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EASTERN CAPE EDUCATION DEPARTMENT
OOS-KAAP ONDERWYSDEPARTEMENT

IIMVIWO ZEBANGA LESHUMI ELINANYE
GRADE 11 EXAMINATIONS
GRAAD 11-EKSAMEN

NOVEMBER 2008

MATHEMATICAL LITERACY – SECOND PAPER

IXESHA: 2½ iiyure
AMANQAKU: 100

TIME: 2½ hours
MARKS: 100

TYD: 2½ uur
PUNTE: 100

Write on the cover of your answer book, after the word "Subject" –
MATHEMATICAL LITERACY – SECOND PAPER

This question paper consists of 13 pages.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of FIVE questions. Answer ALL the questions.
2. Number the answers correctly according to the numbering system used in this question paper.
3. An approved calculator (non-programmable and non-graphical) may be used, unless stated otherwise.
4. ALL the calculations and steps must be shown clearly.
5. ALL the final answers must be rounded off to TWO decimal places, unless stated otherwise. Do NOT round off until you get to the final answer.
6. Start EACH question on a NEW page.
7. Write neatly and legibly.

QUESTION 1

Zandi is a first-year student at university. She receives a monthly allowance of R1 350,00 from her parents. She has a part-time job at the cafeteria as a waitress. The money she receives from her parents must pay for her books and library fees, food and transport costs. She finds that some months she does not have enough money for anything extra and asks if her parents can increase her monthly allowance. Her parents have asked her to prepare a three-month budget for them showing her expenses as well as her income. Zandi compiles the following budget for 3 months which indicates her income and expenditure.

	July	August	September
MONTHLY INCOME	R1 781,28	R1 683,50	R1 772,12
Parents	R1 350,00	R1 350,00	R1 350,00
Part-time job at cafeteria	R431,28	R333,50	R422,12
COSTS	R1 689,47	R1 653,27	R1 721,23
Book and library fees	R219,00	R219,00	R219,00
Rent	R300,00	R300,00	R300,00
Food	R493,57	R487,55	R503,28
Transport (taxi)	R255,00	R215,00	R235,00
Telephone	R60,00	R48,00	R60,00
Toiletries	R43,25	R44,78	R38,68
Clothing	R123,55	R168,05	R165,24
Entertainment	R158,23	R135,00	R188,27
Bank fees	R36,87	R35,89	R41,76
Savings	R0,00	R0,00	R0,00
SURPLUS/(LOSS)	R91,81	R 30,23	R20,89

- 1.1 Identify any variable monthly income for Zandi. Justify your answer. (2)
- 1.2 Identify any fixed monthly expenses for Zandi. Justify your answer. (2)
- 1.3 Identify any low priority expense for Zandi. Justify your answer. (2)
- 1.4 What do you think Zandi spends most of her money on? Give a reason for your answer. (2)
- 1.5 Zandi is paid R11,50 per hour for her part-time job. Show that the difference in her salary for the months of July and August is as a result of fewer hours worked in August. Justify the statement by means of calculation. (3)

- 1.6 The petrol price has recently increased from R9,72 per litre to R10,40 per litre.
- 1.6.1 What is this percentage increase? (2)
- 1.6.2 If Zandi's transport costs increases in the same proportion as the petrol increase, how much must Zandi expect to budget for transport over the next few months? (2)
- 1.7 Banking costs: The bank charges Zandi for the transactions made on her account. Banks use the following formulae to determine their fees.

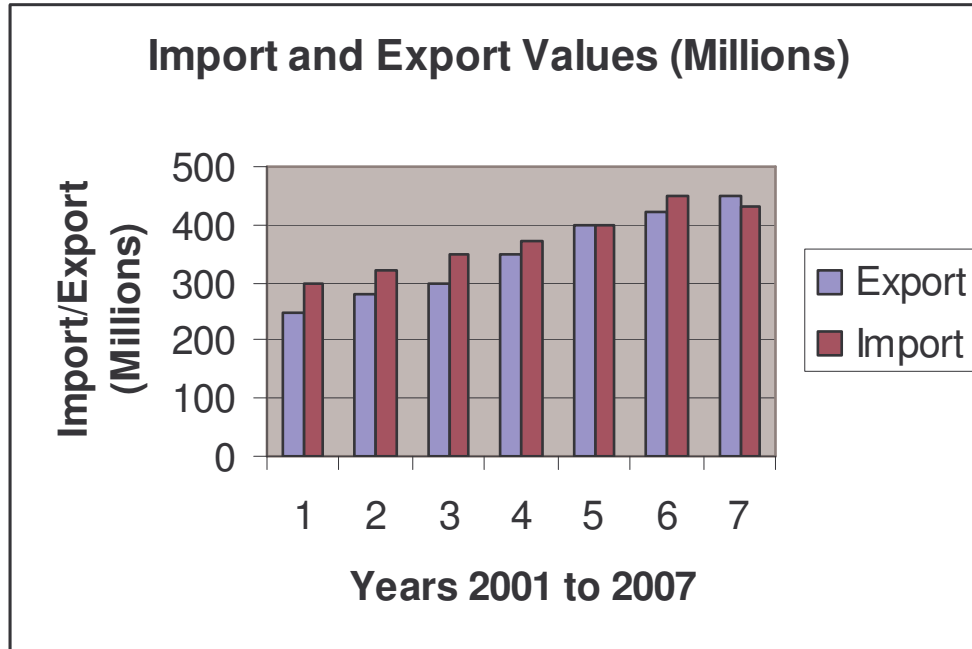
	Bank charges	Amount charged
1	Debit Order (External)	$[R3,50 + 0,007 \times (\text{value of the transaction})]$
2	Debit Order (Internal)	$[R4,50 + 0,005 \times (\text{value of the transaction})]$
3	Cash Withdrawal (own bank)	$[R1,19 + 0,006 \times (\text{value of the transaction})]$
4	Cash Withdrawal (other bank)	$[R1,47 + 0,007 \times (\text{value of the transaction})]$
5	Monthly Service Fee	R6,00 per month
6	Monthly Ledger Fee	R7,00 per month
7	Cash Deposit Fee	No charge

- Zandi pays rent using a debit order. Calculate the transaction fee for this payment. (2)
- 1.8 Calculate the transaction fees for each of the following:
- 1.8.1 Zandi withdraws R150 cash from another bank's ATM, each weekend and pays her book and library fees and rent by debit order. (3)
- 1.8.2 Zandi deposits R200 from her salary earned at the restaurant each weekend and draws from her own bank R100 for the first three weekends. On the fourth weekend of the month she withdraws R800 to pay cash for her rent, library and book fees, her toiletries and food for the month. (4)
- 1.8.3 Compare the situations in QUESTION 1.8.1 and QUESTION 1.8.2. Which one is better of the two? Give a reason for your answer. (2)

[26]

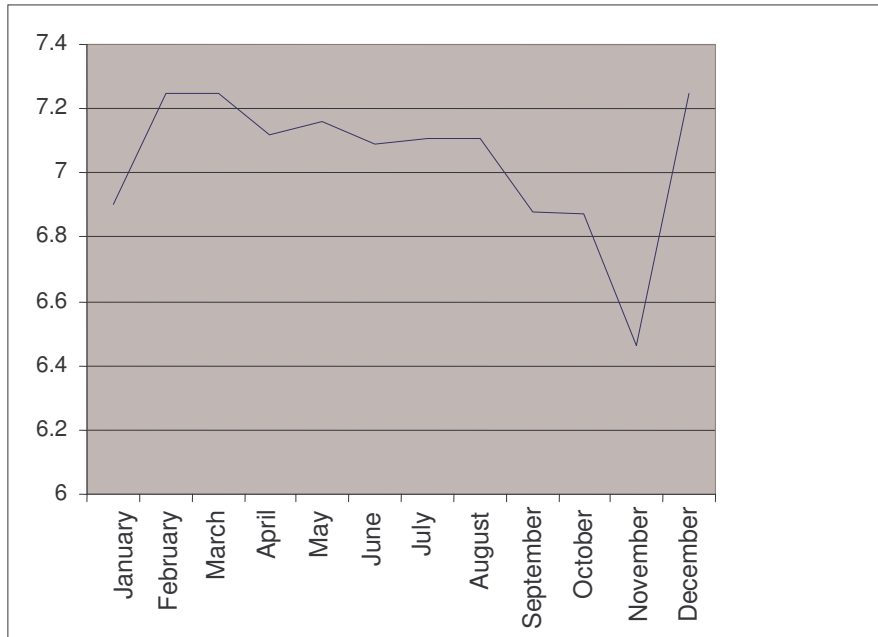
QUESTION 2

- 2.1 The bar graph below shows the import and export values of a country (in Millions of Rand) from 2001 to 2007. Use the bar graph to answer the following questions:



- 2.1.1 What was the value of exports in 2003? (1)
- 2.1.2 In which year were the imports equal to the exports? (1)
- 2.1.3 Describe the general trends in exports and imports over this seven-year period. (2)
- 2.1.4 In which year was the balance of trade favourable to the country? Give a reason for your answer. (2)

- 2.2 The graph below shows the exchange rate between dollar and rand from January to December 2007. Use the graph to answer the questions that follow:



- 2.2.1 Which is the best month for a US traveller to visit South Africa? Give a reason for your answer. (2)
- 2.2.2 Which is the best month for a South African traveller to buy US dollars? Give a reason for your answer. (2)
- 2.2.3 Use the graph to predict whether the number of tourists will increase in 2008. (2)
- 2.3 The following are the masses in kilogram of boys in a Grade 11 class.
- | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|
| 60 | 70 | 62 | 60 | 63 | 75 | 65 | 75 | 66 | 70 |
| 77 | 79 | 75 | 80 | 89 | 82 | 75 | 85 | 86 | 75 |
- 2.3.1 Find the mode. (2)
- 2.3.2 Find the median (2)
- 2.3.3 What does your answer to QUESTION 2.3.2 tell you about the distribution of the boys' masses? (2)
- 2.3.4 Show that the mean mass of the boys is 73,45 kg. (3)

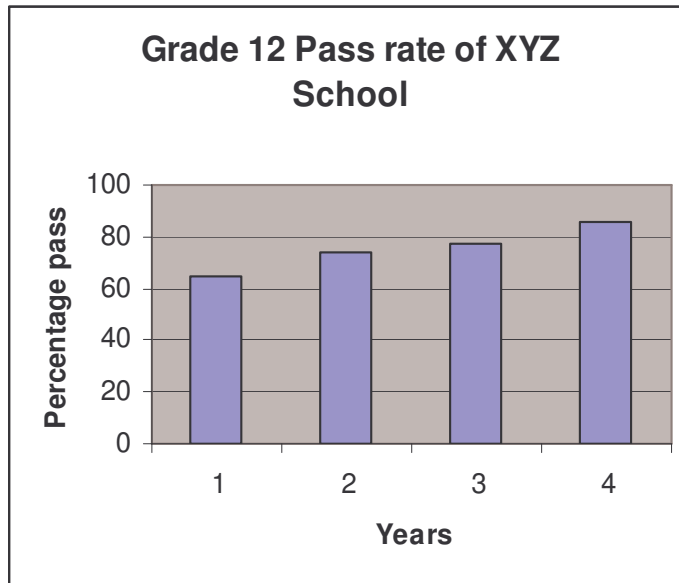
[21]

QUESTION 3

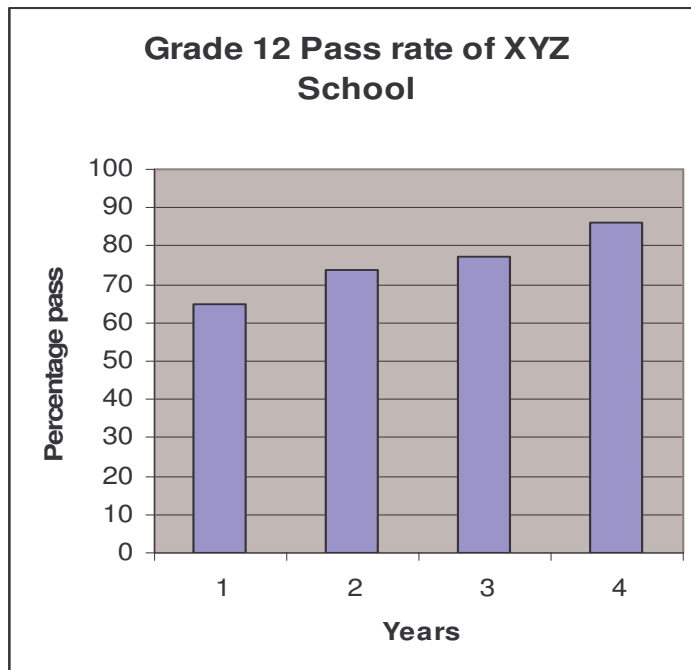
- 3.1 Unathi is a member of the Students' Representative Council (SRC) at a school. There are 5 members of the SRC. Thus, the probability of Unathi being selected as the representative of the SRC on the School Governing Body (SGB) is $\frac{1}{5}$.
- 3.1.1 What is the probability of Unathi NOT being selected as a SGB member? (2)
- 3.1.2 Write the probability of any of the other SRC members being selected as a SGB member. (Give the answer as a percentage) (2)
- 3.2 The South African cricket team, the "Proteas", will be involved in three test matches against India. The team to bat first in each cricket match is usually determined by tossing a coin. Each time, South African captain, Graeme Smith, decides to call for "head".
- 3.2.1 What will be the probability of Graeme Smith being successful in his call for head, in the first match? (1)
- 3.2.2 Draw a "tree diagram" to show the outcomes of all the three tosses. (3)
- 3.2.3 Using your tree diagram, determine:
- (a) The probability that the South African captain will win all three tosses. (2)
- (b) The probability that the South African captain will lose all the three tosses. (1)
- (c) The probability that the South African captain will win at least one toss. (1)

- a. The Grade 12 pass rate for XYZ School (for the past 4 years) is represented in the following two graphs:

Graph 1



Graph 2



3.3.1 Although both graphs represent the same information, which graph gives a favourable impression of the results of XYZ High school? (1)

3.3.2 How is this effect achieved? (2)
[15]

QUESTION 4

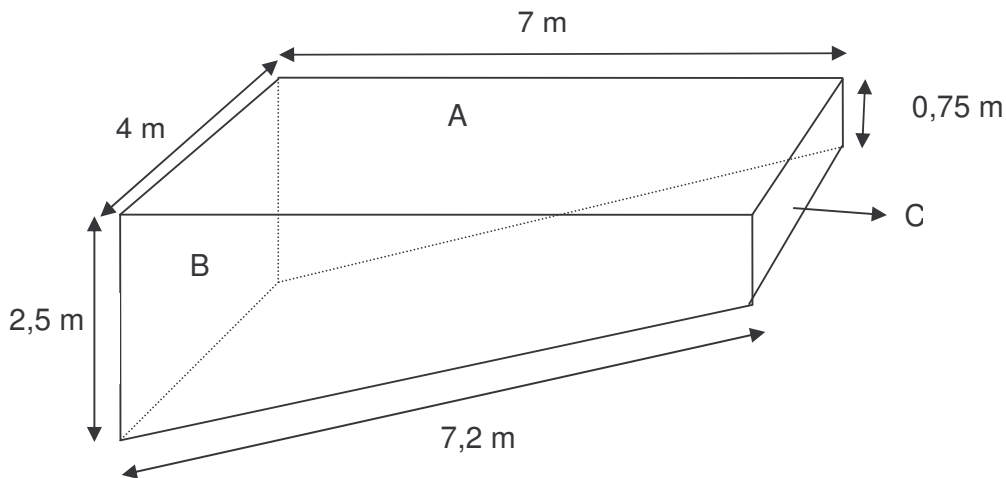
Mr Majola wants to build a swimmingpool in his garden in preparation for the coming summer. He wants a swimming pool with the following measurements. It should be 7 m long, 4 m wide and 0,75 m deep in the shallow end and 2,5 m in the deep end.

(See diagram below)

The slanted length of the bottom of the pool is 7,2 m.

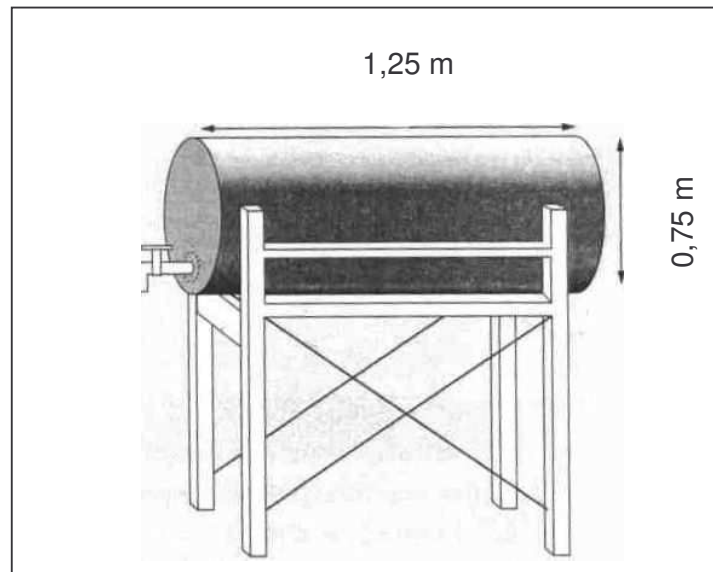
Note: The pool is trapezoidal in shape.

- 4.1 **Area of trapezium** = $\frac{1}{2}$ (sum of parallel sides \times perpendicular distance)
Area of rectangle = $l \times b$



- 4.1.1 Calculate the area of the bottom of the swimmingpool. Use the following formula: **Area = length x breadth** (2)
- 4.1.2 Now calculate the area of the surface A, which is in the shape of the trapezium. (3)
- 4.1.3 Calculate the area of the surface B, which is at the deep end. (2)
- 4.1.4 Calculate the area of the surface C, which is at the shallow end. (1)
- 4.1.5 Calculate the total surface area of the inside of the swimmingpool. (3)

- 4.2 Mr Soso is running a small dairy farm on the East Coast. The milk is kept in cylindrical tanks. Both ends of the tank are closed and there is a tap fitted on one side. Mr Soso wants his welders to make him a tank for the milk to be stored in. He gives them a diagram with all the dimensions.



- 4.2.1 Mr Soso needs the tank to hold 500 litres of milk each day. Will the volume of the tank be enough to hold this amount of milk? Show ALL your calculations.

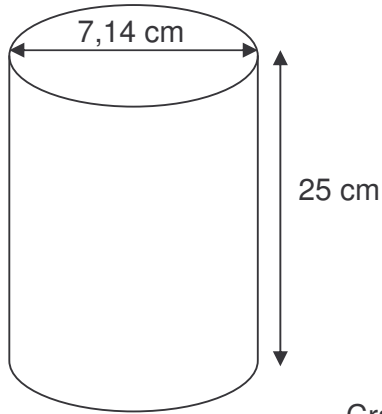
Use the formula: **Volume** = $\pi r^2 h$, where **r** is the radius of the base and **h** is the height of the tank.

You may use $\pi = 3,14$

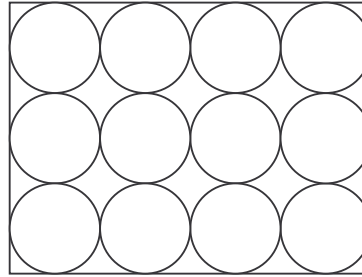
(4)

- 4.3 Mr Soso transports his milk to the factory in cylindrical canisters. In each canister, he pours 1,25 litres of milk. Each canister is 7,14 cm in diameter and 25 cm high.

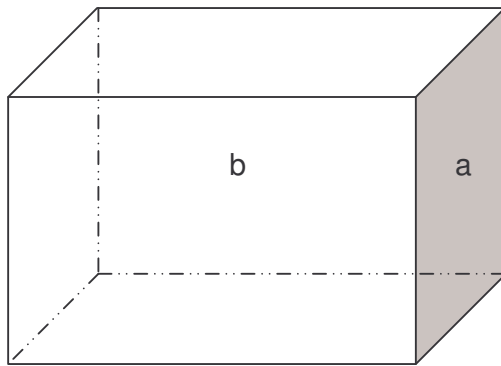
One canister of milk



Top view of canisters in crate



Crate

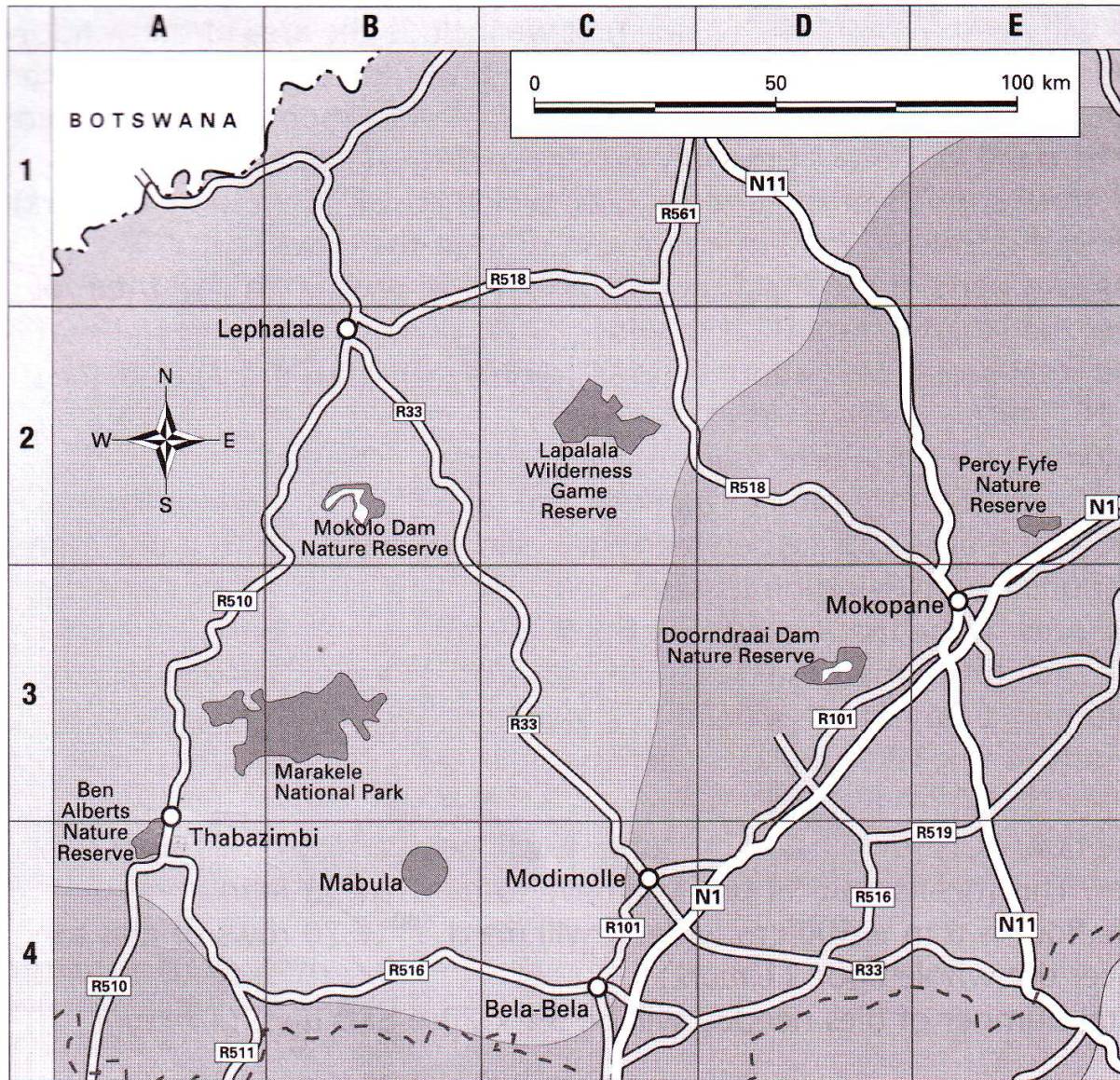


- 4.3.1 Mr Soso's farm produces 500 litres of milk on average per day. How many canisters will he need to transport his milk to the factory every day? (2)
- 4.3.2 The factory only accepts full crates. How many full crates of milk does Mr Soso sell to the factory every day? (2)
- 4.3.3 The factory pays Mr Soso R5,80 for each litre of milk. How much does he get for one crate? (4)

[23]

QUESTION 5

The map below represents a section of the Limpopo Province of South Africa.



Ben and his family decide to take a trip to the Limpopo Province. On their trip they would visit various game parks and nature reserves.

- 5.1 Ben needs to help his father with the distances on the map. Use the scale and help them to determine how many centimetres (cm) on the map represents 200 km. Show all your workings.
(Measure the actual distance given on the scale using a meter scale) (2)
- 5.2 Now use your answer in QUESTION 5.1 to determine how many kilometres (km) are represented by 1 cm on the map. (2)
- 5.3 Estimate the distance from Thabazimbi to Bela-Bela. Show all your workings. (3)
- 5.4 When travelling from Modimolle, to Mokopane, at what bearing would they have to travel? (2)
- 5.5 Ben and his family decide to travel from Mokopane to the border of the province (A1). In which direction would they travel? (1)
- 5.6 Along the way they decide to stop over at Lapalala Wilderness and Game Reserve. In which grid block would you find this game reserve? (1)
- 5.7 Name the nature reserves found in B2 and D3. (2)
- 5.8 What is the common feature of the nature reserves mentioned in QUESTION 5.7? (1)
- 5.9 Which African country lies on the western border of the Limpopo Province? (1)
- [15]**

TOTAL: 100