



Province of the
EASTERN CAPE
EDUCATION

**NATIONAL
SENIOR CERTIFICATE**

GRADE 11

NOVEMBER 2013

MATHEMATICAL LITERACY P1

MARKS: 100

TIME: 2 hours

This question paper consists of 9 pages.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of FOUR questions.
2. Answer ALL the questions.
3. Number your answers correctly according to the numbering system used in the question paper.
4. A non-programmable and non-graphical calculator may be used, unless stated otherwise.
5. ALL calculations and steps must be shown clearly.
6. ALL final answers must be rounded off to TWO decimal places, unless stated otherwise.
7. Units of measurement must be indicated where applicable.
8. Start EACH question on a NEW page.
9. Write neatly and legibly.

QUESTION 1

Linda and Thabo have decided to start up their own business baking and selling fresh home-made giant muffins, from their own home. This way they cut costs, as they do not have to pay rent for their business. To make sure that their business will make a profit they did a very careful costing of all their expenses before starting up and determining a selling price for their giant muffins.

Below is **Table 1** showing their fixed monthly costs for their business. These are costs that remain the same no matter how much they produce and sell.

Fixed Monthly Expenses (R)	
Salaries (for both of them)	R6 000,00
Wages (1)	R1 500,00
Water	R465,00
Cleaning materials	R250,00
Transport costs	R1 750,00
Miscellaneous costs	R500,00

- 1.1 Calculate the cost of the Fixed Monthly Expenses for their business. Money also needs to be spent on ingredients to make the giant muffins. (3)

Below in **Table 2** showing the cost of ingredients needed to make 50 giant muffins.

Ingredient Costs for 50 Giant Muffins (R)	
Flour	R15,50
Baking Powder	R0,25
Sugar	R11,50
Oil	R9,50
Eggs	R12,75
Paper cake cups	R8,00
Cocoa, Choc chips, Blueberries, Nuts, Flavours	R12,50

The stove they use is an electric stove and by watching the meter they have worked out that they use 6 units (kWh) of electricity to bake 50 giant muffins. One unit (kWh) of electricity costs R1,09.

- 1.2 Calculate the cost for the ingredients to make 50 giant muffins. (3)
- 1.3 Calculate the cost of ingredients for ONE giant muffin. (2)
- 1.4 Calculate the cost of electricity to make ONE giant muffin. Give your answer in Rand and round your answer off to 2 decimal places. (2)
- 1.5 How much does it cost to make ONE giant muffin? (2)

1.6 Linda and Thabo have decided to sell their giant muffins at R5,00 each.

1.6.1 How much profit is made per giant muffin?
Use the following method to calculate the profit:

$$\text{Profit} = \text{Selling Price} - \text{Cost price} \quad (3)$$

1.6.2 Calculate the percentage profit per giant muffin. Use the following formula to calculate your answer:

$$\% \text{ Profit} = \frac{\text{Profit per muffin}}{\text{Cost per muffin}} \times 100 \quad (3)$$

1.7 How many giant muffins must Linda and Thabo sell to break even all their costs and cover?

Please round off your answer to the nearest whole muffin.
Use the following formula for your calculations:

$$\text{Number of giant muffins} = \frac{\text{Total Fixed Monthly Expenses}}{\text{Profit per giant muffin}} \quad (3)$$

1.8 Linda and Thabo had to have their kitchen altered to allow them to bake the number of muffins required for their business and to meet the standards required by the Health Department to allow them to run their business from home. It is worth doing this as it would add value to their property. The amount quoted to do the alterations was R11 505,35. They decided to go to the bank to take a loan to cover these costs. They decided to borrow R12 500,00 in case there were some hidden costs. The bank was prepared to lend them money at 12,5% interest per annum over a period of 5 years using simple interest.

1.8.1 Calculate how much they would pay back to the bank after 5 years.

Use the formula: $A = P + P \times i \times n$

Where A = Final Amount
 P = The initial amount borrowed
 i = interest per annum
 n = number of years (3)

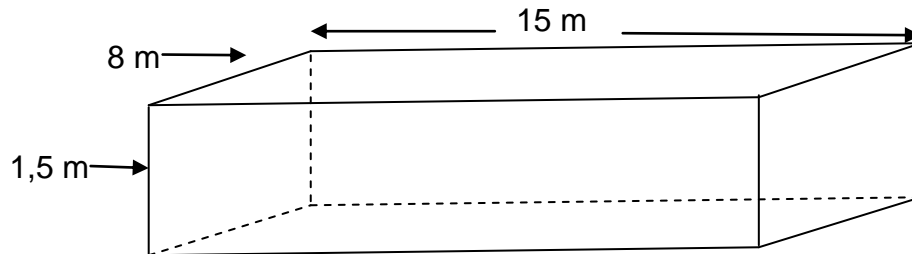
1.8.2 Calculate the monthly payment on this loan. (3)

1.8.3 Calculate how many **extra** muffins will need to be baked to have enough profit to cover this monthly payment.
Give your answer to the nearest whole muffin. (3)

[30]

QUESTION 2

The Smiths recently had a pool build in their back garden. The pool is 15 metres long and 8 metres wide. The depth of the pool is 1,5 metres. A diagram of the pool is given below.



2.1 The pool walls need to be tiled to keep maintenance to a minimum.

2.1.1 Calculate the surface area of the walls of the pool. Give your answer in m^2 .

Use the following formula to do your calculations:

$$\text{Surface Area} = 2 \times \text{length} \times \text{depth} + 2 \times \text{width} \times \text{depth} \quad (3)$$

2.1.2 If the tiles used measure 20 cm x 20 cm, calculate how many tiles will be needed to tile the pool walls. (4)

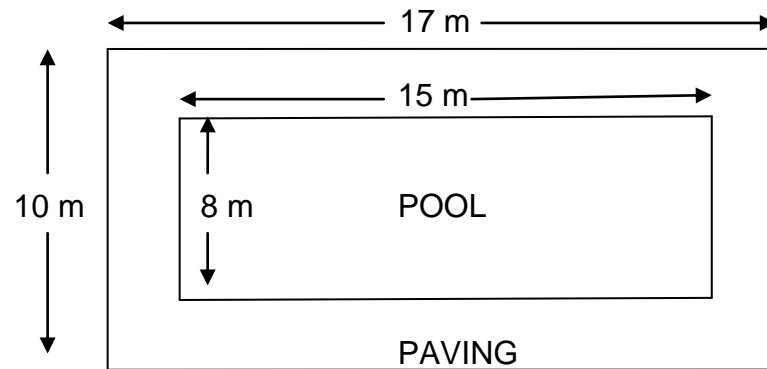
2.2 Calculate how much water is needed to fill the pool. Give your answer in kilolitres.

Use the following formula: **Volume = Length x Width x Depth** (3)

2.3 Water costs R5,55 per kilolitre. How much will it cost to fill this pool? (3)

2.4 Last week the maximum temperature reached 39,5 °C and 1,5% of the pool water evaporated. How much water evaporated out of the pool that day? (3)

- 2.5 The Smiths have decided to put paving stones around their pool to stop too much grass getting into their pool. The diagram on the next page shows the final measurements required.

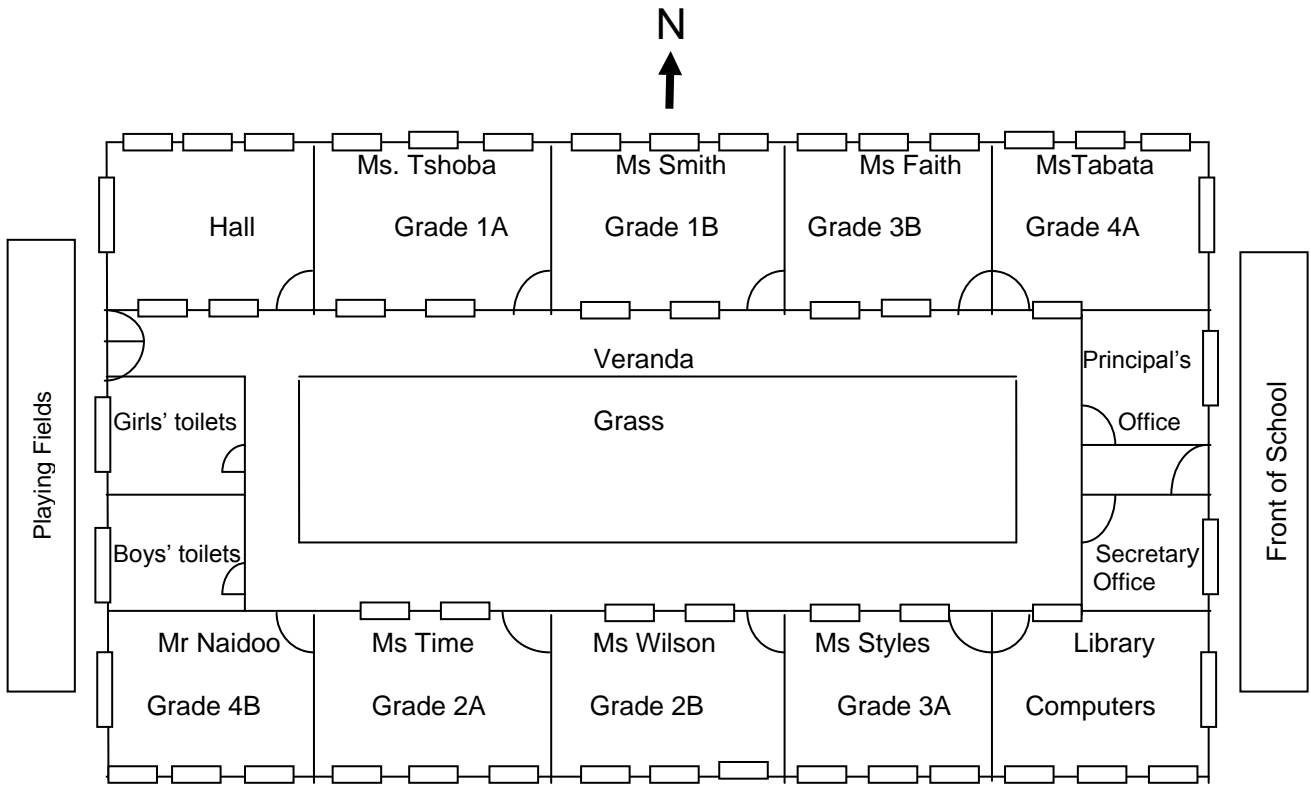


- 2.5.1 What is the width of the paving required? (2)
- 2.5.2 If the paving stones used measure 50 cm x 50 cm, how many paving stones will be needed to complete the paving? (4)

[22]

QUESTION 3

Your youngest little sister, Lisa, is going to Grade 1 next year. Lisa is afraid of getting lost around her new school. She likes to know exactly where she needs to go at all times, or else she tends to panic and cry. As she is going to your old primary school you are able to help make getting around the school easier for her. You draw a sketch of the school as shown below.



Scale = 1 : 400

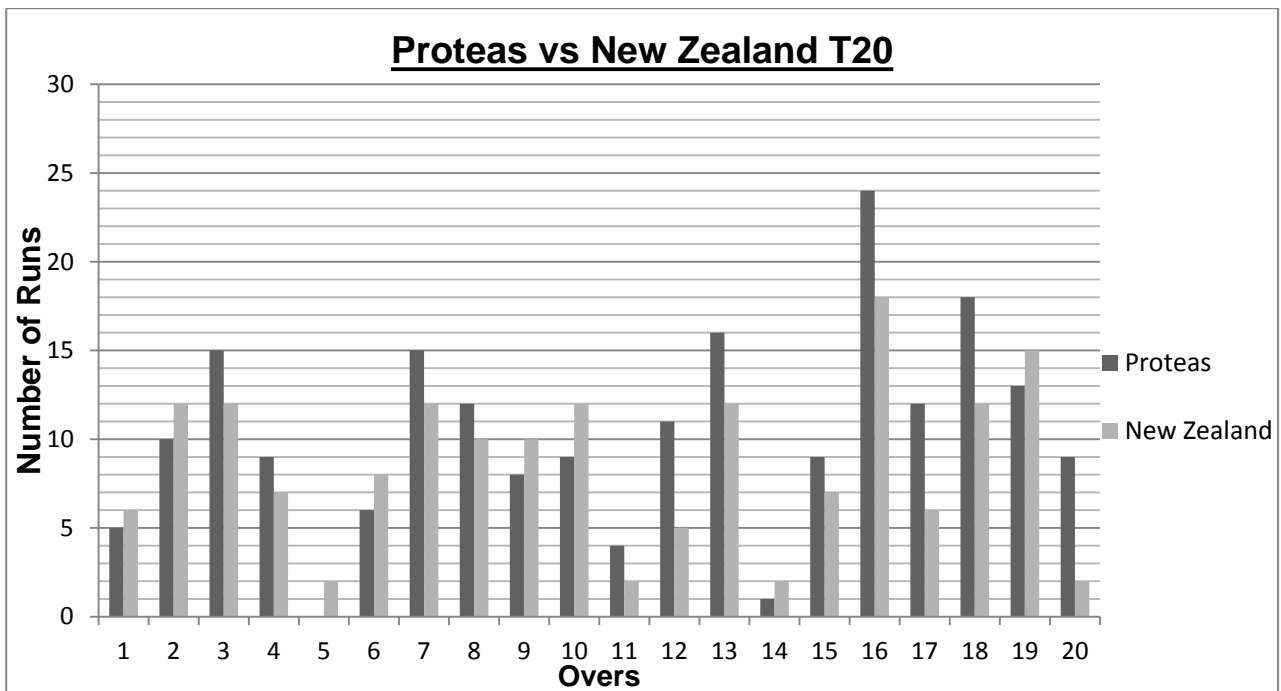
- 3.1 All learners will enter the school through the front door on the first day. No learners are allowed on the grass except at break time and under supervision of a teacher.
 - 3.1.1 Your sister is going to Grade 1. On which side of the school is Lisa's class? Use a compass direction for your answer. (1)
 - 3.1.2 Lisa is going into Ms Smith's class next year. Give her directions how to get from the front door of the school to Ms Smith's classroom. (2)
 - 3.1.3 Is there a single or double door going out to the playing fields? Why do you think this is so? (2)
- 3.2 Lisa wants to know how big her classroom is.
 - 3.2.1 Measure the length and breadth of her classroom on the drawing. Give your answer in centimetres. (2)
 - 3.2.2 Using the scale provided, give the real life length and breadth of her classroom. (4)

- 3.3 Draw the front view of the school building. Remember to show all windows, doors and the roof. (3)
- 3.4 Are all the classrooms in the school the same size? Give a reason why you think this is so. (2)
- 3.5 Lisa's school fees are R950 per month for ten months.
- 3.5.1 Calculate the annual cost of the school fees. (2)
- 3.5.2 If school fees are paid in full at the beginning of the year, 15% discount is given. How much discount is this? (2)
- [20]**

QUESTION 4

- 4.1 Earlier this year South Africa played against New Zealand in a T20 series at Newlands Cape Town.

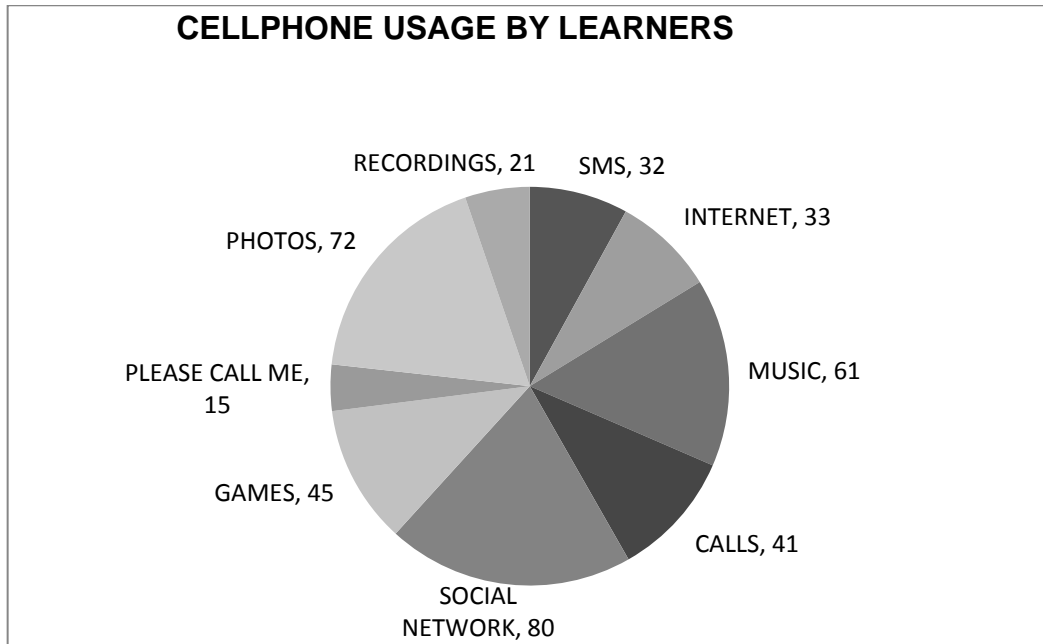
Below is a graph showing the number of runs made per over for both teams. Study the graph carefully and answer the questions that follow.



- 4.1.1 In which over did the Proteas score the most runs? (1)
- 4.1.2 In which over did the Proteas score no runs at all? (1)
- 4.1.3 In how many overs did the Proteas score 5 runs or less? (2)
- 4.1.4 In how many overs did the New Zealanders score 12 runs each? (2)
- 4.1.5 During this match, what was the probability that the batsman would hit 9 runs in an over for South Africa? (2)

- 4.1.6 What is the total number of runs hit by South Africa for this match? (2)
 - 4.1.7 Calculate the average number of runs per over for South Africa. (2)
 - 4.1.8 Which team won this match? Show all your calculations to support your answer. (3)
- 4.2 Recently a survey was done amongst 400 learners at school to find out what cellphones get used the most for by teenagers.

Below is a pie chart showing the results of the survey.



- 4.2.1 According to the survey, what are the cellphones used for most? (1)
- 4.2.2 What percentage of learners uses their cellphones for taking photos? Use the following method to calculate the percentage:
Percentage usage= $\frac{\text{number of learners taking photos}}{\text{total number of learner surveyed}} \times 100$ (3)
- 4.2.3 What do 8% of learners use their cellphones for? (3)
- 4.2.4 Calculate the number of degrees that were used to draw the sector for Social Networking. (3)
- 4.2.5 If any of the surveyed learners were asked, what would be the probability that the learners use their cellphone for games? Write your answer as a percentage. Show all calculations used. (3)

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TOTAL: 100