



Province of the
EASTERN CAPE
EDUCATION

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

SEPTEMBER 2015

MATHEMATICAL LITERACY P1

MARKS: 150

TIME: 3 hours



This question paper consists of 16 pages, including 1 answer sheet
and 2 annexures.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of FIVE questions. Answer ALL the questions.
2. Number the questions correctly according to the numbering system used in this question paper.
3. Start each question on a NEW page.
4. Answer QUESTION 4.1.5 on the attached ANSWER SHEET. Hand in the ANSWER SHEET with your ANSWER BOOK.
5. A non-programmable and non-graphical calculator may be used, unless stated otherwise.
6. Show all the calculations clearly.
7. Round off ALL the 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 Mr and Mrs Tana, a newly married couple are about to buy their first home through BNT Bank. They find a property they like at a price of R1 250 000 (ignore transfer costs and lawyer’s fees). Mr Tana was given 20% by his parents as a deposit. BNT Bank granted them a home loan on the balance.



Table 1: Bond repayment factors

Bond Repayment Factors						
Interest (%) rate ↓	YEARS					
	5	10	15	20	25	30
10,00	21,25	13,22	10,75	9,65	9,09	8,78
10,25	21,37	13,35	10,90	9,82	9,26	8,96
10,5	21,49	13,49	11,05	9,98	9,44	9,15
10,75	21,62	13,63	11,21	10,15	9,62	9,33
11,00	21,74	13,78	11,37	10,32	9,80	9,52
11,25	21,87	13,92	11,52	10,49	9,98	9,71
11,50	21,99	14,06	11,68	10,66	10,16	9,90

[Source: www.mortgagemax.co.za]

Use the supplied information and table above to answer the following questions.

- 1.1.1 Identify the number of years they will pay back the bond from BNT Bank if the repayment factor is 10,32 and the interest rate is 11%. (2)
- 1.1.2 Calculate the total amount they need to borrow from the bank. (4)

- 1.1.3 Using the table and information above, work out their monthly repayment.

You may use the following formula:

$$\text{Monthly repayment} = \frac{\text{bond amount} \times \text{bond repayment factor}}{1\ 000} \quad (3)$$

- 1.1.4 Calculate the total amount they will have paid at the end of the term, excluding lawyers' fees and transfer costs. (3)

- 1.1.5 Calculate the total interest paid on their home loan from BNT Bank. (2)

- 1.2 Mr Tana, a 42-year-old man works for the local Municipality and earns an annual salary of R476 012,28. His deductions are as follows;

PAYE: -----

Pension Fund : R2 975,08

Gymnasium : R129,42

Insurance policies : R585,00

Use the tax table below and answer the questions that follow:

Table 2: Tax table for 2015/2016

INCOME TAX: Individual and trusts	
Tax rates (year of assessment ending 29 February 2016)	
Taxable Income (R)	Rate(s) of Tax
0 – 181 900	18% of taxable income
181 901 – 284 100	32 742 + 26% of each R above 181 900
284 101 – 393 200	59 314 + 31% of each R above 284 100
393 201 – 550 100	93 135 + 36% of each R above 393 200
550 101 – 701 300	149 619 + 39% of each R above 550 100
701 301 +	208 587 + 41% of each R above 701 300

Tax rebates and tax thresholds:

Rebates

Primary rebate (taxpayers under 65) : R13 257

Secondary (Persons 65 and older) : R7 407

Tertiary (Persons 75 and older) : R2 466

Age	Tax Threshold
Below age 65	R73 650
Age 65 to below 75	R114 800
Age 75 and over	R128 500

[Source: www.sars.gov.za]

- 1.2.1 Determine the number of tax brackets available in the tax table above. (2)

- 1.2.2 Calculate Mr Tana's monthly gross salary. (2)

- 1.2.3 Using the tax tables, calculate the total monthly tax that will be deducted from Mr Tana's salary. (5)
- 1.2.4 Calculate Mr Tana's contribution towards Pension Fund as a percentage of his gross salary. (2)
- 1.2.5 Explain the meaning of the concept *tax threshold*. (2)

1.3 Mr Tana received an account bill from the municipality. Study the table extracted from the municipality account statement showing the water amount to be paid and answer the questions that follow.

Date	Service	Details	Charge (excl. VAT)	VAT	Charge (incl. VAT)
20/03/15	Water	Meter no.B-ZGD543 Tariff: Water Domestic Reading dates: Current (09/2/15) = 2 384 Previous (07/01/15) = 2 368 Water 16 kℓ	R184,66	-----	R210,51
WATER			DEBT COLLECTION ACTION		
WA 0100: 6 kℓ @ 9,941230 WA 0100: 4 kℓ @10,136180 WA 0100: 10 kℓ @14,077830 WA 0100: 10 kℓ @18,249050 WA 0100: 30+ @ 22,901530			The supply of services may be discontinued if any amount is unpaid after the due date and the deposit may be reviewed simultaneously. Please note that the due date does not apply to overdue accounts.		

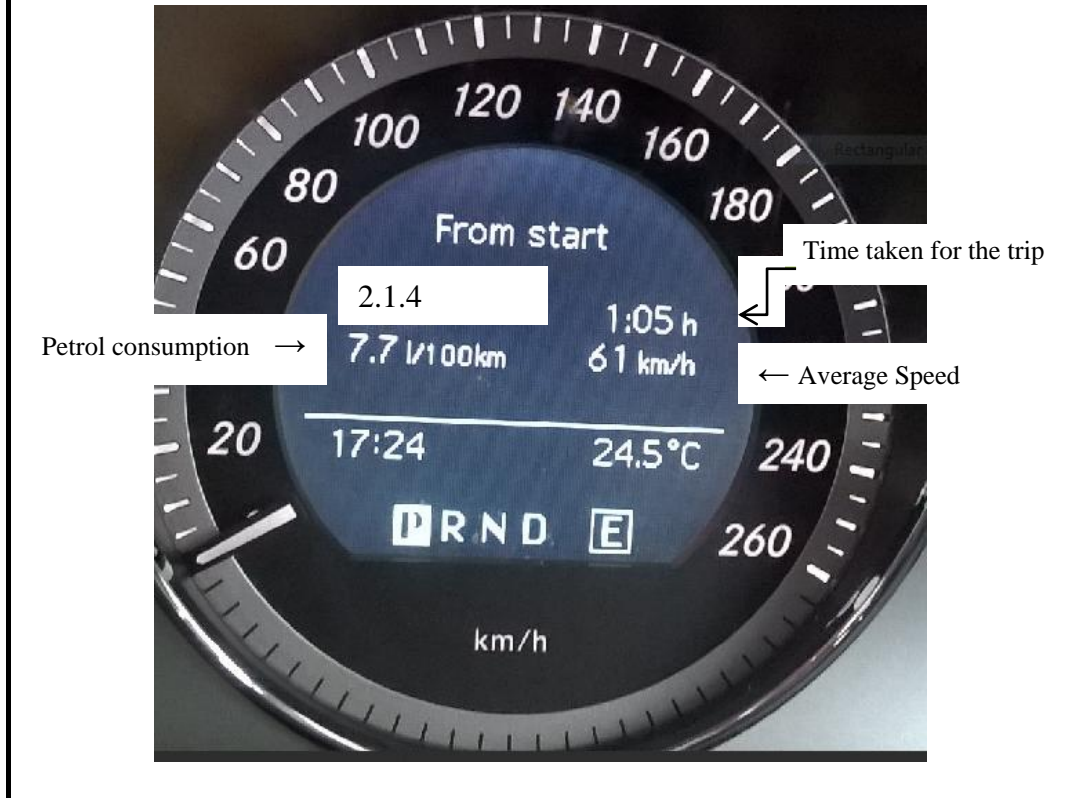
- 1.3.1 Calculate the amount of VAT (Value Added Tax) charged for the water tariff given in the table. (2)
- 1.3.2 Show all your calculations how the total amount of R184,66 was calculated. (4)

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QUESTION 2

- 2.1 Mrs Tana travelled from East London to King William's Town. The speedometer readings below were taken on arrival. Study the picture below and answer the questions that follow:

The speedometer readings:



- 2.1.1 Write down the maximum temperature of that day. (2)
- 2.1.2 Calculate the car's petrol consumption in litres per kilometre (l/km). (2)
- 2.1.3 Calculate the total number of litres used by this car if it travelled 13 570,84 km per annum. Give your answer to the nearest litre. (3)
- 2.1.4 Calculate the distance travelled by this car from East London to King William's Town. Give your answer in metres.

You may use the formula:

$$\text{Distance} = \text{Average speed} \times \text{time} \quad (3)$$

- 2.1.5 Determine the time Mrs Tana left East London for King William's Town. (3)
- 2.1.6 State whether the trip was taken in the morning, afternoon or during the night. (2)

2.2 Linda, a Grade 11 Tourism educator, bought fifteen 2 litre bottles of cool drink for 116 learners who went for an excursion. She used a 250 ml cup to measure the drink poured for each learner. She was assisted by a Grade 12 learner in pouring the drinks.

2.2.1 Show by calculations that the available cool drink will be enough for all Grade 11 learners to get a cup of drink.

$$1 \text{ cup} = 250 \text{ ml}, 1 \text{ l} = 1\,000 \text{ ml} \quad (3)$$

2.2.2 An assisting learner got two thirds of the cup from Linda. Calculate the difference in amount of cool drink received by a Grade 11 learner and an assisted learner in millilitres. (3)

2.3 Mr and Mrs Tana went shopping in Phuket, Thailand and stayed in a hotel for 4 days. A direct flight from Johannesburg to Thailand takes 11 hours 2 minutes and the distance is 8 471 km. They bought a small gift for their daughter to keep her earrings and hair accessories in.



[Source: www.google.com]

2.3.1 Calculate the total number of hours they stayed in the hotel. (2)

2.3.2 Convert the distance between Thailand and Johannesburg to miles.

$$0,6214 \text{ mile} = 1 \text{ km} \quad (2)$$

2.3.3 Calculate the area of the top of their daughter's gift if the diameter is 9 cm.

You may use the following formula:

$$\text{Area of a circle} = \pi r^2, \text{ where } \pi = 3,142 \quad (3)$$

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QUESTION 3

- 3.1 Study the map of Grahamstown in **ANNEXURE 1** and answer the questions that follow.
- 3.1.1 Give the grid reference for the Diocesan School for Girls. (2)
- 3.1.2 Identify the number of cricket fields found in this area of Grahamstown. (2)
- 3.1.3 There is a road that goes through Taunton Road. Name the road. (2)
- 3.1.4 Refer to grid reference GU15 South West of Graham Protea. Identify the institution which cares for a collection of artefacts and other objects of scientific, artistic, cultural and historical importance. (2)
- 3.1.5 Give the general direction of Somerset Heights with reference to Oatlands. (2)

- 3.2

Mr and Mrs Tana bought a TV cabinet from the Leeckay Furniture Shop. When delivered it was in pieces and carried by big boxes. They sent a person to assemble it at the Tana family's house.
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Use **ANNEXURE 2** to answer the following questions.

- 3.2.1 Name the part labelled 14 in the diagram. (2)
- 3.2.2 Identify the part number(s) to be used as store boards. (2)
- 3.2.3 Determine the number of parts labelled 20 that should be in the box. (2)
- 3.2.4 Measure the length of the top (13) of this cabinet in mm and give the ratio scale if the real length is 1 755 mm. (2)
- 3.2.5 How many glass screws are needed to assemble the TV cabinet? (2)
- 3.2.6 All the screws are mixed together in a basin when assembling the TV cabinet. Determine the probability that the screw chosen from the basin is a wooden screw. (3)

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QUESTION 4

- 4.1 The Social Department provide social assistance to people in need. The fact sheet provides a statistical summary of social grants in the provinces (regions) of South Africa. Social grants refer to Old Age Grant (OAG), War Veterans' Grant (WVG), Disability Grant (DG), Grant In Aid (GIA), Child Support Grant (CSG), Foster Child Grant (FCG) and Care Dependency Grant (CDG).

TABLE 3: Total number of social grants by grant type and provinces as at 31-05-2014

Regions	OAG	WVG	DG	GIA	CDG	FCG	CSG	TOTAL
EC	519 072	59	180475	12907	18555	119285	A	2655420
FS	177 963	6	79000	1584	6221	40962	638187	943923
GP	455457	103	113090	2294	15686	57222	1575990	2219842
KZN	616132	54	296083	31651	35919	130170	2702811	3812820
LP	423090	28	91999	13591	12745	60996	1650665	2253114
MP	218554	18	77355	3778	8998	35436	999473	1343612
NC	77409	11	48473	5304	4694	14735	279724	C
NW	226434	15	85939	5484	8683	42060	766593	1135208
WC	277680	113	149920	10377	11312	29491	883802	1362695
TOTAL	2991791	407	1122334	86970	B	530357	11302312	16156984

[Source: SOCPEN system]

[NB: The total include grant in aid]

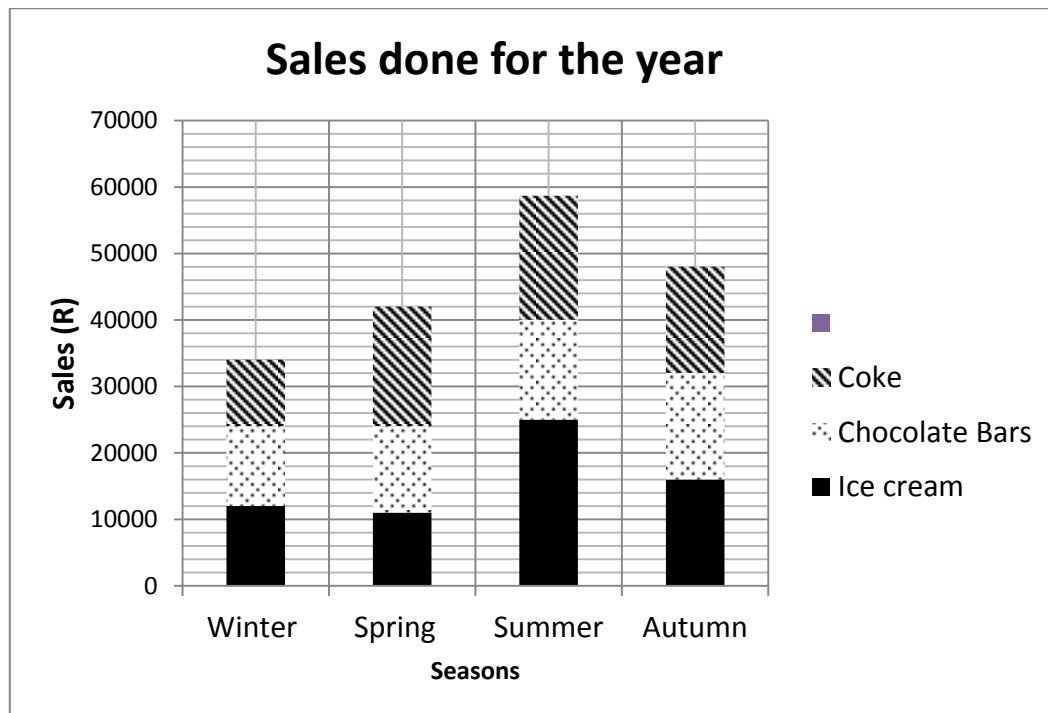
- 4.1.1 Determine the number of provinces (regions) who are provided with social assistance by Social Development. (2)
- 4.1.2 Identify the province that has the least number of Old Age Grant (OAG) beneficiaries. (2)
- 4.1.3 Calculate the difference between the number of beneficiaries receiving child support grants (CSG) in Gauteng and North West provinces. (3)
- 4.1.4 Calculate the following missing values from the table:
- (a) A (2)
- (b) B (2)
- (c) C (2)
- 4.1.5 Plot the line graph using the War Veterans' Grant (WVG) per Province in a set of axes on the ANSWER SHEET provided. (4)
- 4.1.6 Give the ratio of War Veterans Grant (WVG) beneficiaries in the Free State with those of the Mpumalanga region. (2)

4.1.7 Identify the province with the highest number of people receiving a Care Dependency Grant (CDG). (2)

4.1.8 Write the total number of people receiving social grants in the Western Cape in words. (2)

4.2 The wholesale manager, Ludwe, recorded the sales of Ice cream, Chocolate Bars and Coke for the whole year. The results are displayed in a graph below.

Study the graph below and answer the questions that follow.



4.2.1 Determine the amount (in R) of Coke summer sales made by this shop. (2)

4.2.2 Identify the seasons with a difference of R4 000,00 in sales of Chocolate Bars Sales. (2)

4.2.3 State the type of graph shown above. (2)

- 4.3 Mrs Ncombo resides in Port Edward. She recorded all the electricity sales and the number of units received.

Table 4: Electricity sales record

Months	April	May	June	July	September	October	November
Amount (Rands)	500	500	550	1200	500	250	500
units received	338,2	338,2	371,95	758,7	311,7	155,9	251,4

- 4.3.1 Calculate the average number of units received. Give your answer to the nearest unit. (4)
- 4.3.2 Determine the range amount spent on electricity. (3)
- 4.3.3 Determine the modal amount spent on electricity. (2)

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QUESTION 5

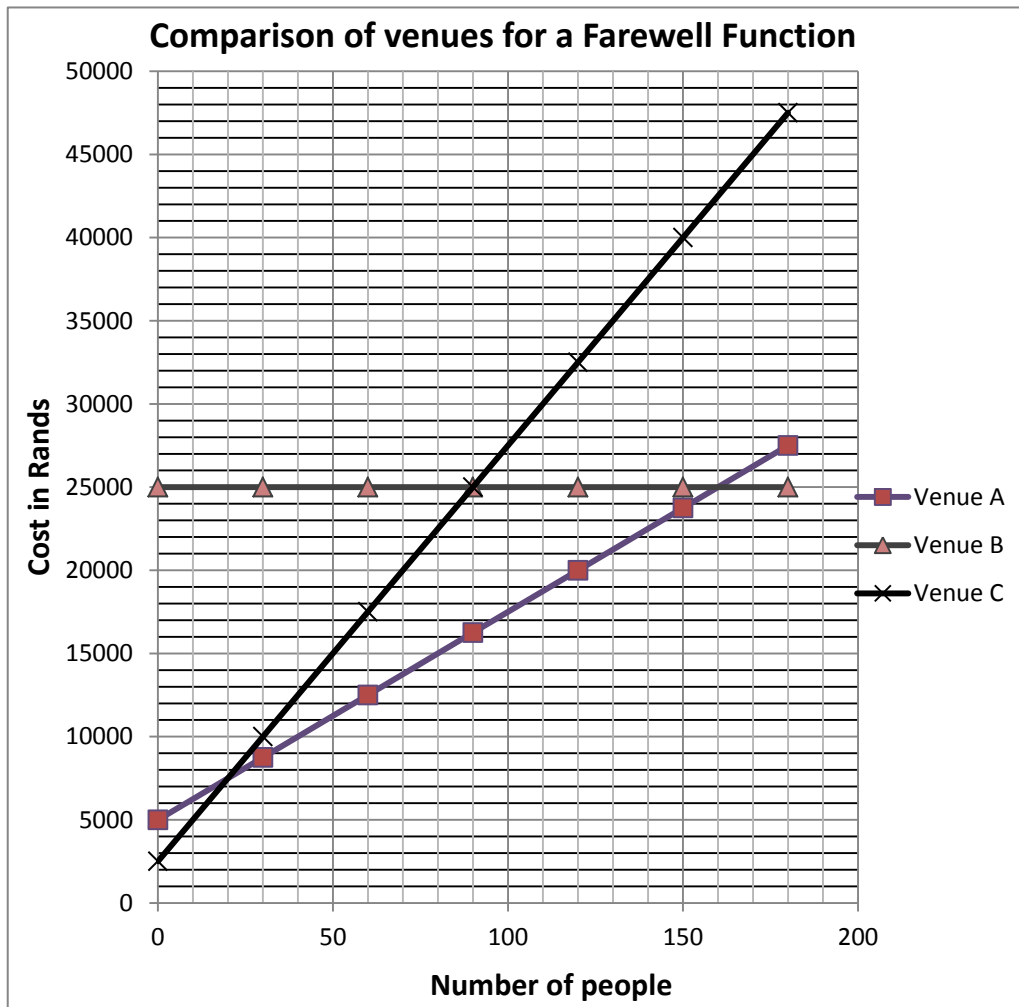
5.1

Ncumisa, an entertainment committee member made three quotations for a Grade 12 farewell function. Study the graphs below and answer the questions that follow.

$$\text{Venue A} = R5\,000 + 125n$$

$$\text{Venue B} = R25\,000$$

$$\text{Venue C} = R2\,500 + 250n$$



- 5.1.1 How much will it cost for hosting a function at Venue A for 100 people? (2)
- 5.1.2 Identify the most expensive venue to entertain 180 people. (2)
- 5.1.3 Determine the number of people that can be hosted for R4 000,00 at Venue C. (2)
- 5.1.4 Write down the three intersection points of the graphs. (6)
- 5.1.5 Identify the fixed cost for Venue A. (2)

5.2

After the formal part of the Farewell Function Day learners will swim and have fun on the beach. One of the educators searched on the internet the temperatures of the Farewell Function Day. The readings were as follows:

Temperature	Low 16 °C	High 78,8 °F
Wind Speed	19 km/h	
Wind Direction	E	
Humidity	61%	
Chance of Rain	10%	

[Source: weather.news24.com]

5.2.1 Convert 78,8 °F temperature to °C.

You may use the formula:

$$^{\circ}\text{C} = (^{\circ}\text{F} - 32^{\circ}) \div 1,8 \quad (3)$$

5.2.2 Determine the probability that it will rain on the farewell day. Give your answer in simplified fraction. (3)

5.2.3 Determine the probability that the current weather condition has no humidity at all. (2)

5.3

One of the minibus taxi's to be used by the school to transport learners to and from the beach uses 22,5 litres to cover the 289 km between East London and Port Alfred. The driver charged R45 per learner for 86 learners, 38 boys and 48 girls.

5.3.1 Determine the number of minibus taxi's needed to transport learners if one minibus can transport 14 learners. (3)

5.3.2 The petrol price is R10,83 per litre. Calculate the total cost for the trip for ONE minibus including the payment done per learner. (3)

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TOTAL: 150

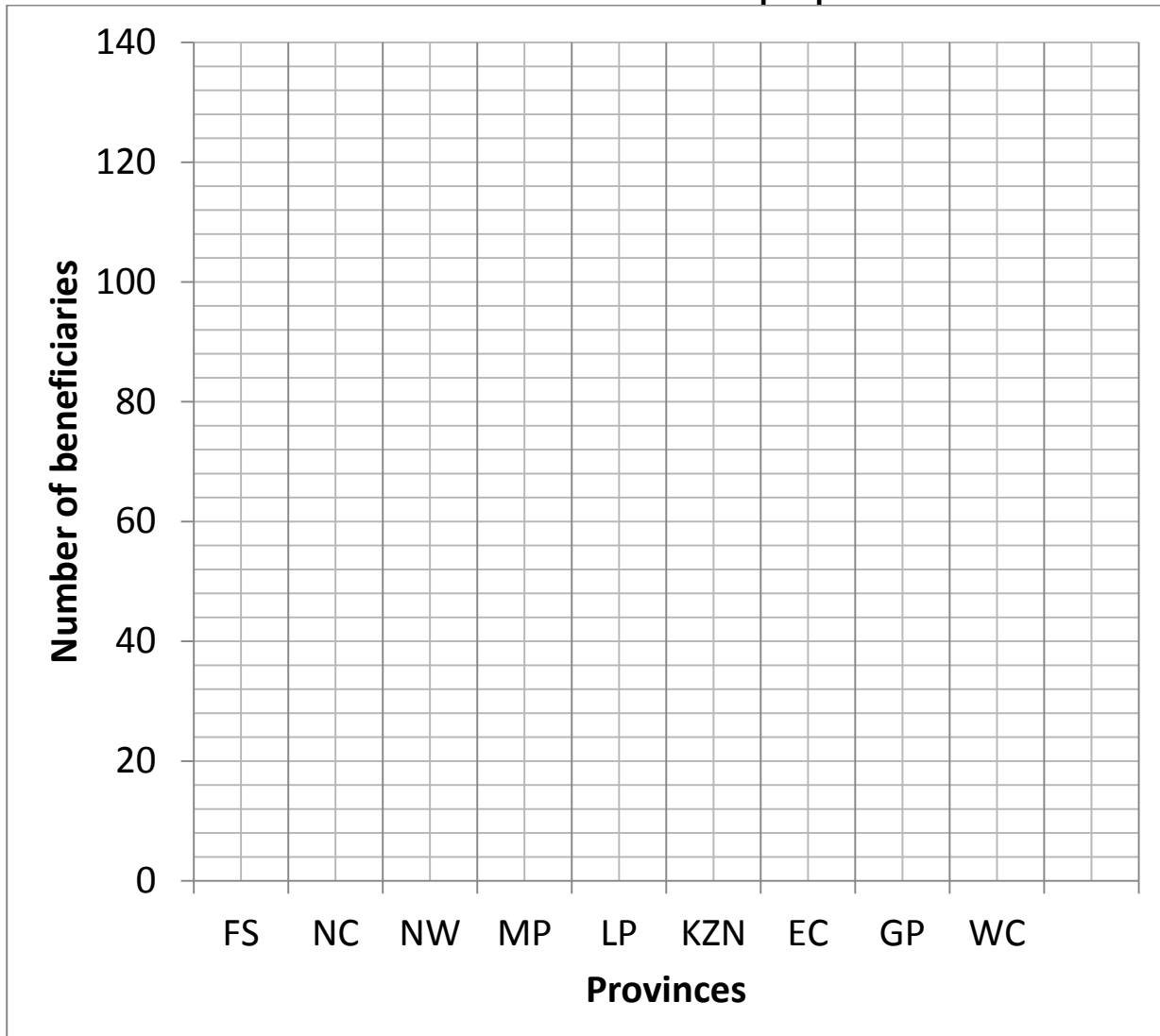
ANSWER SHEET

SURNAME AND NAME

GRADE 12:

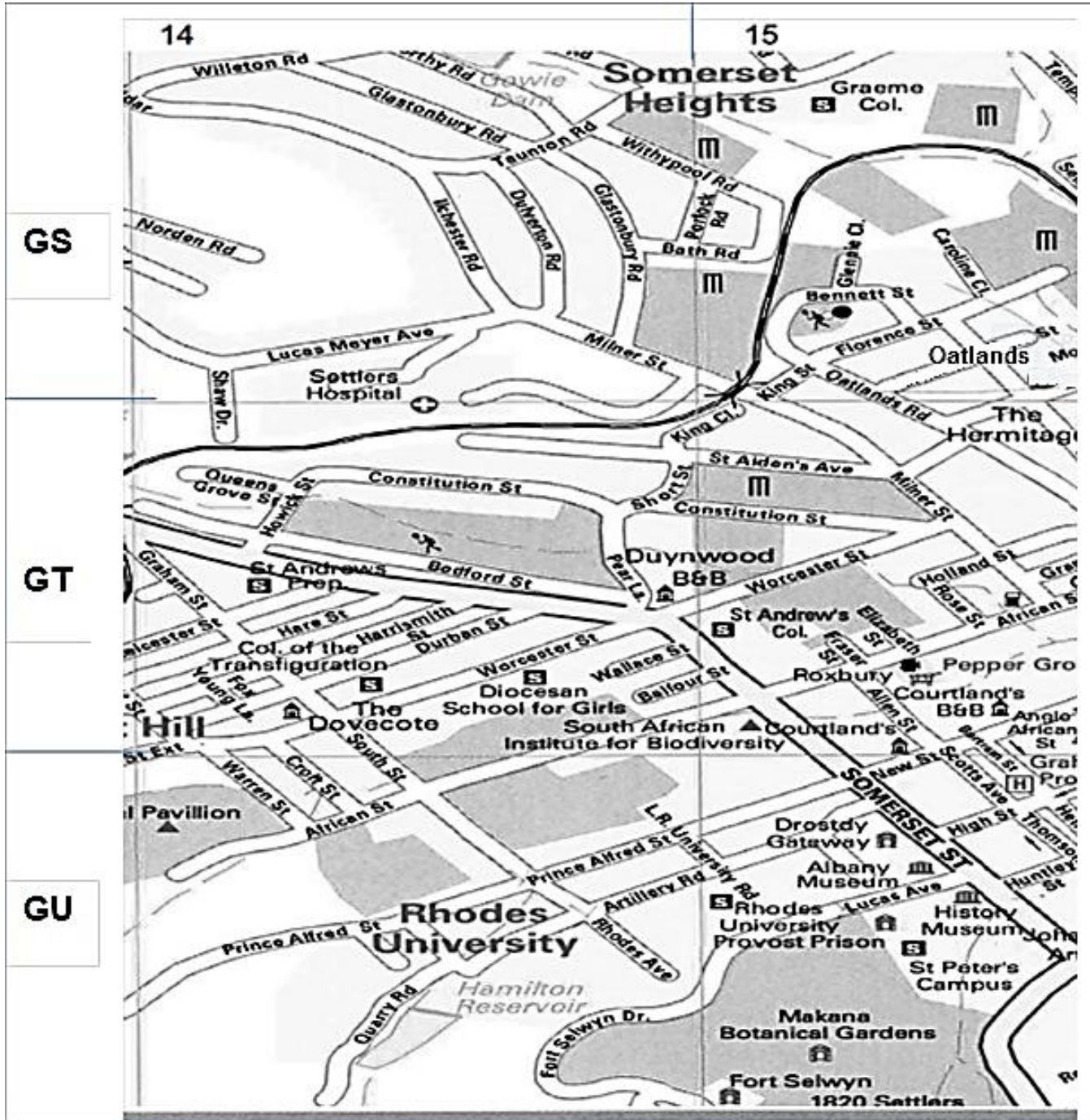
QUESTION 4.1.5

War Veterans' Grant beneficiaries per province



ANNEXURE 1

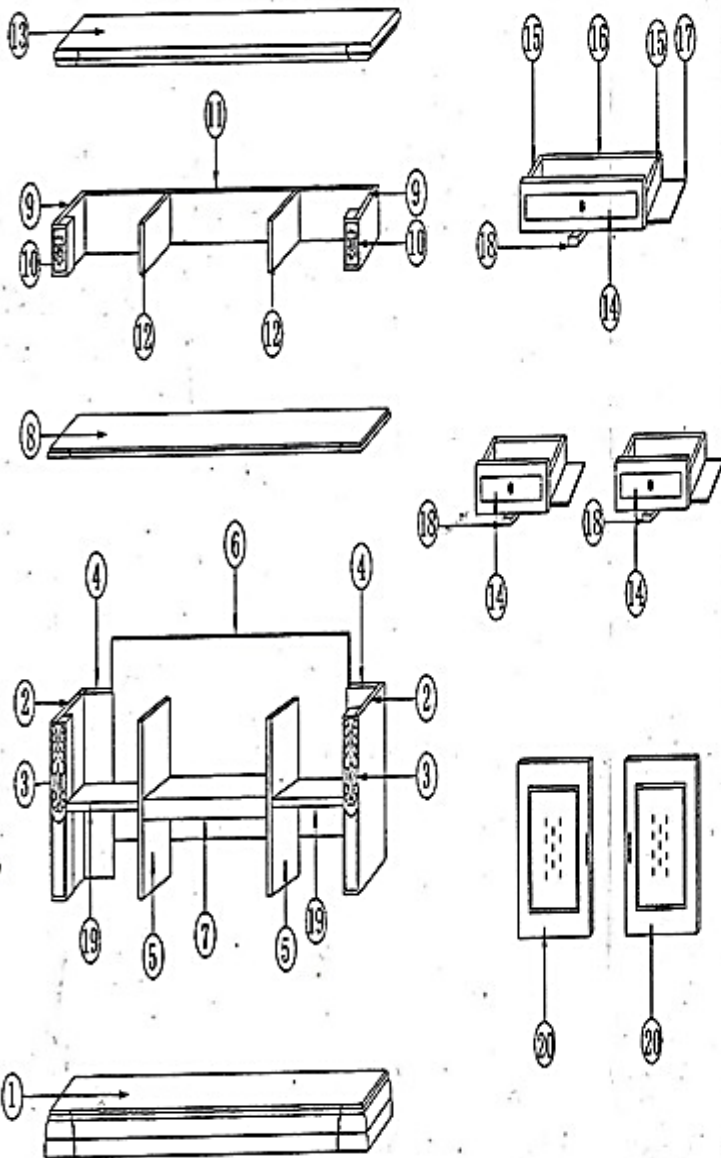
MAP OF GRAHAMSTOWN



[www.mapstudio.co.za]

Legend	North ↑	● Bowling Club
		⊞ Cricket
		⊗ Hockey
		⊞ Ruby
		⊞ Soccer
		⊞ Squash

ANNEXURE 2



NS-9807 TV cabinet

Order	Name	Qty	Name	Outline	Meas. in	Qty
①	Side Bottom	1	Name	Outline	Meas. in	Qty
②	Below Side Board	2	Join Screw			75
③	Below Side Column	2	Slide Bars		400	4付
④	Below Side Column	2	Slide Screw		φ4×13	20
⑤	Below Side Board	2	Wood Bar		φ8×40	20
⑥	Below Back Board	1	Handle			3
⑦	Store board	1	Handle Screw		φ4×20	3
⑧	Middle Top	1	Door Handle		DS-015	2
⑨	Above Side Board	2	Handle Screw		φ4×20	3
⑩	Above Side Column	2	Genel		φ35×大弯	4
⑪	Above Back Board	1	Wood Screw		φ4×13	30
⑫	Above Side Board	2	Glass Screw			9
⑬	Top	1	Door Gather			2
⑭	Drawer Front Board	3	Screw		φ4×13	60
⑮	Drawer Side Board	6				
⑯	Drawer Back Board	3				
⑰	Drawer Under board	3				
⑱	Drawer Under Bar	3				
⑲	Store board	2				
⑳	Door	2				

