cape provinces.

The map on ANNEXURE D shows Cape Route 62.

Use ANNEXURE D to answer the questions that follow.

- 4.1.1 Identify the road that must be travelled on between Tulbagh and Ceres. (2)
- 4.1.2 Name the type of scale shown on the map. (2)
- 4.1.3 Write down the general direction from Knysna to Mossel Bay. (2)
- 4.1.4 The total distance from Cape Town to Worcester, via Tulbagh, is 210 km.

TABLE 4 indicates the actual distances between some of the towns on Cape Route 62.

TABLE 4: ACTUAL DISTANCES BETWEEN TOWNS

Cape Town to Paarl	62 km
Paarl to Wellington	13 km
Wellington to Tulbagh	A
Tulbagh to Worcester	82 km

[Adapted from www.route62.co.za]

Determine missing value A. (2)

- 4.1.5 Peet wants to visit his cousin, who lives along Cape Route 62.

He uses the following directions to his cousin's home:

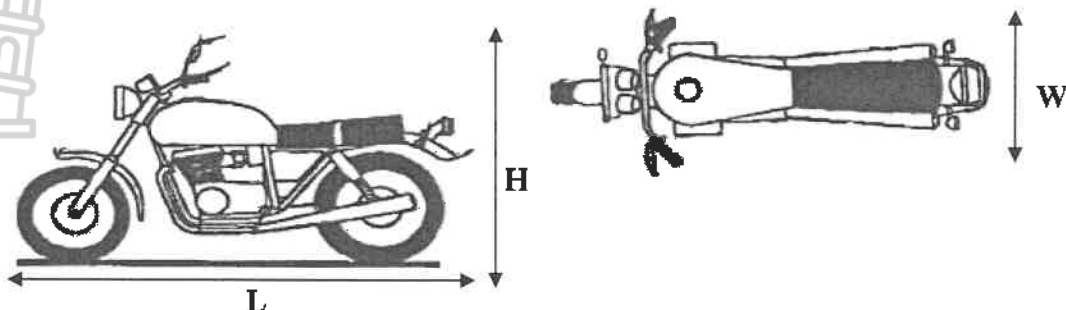
- Peet takes the R60 from Worcester to Montagu.
- From Montagu he proceeds to Barrydale.
- From Barrydale he takes the R62 to the next town where his cousin lives.

Study the directions and then write down the name of the town where his cousin lives. (2)

4.2

Four more friends will be joining Peet and Roland. They will travel by car and use a trailer to transport their motorcycles. To protect the motorcycles from damage, they need a 20 cm space around all four sides of the motorcycles.

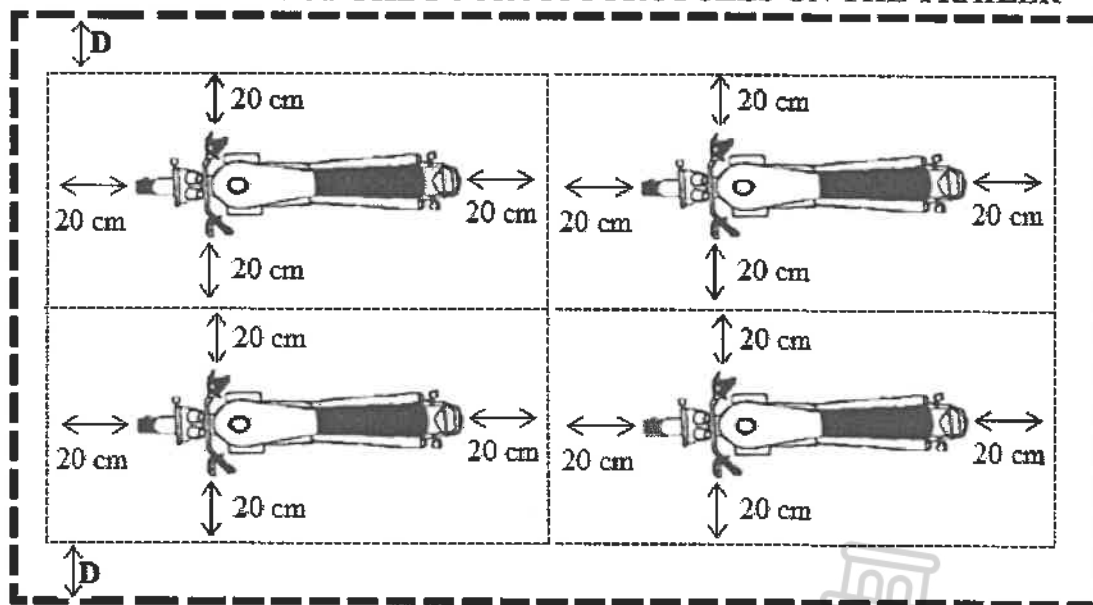
The dimensions of a single motorcycle are given below.



Length (L) = 229 cm, height (H) = 125 cm and width (W) = 86 cm

Below is the layout plan of the four motorcycles placed onto the trailer.

LAYOUT PLAN OF THE FOUR MOTORCYCLES ON THE TRAILER



KEY: --- Outer dimensions of the trailer with a length of 550 cm and a width of 260 cm.

[Adapted from www.covercraft.com]

Use the sketches above to answer the questions that follow.

4.2.1 Calculate the minimum length required to safely place two motorcycles, one behind the other, onto the trailer, taking into account the precautionary measures above. (3)

4.2.2 If the two motorcycles are placed in the centre of the trailer, **D** will be the equal distance on either side of the width of the trailer, as shown in the diagram.

Calculate (in cm) the value of **D**.

(4)
 [17]

QUESTION 5

- 5.1 TABLE 5 below shows the results of a recent gymnastics competition held at a school. The table shows the gymnasts' names, teams, divisions and various events with total scores given to three decimal places.

TABLE 5: RESULTS OF A GYMNASTICS COMPETITION

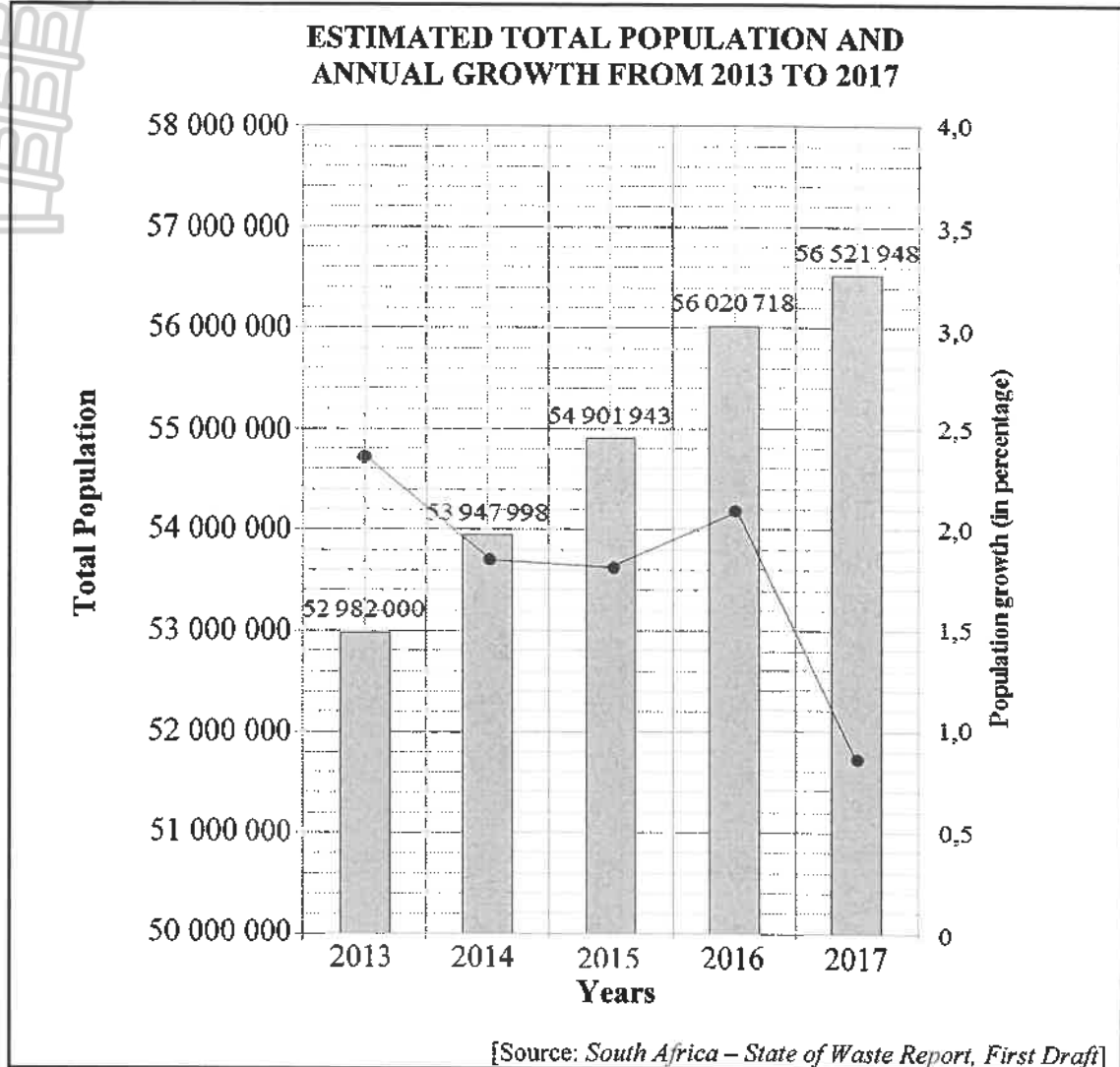
GYMNAST	TEAM	DIV.	EVENTS				TOTAL SCORE
			VAULT	BARS	BEAM	FLOOR	
G Gilliland	GTC	Senior A	9,550	9,100	9,400	9,625	37,675
H Radebe	Olympus	Junior B	9,450	9,250	8,900	9,400	37,000
L Gumede	Olympus	Junior A	9,475	9,300	8,700	9,500	36,975
S Rigby	TGA	Senior A	9,500	8,650	8,925	9,350	36,425
H Khumalo	GTC	Senior A	9,300	9,100	A	9,225	36,425
C Maile	Olympus	Junior A	8,950	9,050	9,025	9,375	36,400
M Stolp	GTC	Senior A	9,400	8,750	8,725	9,500	36,375
M McBride	GTC	Junior A	9,475	9,050	8,700	9,050	36,275
A Boom	TGA	Senior A	9,650	8,300	8,700	9,500	36,150
B Makhatini	Olympus	Junior B	9,350	9,200	9,150	9,350	37,050

[Adapted from www.meetscoresonline.com]

Use TABLE 5 to answer the questions that follow.

- 5.1.1 Identify the team that achieved the highest score for the vault event. (2)
- 5.1.2 Determine the range of G Gilliland's scores. (2)
- 5.1.3 Calculate the mean score for the bar event. (3)
- 5.1.4 Determine missing value A. (3)
- 5.1.5 Write down the modal score for the total points scored. (2)
- 5.1.6 Determine, as a percentage, the probability of selecting a gymnast in the Junior division with a total score of more than 36,970. (3)
- 5.1.7 Calculate the value of quartile 2 for the floor event. (3)

5.2 The graph below shows the estimated total population of South Africa and the annual population growth from 2013 to 2017.



5.2.1 Write down in words, and without the use of numbers, the population of South Africa in 2013. (2)

5.2.2 Determine, rounded to the nearest 10 000, the population increase from 2015 to 2016. (3)

5.2.3 Calculate the annual population growth (APG) for 2015. (3)

Use the following formula:

$$APG = \frac{\text{current population} - \text{previous population}}{\text{previous population}} \times 100\% \quad (3)$$

5.2.4 The ANSWER SHEET shows the bar graph for the estimated total population and annual growth from 2013 to 2017. (4)

If the 2018 population was 57 725 606 and the population growth was 2,13%, complete the graph for 2018 on the ANSWER SHEET. [30]

TOTAL: 150

ANSWER SHEET

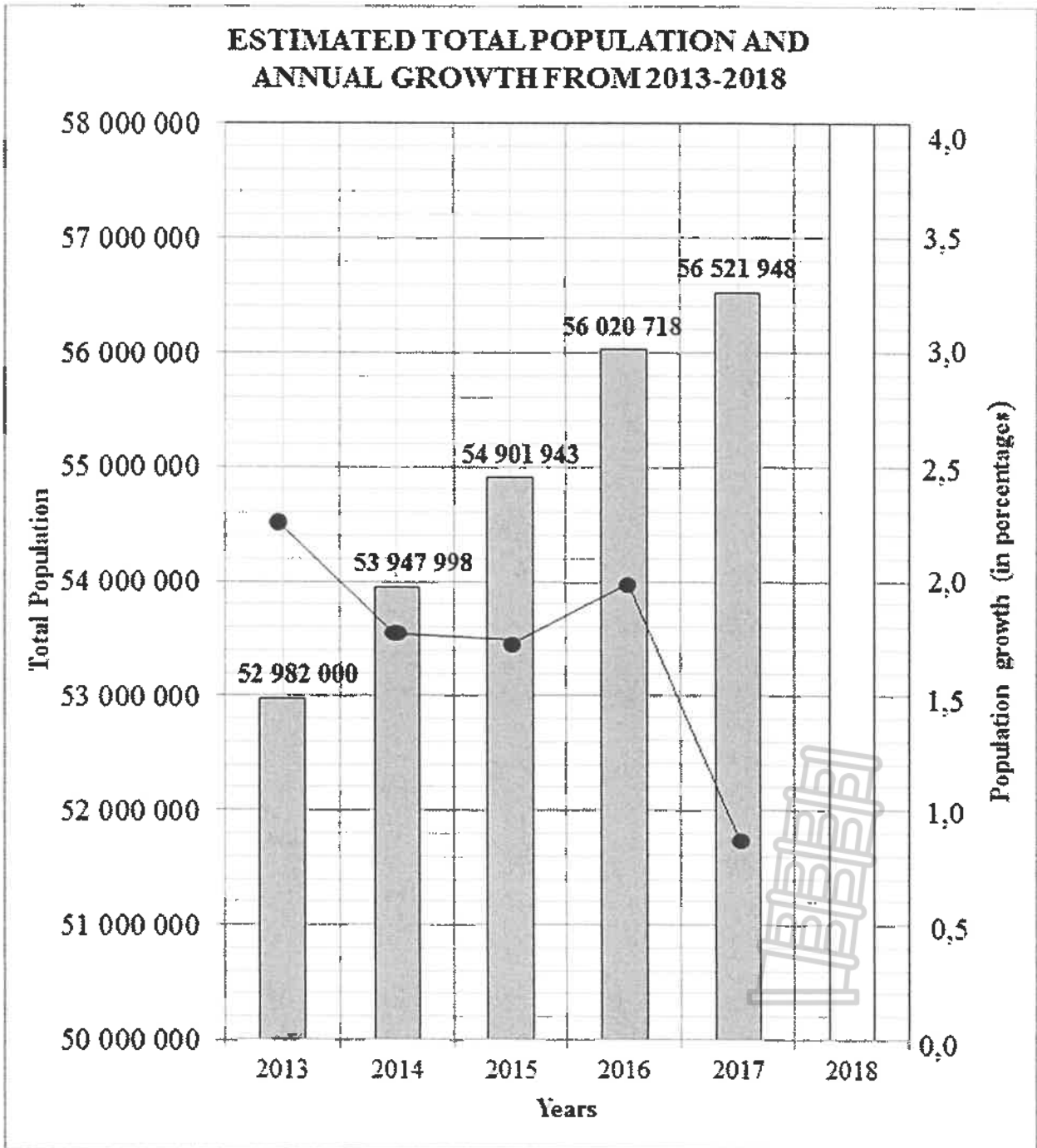
QUESTION 5.2.4

CENTRE NUMBER:

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EXAMINATION NUMBER:

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REPUBLIC OF SOUTH AFRICA

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GRADE 12

MATHEMATICAL LITERACY P1

ADDENDUM

NOVEMBER 2020

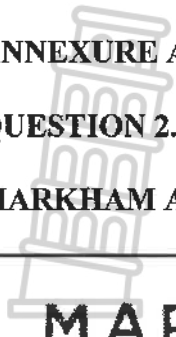
This addendum consists of 5 pages with 4 annexures.



ANNEXURE A


QUESTION 2.1

MARKHAM ACCOUNT STATEMENT OF D PETERSON




MARKHAM

ACCOUNT STATEMENT



MR D PETERSON
27 SECOND AVENUE
COLRIDGE
VRYBURG
8601

STATEMENT DATE: 15 JAN. 2019



**1 CARD, EXCLUSIVE OFFERS
OVER 20 RETAIL BRANDS**
Account customers are automatically
TFG REWARDS members.

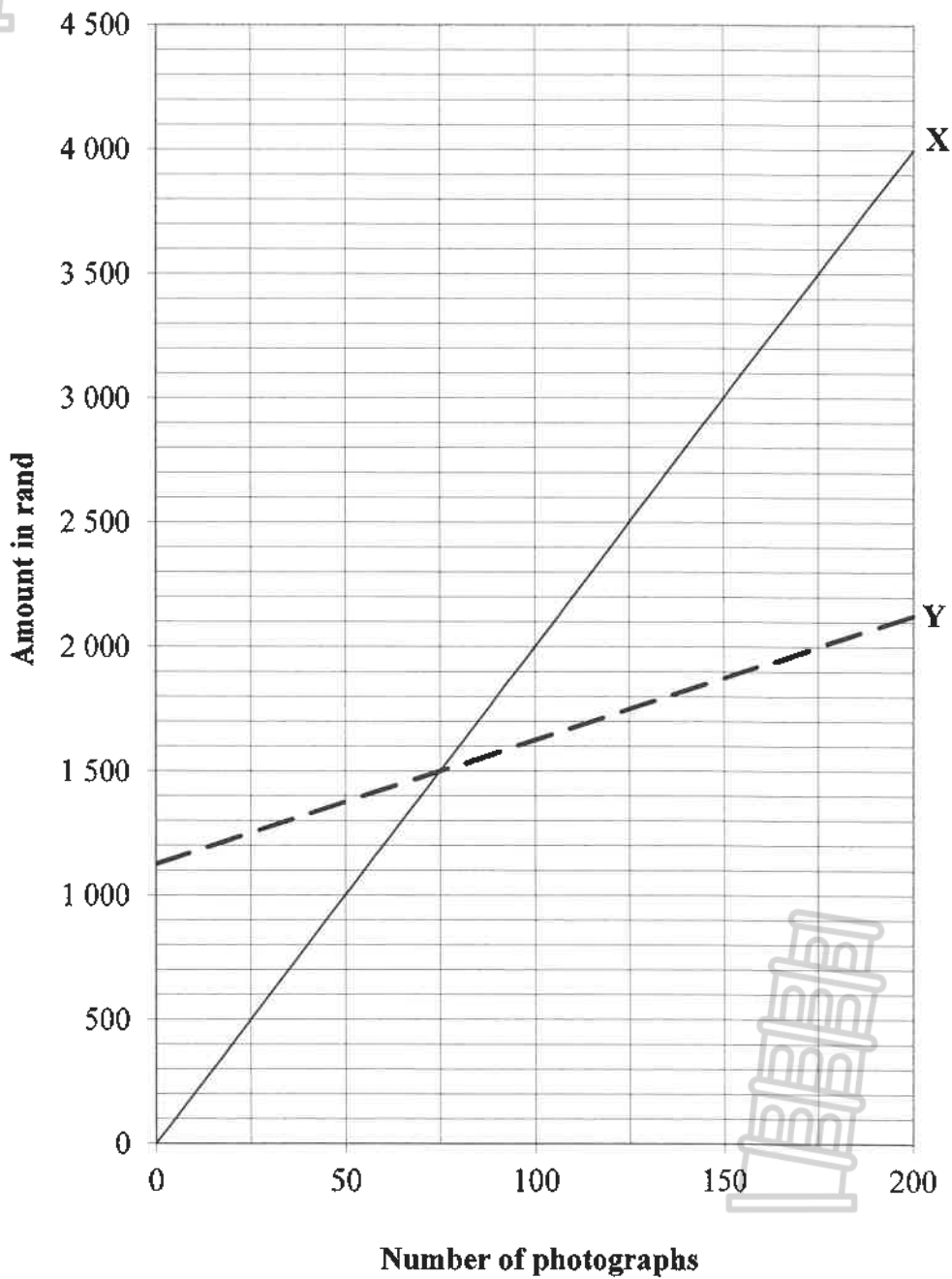
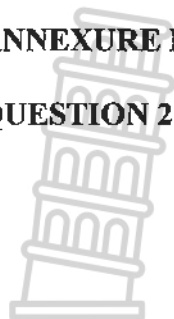
DATE	REFERENCE	DESCRIPTION	AMOUNT	
31 DEC.	6 months revolving	Opening balance	101,99	
	HO FNB electronic payment	Payment	101,99	CR
	Installment 0,00 due	Closing balance	0,00	
17 DEC.	12 months revolving	Opening balance	1 215,36	
	ASJ Zevenwacht Mall	Purchase	3 750,00	
	ASJ Zevenwacht Mall	Purchase	4 000,00	
19 DEC.	ASJ Zevenwacht Mall	Purchase returned	3 750,00	CR
31 DEC.	HO FNB electronic payment	Payment	698,01	CR
12 JAN.		My kitchen	26,70	
12 JAN.		Kids only	20,00	
12 JAN.		Interest	92,66	
	Installment 440,00 Due 38,37	Closing balance	4 656,71	

My current credit allocation	What can I spend?	What is my installment?	By how much am I in arrears?	What is my balance?
8 800,00	4 143,29	440,00	0,00	4 656,71
CURRENT	30 DAYS	60 DAYS	90 DAYS	TOTAL DUE (BY 1 ST)
38,37	0,00	0,00	0,00	38,37

[Adapted from a Markham's account]

ANNEXURE B

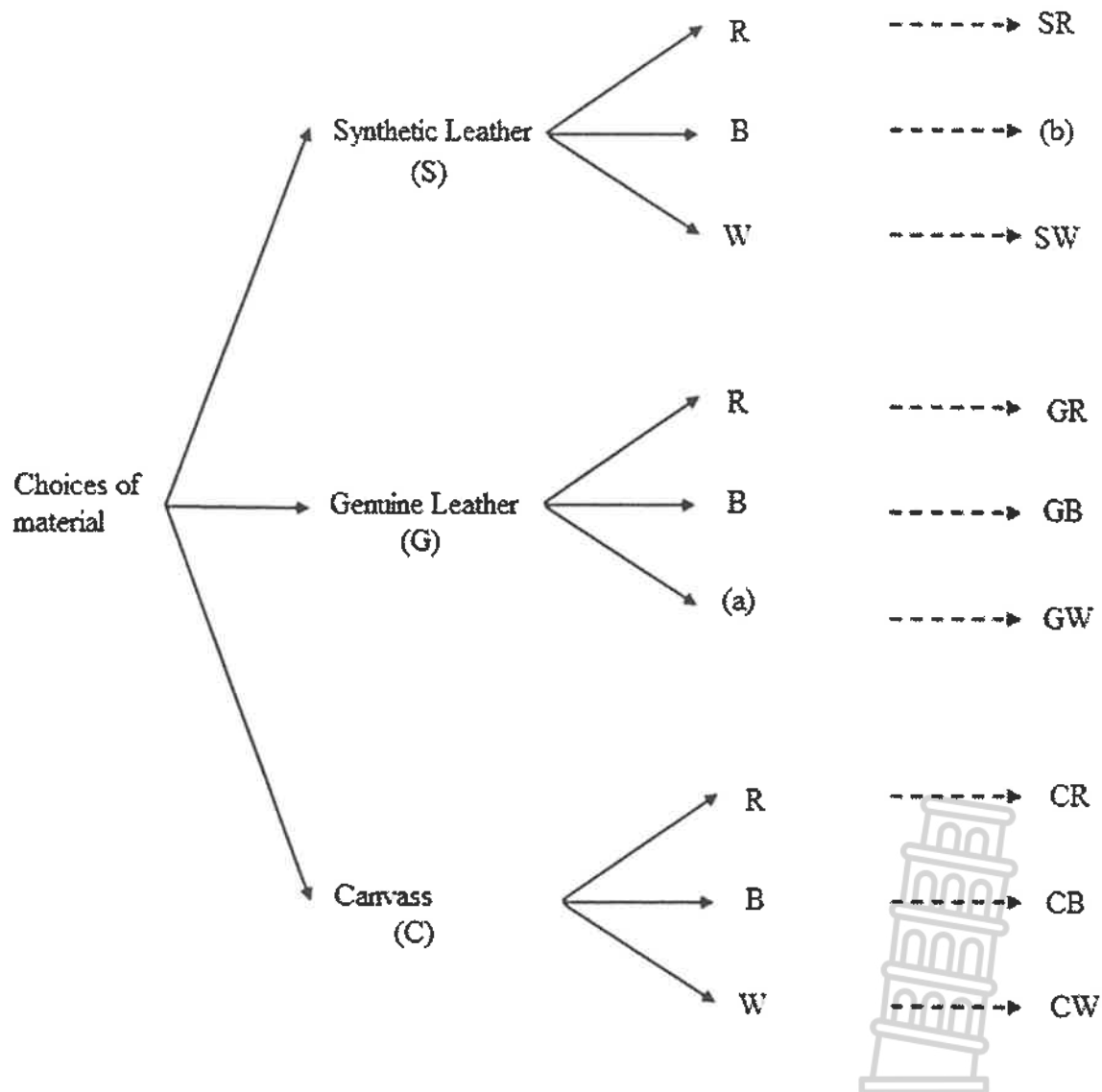
QUESTION 2.3.4



ANNEXURE C

TREE DIAGRAM OF DIFFERENT MATERIALS AVAILABLE

QUESTION 3.2

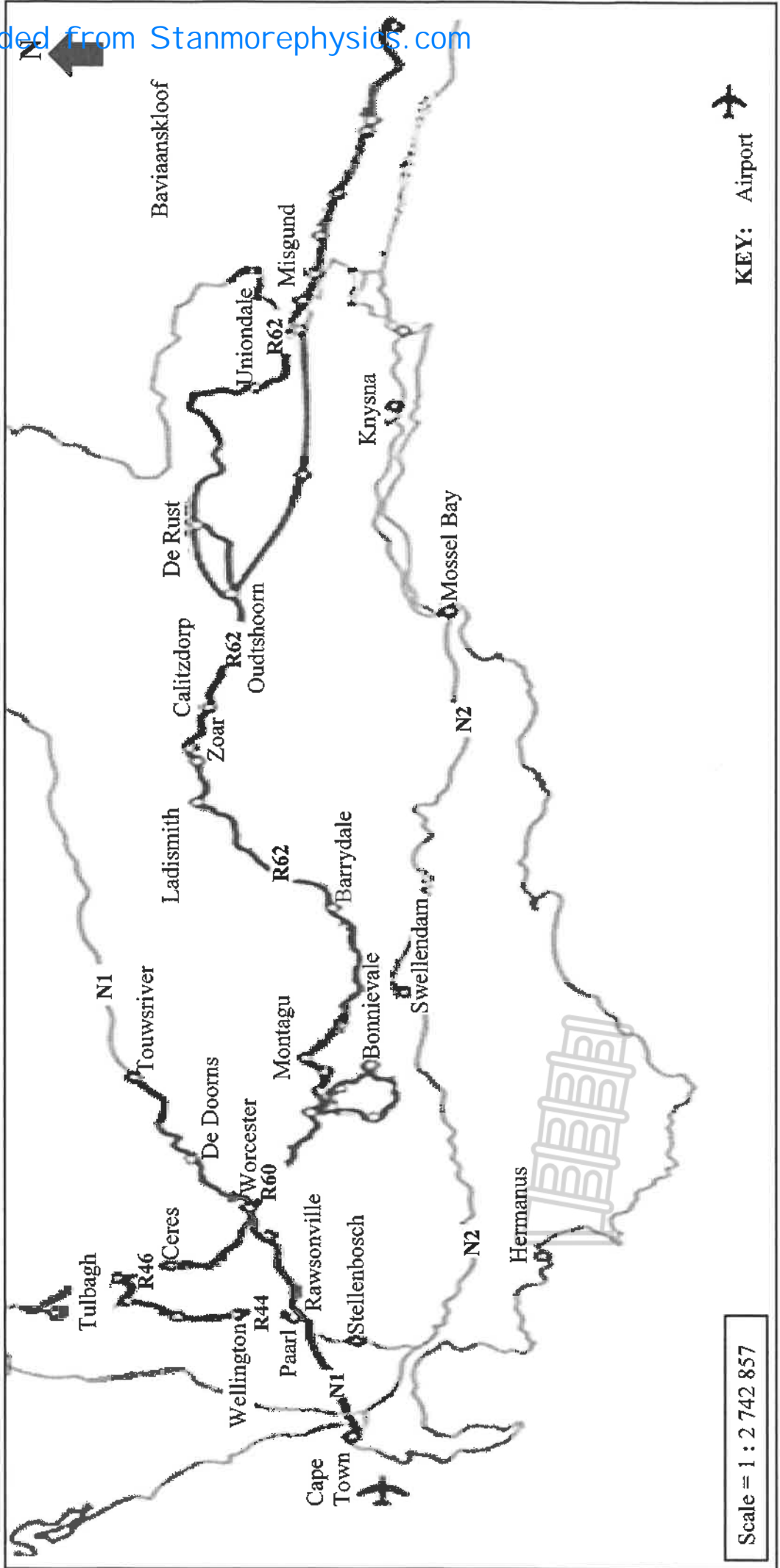




ANNEXURE D

QUESTION 4.1

ROUTE 62 ROAD MAP



Scale = 1 : 2 742 857

KEY:  Airport

[Adapted from www.routes62.co.za]



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**SENIOR CERTIFICATE/SENIOR SERTIFIKAAT
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NASIONALE SENIOR SERTIFIKAAT**

GRADE/GRAAD 12

**MATHEMATICAL LITERACY P1/
WISKUNDIGE GELETTERDHEID VI**

NOVEMBER 2020

MARKING GUIDELINES/NASIENRIGLYNE

MARKS/PUNTE: 150

Symbol/Kode	Explanation/Verduideliking
M	Method/ <i>Metode</i>
MA	Method with accuracy/ <i>Metode met akkuraatheid</i>
CA	Consistent accuracy/ <i>Volgehoue akkuraatheid</i>
A	Accuracy/ <i>Akkuraatheid</i>
C	Conversion/ <i>Herleiding</i>
S	Simplification/ <i>Vereenvoudiging</i>
RT	Reading from a table/graph/document/diagram/ <i>Lees vanaf tabel/grafiek/dokument/diagram</i>
SF	Correct substitution in a formula/ <i>Korrekte vervanging in 'n formule</i>
O	Opinion/Explanation/ <i>Opinie/Verduideliking</i>
P	Penalty, e.g. for no units, incorrect rounding off, etc./ <i>Penalisasie, bv. vir geen eenhede, verkeerde afronding, ens.</i>
R	Rounding off/ <i>Afronding</i>
NPR	No penalty for rounding/ <i>Geen penalisasie vir afronding nie</i>
AO	Answer only/ <i>Slegs antwoord</i>
MCA	Method with consistent accuracy/ <i>Metode met volgehoue akkuraatheid</i>
RCA	Rounding consistent with accuracy/ <i>Afronding met volgehoue akkuraatheid</i>

**This marking guideline consists of 17 pages.
Hierdie nasienriglyne bestaan uit 17 bladsy.**

NOTE:

- If a candidate answers a question TWICE, only mark the FIRST attempt.
- If a candidate has crossed out (cancelled) an attempt to a question and NOT redone the solution, mark the crossed out (cancelled) version.
- Consistent accuracy (CA) applies in ALL aspects of the marking guidelines; however it stops at the second calculation error.
- CA marks only apply if at least 1 correct value is used.
- If the candidate presents any extra solution when reading from a graph, table, layout plan and map, then penalise for every extra item presented.

LET WEL:

- As 'n kandidaat 'n vraag TWEE KEER beantwoord, sien slegs die EERSTE poging na.
- As 'n kandidaat 'n antwoord van 'n vraag doodtrek (kanselleer) en nie oordoen nie, sien die doodgetrekte (gekanselleerde) poging na.
- Volgehoue akkuraatheid (CA) word in ALLE aspekte van die nasienriglyne toegepas, dit hou op by die tweede berekeningsfout.
- CA geld alleenlik wanneer ten minste 1 korrekte waarde gebruik is.
- Wanneer 'n kandidaat aflesings vanaf 'n grafiek, tabel, uitlegplan en kaart geneem en ekstra antwoorde gee, penaliseer vir elke ekstra item.

QUESTION/VRAAG 1 [30 MARKS/PUNTE] ANSWER ONLY FULL MARKS			
Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
1.1.1	Vertical bar graph/Vertikale staafgrafiek. Bar/Balk/Staaf, Column graph/Kolomgrafiek ✓✓A	2A bar graph (2)	D L1
1.1.2	✓MA A = R110 + R11 = R121 ✓CA	1MA adding correct values 1CA Simplification (2)	F L1
1.1.3	✓MA B = R141 – R126 = R15 ✓CA	1MA subtracting correct values 1CA simplification (2)	F L1
1.1.4	Difference/Verskil R126 – R110 ✓MA = R16 ✓A	1MA subtract lowest from highest 1A simplification (2)	F L1
1.1.5	Increased Delivery fee/Verhoogde afleweringsooi = R10,00 × 6,32% ✓MA = R0,632 = R0,63 ✓A OR/OF = R10,00 × $\frac{6,32}{100}$ ✓M = R0,632 = R0,63 ✓A OR/OF	1MA calculating percentage 1A simplification OR/OF	F L1

Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
1.1.5	Increased delivery fee/ <i>Verhoogde afleweringse koste</i> $= R10 \times 1,0632 \checkmark MA$ $= R10,632$ Increase in delivery fee/ <i>Verhooging in afleweringse koste</i> $= R10,63 - R10,00$ $= R0,63 \checkmark A$	1MA calculating percentage 1A simplification (2)	
1.2.1	2008 $\checkmark \checkmark RT$	2RT reading correct year (2)	D L1
1.2.2	$\checkmark MA \checkmark RT$ Difference/ <i>Verskil</i> = $R11,04 - R4,31$ $= R6,73 \checkmark CA$	1MA subtracting correct values 1RT correct values 1CA simplification (3)	F L1
1.2.3	$\checkmark MA$ $5,56 : 12,48 \checkmark RT$ $1 : 2,24 \text{ OR/OF } 0,45 : 1 \checkmark CA$	1MA concept of ratio in correct order 1RT correct values 1CA simplification (3)	F L1
1.2.4	Total/ <i>Totaal</i> = $13,45 \times R4,00 \checkmark MA$ $= R53,80 \checkmark CA$ OR/OF $R : \text{€}$ $4 : 1 \checkmark MA$ $53,80 : 13,45$ Total cost = $R53,80 \checkmark CA$	1MA multiplying correct values 1CA simplification (2)	F L1
1.2.5	2007 $\checkmark \checkmark RT$	2RT reading correct year (2)	D L1

Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
1.3.1	$\checkmark A$ $\checkmark A$ Strip Map (Chart)/Strookkaart $\checkmark\checkmark A$	2A strip map (chart) (2)	MP L1
1.3.2	Distance in metre/Afstand in meter $= 779 \times 1\,000$ $\checkmark MA$ $= 779\,000$ $\checkmark A$	1MA multiplying by 1 000 1A simplifying NPU (2)	M L1
1.3.3 (a)	$\checkmark A$ $\checkmark A$ Ladismith AND/EN Calitzdorp	1A correct town 1A correct town (2)	MP L1
1.3.3 (b)	The distance from Riversdale to Oudtshoorn/ <i>Afstand vanaf Riversdal na Oudtshoorn</i> $= 82\text{ km} + 45\text{ km} + 53\text{ km}$ $\checkmark MA$ $= 180\text{ km}$ $\checkmark CA$	1MA adding correct values 1CA simplification (2)	MP L1
		[30]	



QUESTION/VRAAG 2 [42 MARKS/PUNTE]			
Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
2.1.1	R4 656,71 ✓✓A	2A correct balance (2)	F L1
2.1.2	Full date/Volle datum 1 February/Februarie 2019 ✓✓A 01/02/19 01/02/2019	2A full date (2)	F L1
2.1.3	R1 215,36 ✓✓A	2A correct amount (2)	F L1
2.1.4	R3 750,00 ✓✓A	2A correct amount (2)	F L1
2.1.5	FNB electronic payments/ENB elektroniese betaling ✓RT ✓RT R101,99 + R698,01 = R800,00 ✓A	1RT 1 st value correct 1RT 2 nd value correct 1A simplification AO (3)	F L1
2.1.6	Price excluding VAT/Prys BTW uitgesluit ✓RT = R4 000,00 × $\frac{100}{115}$ ✓MA = R3 478,26 ✓CA OR/OF Price excluding VAT/Prys BTW uitgesluit ✓RT $\frac{R4000}{1,15}$ ✓MA = R3 478,26 ✓CA OR/OF VAT amount/BTW bedrag = $R4000,00 \times \frac{15}{115}$ ✓MA = R521,74 Price excluding VAT/Prys BTW uitgesluit = R4 000 – R521,74 = R3 478,26 ✓CA	1RT price of item 1MA calculating VAT 1CA price excluding VAT AO (3)	F L2

Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
2.3.1	Selling price of one photo/ <i>Verkoopprijs van een foto</i> \checkmark MA $\frac{R500}{25}$ OR $\frac{R1000}{50}$ OR $\frac{R1600}{80}$ OR $\frac{R2500}{125}$ OR $\frac{R3000}{150}$ $= R20 \checkmark$ A OR/OF $R4\ 000 \div 200 \checkmark$ MA $= R20 \checkmark$ A	1MA dividing 1A simplification AO (2)	F L1
2.3.2	Total income received/ <i>Totale inkomste ontvang:</i> \checkmark CA \checkmark A Income = $R20,00 \times n$, where n = number of photos Income = $R20,00 \times$ number of photos <i>Inkomste = $R20,00 \times n$, waar n = aantal foto's</i> <i>Inkomste = $R20,00 \times$ aantal foto's</i>	CA from Question 2.3.1 1CA $R20,00$ 1A multiply by unknown (2)	F L2
2.3.3 (a)	$R5,00 \checkmark\checkmark$ A	2A variable cost NPU (2)	F L1
2.3.3 (b)	A : Expenses = $R1\ 125 +$ number of photos $\times R5,00$ A : <i>Uitgawes = $R1\ 125 +$ aantal foto's $\times R5,00$</i> \checkmark SF $A = R1\ 125 + (80 \times R5,00)$ $A = R1\ 125 + R400 \checkmark$ MCA $= R1\ 525 \checkmark$ CA	1SF substituting value 1MCA adding values 1CA simplification AO (3)	F L2
2.3.4 (a)	$\checkmark\checkmark$ A Income and expenses of Ella's photography business <i>Inkomste en uitgawes van Ella se fotografiebesigheid</i>	2A correct heading (2)	F L1
2.3.4 (b)	$X \checkmark\checkmark$ A	2A correct graph (2)	F L1
2.3.4 (c)	75 photographs/ <i>foto's</i> $\checkmark\checkmark$ A	2A correct number of photographs (2)	F L1
		[42]	



QUESTION/VRAAG 3 [31 MARKS/PUNTE]			
Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
3.1.1	<p><u>Legs of ottomans/Pote van ottomans:</u></p> <p>2 cubic/kubieke ottomans × 4 legs/pote = 8 legs/pote ✓A</p> <p>1 retangular/reghoekige ottoman × 6 legs/pote = 6 legs/pote</p> <p>8 + 6 ✓MA = 14 legs/pote ✓CA</p>	<p>1A number of legs</p> <p>1MA adding 6 legs 1CA total number of legs AO</p> <p>(3)</p>	M L1
3.1.2	<p>Radius = $\frac{75 \text{ mm}}{2}$ ✓MA = 37,5 mm / 3,75 cm ✓A</p>	<p>1MA concept of radius</p> <p>1A simplification AO NPR</p> <p>(2)</p>	M L1
3.1.3	<p>Total height/Totale hoogte:</p> <p>50 cm + 12 cm ✓C = 62cm ✓A</p> <p style="text-align: center;">OR/OF</p> <p>Total height/Totale hoogte:</p> <p>= 120 mm + 500 mm = 620 mm ✓A = 62 cm ✓C</p>	<p>1C converting to cm 1A finding the height</p> <p>AO</p> <p>(2)</p>	M L1




Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
M L2	<p>Area/Oppervlakte</p> <p> $(50\text{cm} \times 50\text{cm}) + (120\text{cm} \times 50\text{cm})$ $2\ 500\ \text{cm}^2 + 6\ 000\ \text{cm}^2$ </p> <p>Total Area/Totale Oppervlakte</p> <p> $(10 \times 2\ 500\ \text{cm}^2) + (2 \times 6\ 000\ \text{cm}^2)$ ✓M $25\ 000\ \text{cm}^2 + 12\ 000\ \text{cm}^2$ ✓M $37\ 000\ \text{cm}^2$ ✓CA </p> <p style="text-align: center;">OR/OF</p> <p>8 square sides/vierkantige sye $\times (50 \times 50)$ $= 20\ 000\ \text{cm}^2$ ✓A</p> <p>2 rectangular sides/reghoekige sye $\times (120 \times 50)$ $= 12\ 000\ \text{cm}^2$ ✓A</p> <p>2 square sides / vierkantige sye $\times (50 \times 50)$ $= 5\ 000\ \text{cm}^2$ ✓A</p> <p>Total area to be painted/Totale area wat geverf moet word: $= 20\ 000\ \text{cm}^2 + 12\ 000\ \text{cm}^2 + 5\ 000\ \text{cm}^2$ ✓M $= 37\ 000\ \text{cm}^2$ ✓MA </p> <p style="text-align: center;">OR/OF</p> <p>Total perimeter/Totale Omtrek</p> <p> $= (50+50+50+50+50+50+50+50+120 +50+50+120)$ cm $= 740\ \text{cm}$ ✓A </p> <p>Total area to be painted/Totale area wat geverf moet word: $= 740\ \text{cm} \times 50\ \text{cm}$ ✓MA $= 37\ 000\ \text{cm}^2$ ✓A </p>	<p>1A area 1A area</p> <p>1M multiplying correct values 1M adding the two areas 1CA simplification</p> <p style="text-align: center;">OR/OF</p> <p>1A simplification</p> <p>1A simplification</p> <p>1A simplification</p> <p>1M adding all values 1MA finding total area</p> <p style="text-align: center;">OR/OF</p> <p>1A all correct values 1M adding correct values 1A simplification</p> <p>1MA multiplying correct values 1A simplification</p>	<p style="text-align: right;">(5)</p>

Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
3.1.5	<p> $37\ 000\ \text{cm}^2 \div 10\ 000 = 3,7\ \text{m}^2 \checkmark\text{C}$ Total area to be painted/<i>Totale area wat geverf moet word</i> $= 3,7\ \text{m}^2 \times 2 \checkmark\text{M}$ $= 7,4\ \text{m}^2$ Spread rate/<i>sprydingskoers</i> $\frac{7,4\ \text{m}^2}{8\ \text{m}^2} \times 1\ 000 \checkmark\text{M}$ $= 925\ \text{millilitres/milliliter} \checkmark\text{CA}$ </p> <p style="text-align: center;">OR/OF</p> <p> Spread rate/<i>sprydingskoers</i> = $8 \times 10\ 000\ \text{cm}^2/\ell$ $= 80\ 000\ \text{cm}^2/\ell \checkmark\text{M}$ Amount of paint / <i>aantal verf in ℓ</i> = $\frac{37\ 000}{80\ 000} \checkmark\text{M}$ $= 0,4625$ Amount of paint for 1 coat / <i>aantal verf vir 1 deklaag in mℓ</i> $= 0,4625 \times 1\ 000$ $= 462,5 \checkmark\text{C}$ Amount of paint for 2 coats/ <i>aantal verf vir twee deklae</i> $= 462,5\ \text{mℓ} \times 2$ $= 925\ \text{mℓ} \checkmark\text{CA}$ </p> <p style="text-align: center;">OR/OF</p> <p> Total area to be painted/<i>Totale area wat geverf moet word:</i> $= 37\ 000\ \text{cm}^2 \div (100)^2 = 3,7\ \text{m}^2 \checkmark\text{C}$ Amount of paint for 1 coat/ <i>aantal ver vir 1 deklaag in ℓ</i> $= \frac{3,7}{8} \times 1 \checkmark\text{M}$ $= 0,4625\ \ell$ Total amount of paint/<i>Totale aantal verfl</i> $= 0,4625 \times 1000 \times 2 \checkmark\text{M}$ $= 925\ \text{mℓ} \checkmark\text{CA}$ </p> <p style="text-align: center;">OR/OF</p>	<p>CA Question 3.1.4</p> <p>1C converting from cm^2 to m^2</p> <p>1M area for 2 coats</p> <p>1M divide by spread rate</p> <p>1CA answer in millilitres</p> <p style="text-align: center;">OR/OF</p> <p>1M multiplying by 8</p> <p>1M dividing by 80 000</p> <p>1C converting</p> <p>1CA simplification</p> <p style="text-align: center;">OR/OF</p> <p>1C conversion</p> <p>1M dividing by 8</p> <p>1M area of 2 coats</p> <p>1CA simplification</p> <p style="text-align: center;">OR/OF</p>	<p>M</p> <p>L2</p>

Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
	<p> $8 \text{ m}^2 : 1 \ell$ $80\,000 \text{ cm}^2 : x \quad \checkmark\text{C}$ </p> <p>Amount of paint for 1 coat/ <i>aantal verf vir 1 deklaag</i></p> $x = \frac{1000 \times 37\,000}{80\,000} \quad \checkmark\text{M}$ <p>= 462,5 ml</p> <p>Amount of paint for 2 coats/ <i>aantal verf vir twee deklae</i></p> <p>= 462,5 ml $\times 2 \quad \checkmark\text{M}$</p> <p>= 925 ml $\checkmark\text{CA}$</p> <p style="text-align: center;">OR/OF</p> <p>Total area to be painted/ <i>Totale area wat geverf moet word</i></p> <p>= 37 000 \div 10 000 $\checkmark\text{C}$</p> <p>= 3,7 m² $\times 2 \quad \checkmark\text{M}$</p> <p>= 7,4 m²</p> <p>Spread rate/ <i>sprydingskoers</i> in ml/ ℓ</p> <p>1 000 \div 8 $\checkmark\text{M}$</p> <p>= 125 ml/ ℓ</p> <p>Amount of paint/ <i>aantal verf</i></p> <p>125 \times 7,4 m²</p> <p>= 925 ml $\checkmark\text{CA}$</p>	<p>1C conversion</p> <p>1M dividing by 80 000</p> <p>1M area of 2 coats 1CA simplification</p> <p style="text-align: center;">OR/OF</p> <p>1C conversion 1M area of 2 coats</p> <p>1M dividing by 8</p> <p>1CA simplification</p> <p style="text-align: right;">(4)</p>	
3.1.6	<p> Height/Hoogte = $\frac{\text{Volume}}{\pi \times (\text{radius})^2}$ $\checkmark\text{C}$ $= \frac{1\,000 \text{ cm}^3}{3,142 \times (6,5 \text{ cm})^2} \quad \checkmark\text{SF}$ $= 7,53298 \dots \text{ cm} \quad \checkmark\text{CA}$ </p>	<p>1C conversion from litres to cm³</p> <p>1SF substitution of radius</p> <p>1CA simplification</p> <p>NPR</p> <p style="text-align: right;">(3)</p>	M L2
3.2.1	<p>a) W or White/<i>Wit</i> $\checkmark\checkmark\text{RT}$</p> <p>b) SB or Synthetic Brown leather/<i>Sintetiese bruin leer</i> $\checkmark\checkmark\text{RT}$</p>	<p>2RT correct code</p> <p>2RT correct code</p> <p style="text-align: right;">(4)</p>	P L1

Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
3.2.2	 $P(\text{not selecting red material}) = \frac{6}{9} \checkmark A$ $= \frac{2}{3} \checkmark CA$ <p style="text-align: center;">OR/OF</p> $P(\text{not selecting red material}) = 1 - \frac{3}{9}$ $= \frac{6}{9} \checkmark A$ $= \frac{2}{3} \checkmark CA$	<p>1A numerator 1A denominator 1CA simplification</p> <p style="text-align: right;">(3)</p>	P L2
3.3.1	$1 \text{ inch} = 153,6 \div 60 \checkmark M$ $= 2,56 \text{ cm} \checkmark A$ <p style="text-align: center;">OR/OF</p> <p>Alternative solution method:</p> $\begin{array}{l} \text{inch} : \text{cm} \\ 60 : 153,6 \checkmark M \\ 1 : 2,56 \checkmark A \end{array}$ $1 \text{ inch} = 2,56 \text{ cm}$	<p>1M dividing by 60 1A simplification</p> <p style="text-align: right;">(2)</p>	M L1
3.3.2	$\begin{array}{l} \checkmark RT \\ \text{Perimeter/Omtrek} = 2 \times (5 \text{ m} + 153,6 \text{ cm}) \\ \checkmark C \\ = 2 \times (500 \text{ cm} + 153,6 \text{ cm}) \\ = 1\,307,2 \text{ cm} \checkmark CA \end{array}$ <p style="text-align: center;">OR/OF</p> $\begin{array}{l} \checkmark RT \\ \text{Perimeter/Omtrek} = 5 \text{ m} + 5 \text{ m} + 153,6 \text{ cm} + 153,6 \text{ cm} \\ \checkmark C \\ = (500 + 500 + 153,6 + 153,6) \text{ cm} \\ = 1\,307,2 \text{ cm} \checkmark CA \end{array}$	 <p>1RT correct value – 153,6 cm 1C converting from 5 m to cm</p> <p>1CA simplification</p> <p style="text-align: center;">OR/OF</p> <p>1RT correct value – 153,6 cm 1C converting from 5 m to cm</p> <p>1CA simplification</p> <p style="text-align: right;">(3)</p>	M L2
		[31]	

QUESTION/VRAAG 4 [17 MARKS/PUNTE]			
Q/V	Solution/Oplossing	Explanation/Verduideliking	T&L
4.1.1	R46 ✓✓A	2A name of route (2)	MP L1
4.1.2	Number scale OR Numeric scale OR Ratio scale <i>Nommerskaal OF verhoudingskaal OF Getalskaal OF</i> Numeriese OF Getalle Skaal OF Syferskaal ✓✓ A	2A identifying the scale (2)	MP L1
4.1.3	South West OR SW OR West of South West OR WSW <i>Suidwes OF SW OF Wes van Suidwes OF WSW</i> ✓✓ A	2A general direction (2)	MP L1
4.1.4	A = 210 km – (62 km + 13 km + 82 km) ✓MA A = 53 km ✓CA	1MA subtracting correct values 1CA simplification (2)	MP L1
4.1.5	Ladismith ✓✓A	2A correct town (2)	MP L2
4.2.1	Total length / <i>Totale lengte</i> ✓MA ✓MA = 20 cm + 229 cm + 20 cm + 20 cm + 229 cm + 20 cm = 538 cm ✓CA OR/OF Total length / <i>Totale lengte</i> ✓MA ✓MA 2 (20 cm + 229 cm + 20 cm) 2 × 269 cm = 538 cm ✓CA OR/OF Total length/ <i>Totale lengte</i> ✓MA ✓MA = (20 cm × 4) + (229 cm × 2) = 80 cm + 458 cm = 538 cm ✓CA	1MA correct values (4×20) 1MA adding values (2×229) 1CA simplification OR/OF 1MA correct values (4×20) 1MA adding values (2×229) 1CA simplification OR / OF 1MA correct values (4×20) 1MA adding values (2×229) 1CA simplification (3)	MP L2

Q/V	Solution/Oplossing	Explanation/Verduideliking	T&L
4.2.2	 $D + 86 + 80 + 86 + D = 260 \checkmark\text{MA}$ $2D + 252 = 260 \checkmark\text{M}$ $2D = 260 - 252$ $2D = 8$ $D = 8 \div 2 \checkmark\text{M}$ $= 4 \text{ cm } \checkmark\text{CA}$ <p style="text-align: center;">OR/OF</p> <p>Length excluding D</p> $= (86 \text{ cm} \times 2) + (20 \text{ cm} \times 4)$ $= 172 \text{ cm} + 80 \text{ cm}$ $= 252 \text{ cm } \checkmark\text{MA}$ $\checkmark\text{M}$ $2D = 260 \text{ cm} - 252 \text{ cm}$ $D = 8 \text{ cm } \checkmark\text{M}$ $= 8 \text{ cm} \div 2$ $= 4 \text{ cm } \checkmark\text{CA}$	<p>1MA adding all values</p> <p>1M subtracting from 260</p> <p>1M dividing by 2</p> <p>1CA simplification</p> <p style="text-align: center;">OR/OF</p> <p>1MA calculating 252</p> <p>1M subtracting from 260</p> <p>1M dividing by 2</p> <p>1CA simplification</p> <p style="text-align: right;">(4)</p>	<p>MP</p> <p>L3</p>
			[17]



QUESTION/VRAAG 5 [30 MARKS/PUNTE]			
Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
5.1.1	TGA – team/span ✓✓RT	2RT correct tea (2)	D L1
5.1.2	Range/Omvang = 9,625 – 9,100 ✓RT = 0,525 ✓CA	1RT reading correct values 1CA concept of range (2)	D L1
5.1.3	Mean/Gemiddeld ✓RT = $\frac{9,100 + 9,250 + 9,300 + 8,650 + 9,100 + 9,050 + 8,750 + 9,050 + 8,300 + 9,200}{10}$ ✓M = 8,975 ✓CA	1RT correct values 1M concept of mean 1CA simplification NPR (3)	D L2
5.1.4	✓RT $A = 36,425 - (9,300 + 9,100 + 9,225)$ ✓M = 8,800 ✓A	1RT correct values 1M adding and subtracting 1A simplification (3)	D L1
5.1.5	36,425 ✓✓A	2A correct mode (2)	D L1
5.1.6	✓A $\frac{3}{5} \times 100\%$ ✓A = 60% ✓CA	1A numerator 1A denominator 1CA percentage NPR (3)	P L2
5.1.7	Quartile / Kwartiel 2 ✓RT = $\frac{9,375 + 9,400}{2}$ ✓M = 9,3875 ✓A	1RT arranging or correct values 1M dividing by 2 1A simplification NPR (3)	D L2

Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
5.2.1	Fifty two million nine hundred and eighty two thousand. ✓✓A <i>Twee en vyftig miljoen negehonderd twee en tagtig duisend.</i>	2A amount in words (2)	D L1
5.2.2	Increase in population/ <i>Toename in bevolking(2015-2016)</i> ✓RT ✓M $56\,020\,718 - 54\,901\,943$ $= 1\,118\,775$ $\approx 1\,120\,000$ ✓R	1RT correct values 1M subtracting 1R correct rounding (3)	D L1
5.2.3	Annual population growth/ <i>Jaarlikse bevolkingstoename(2015)</i> $= \frac{54\,901\,943 - 53\,947\,998}{53\,947\,998} \times 100\%$ ✓SF $= 1,768\%$ $\approx 1,8\%$ ✓CA	1SF substituting 54 901 943 1SF substituting 53 947 998 1CA simplification NPR (3)	D L2



Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L																					
5.2.4	<p style="text-align: center;">Estimated total population and annual growth from 2013-2017</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <caption>Estimated total population and annual growth from 2013-2017</caption> <thead> <tr> <th>Year</th> <th>Number of people</th> <th>Population growth (in percentage)</th> </tr> </thead> <tbody> <tr> <td>2013</td> <td>52 982 000</td> <td>~1.8</td> </tr> <tr> <td>2014</td> <td>53 947 998</td> <td>~1.8</td> </tr> <tr> <td>2015</td> <td>54 901 943</td> <td>~1.8</td> </tr> <tr> <td>2016</td> <td>56 020 718</td> <td>~2.1</td> </tr> <tr> <td>2017</td> <td>56 521 948</td> <td>~1.0</td> </tr> <tr> <td>2018</td> <td>57 725 606</td> <td>~2.1</td> </tr> </tbody> </table>		Year	Number of people	Population growth (in percentage)	2013	52 982 000	~1.8	2014	53 947 998	~1.8	2015	54 901 943	~1.8	2016	56 020 718	~2.1	2017	56 521 948	~1.0	2018	57 725 606	~2.1	D L2
Year	Number of people	Population growth (in percentage)																						
2013	52 982 000	~1.8																						
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2016	56 020 718	~2.1																						
2017	56 521 948	~1.0																						
2018	57 725 606	~2.1																						
<p>1A – correctly plotted number of people 1CA – drawing of graph 1A – correctly plotted population growth 1CA – drawing of graph</p>																								
(4)																								
[30]																								
TOTAL/TOTAAL: 150																								