

NAME OF SCHOOL

**Maths Literacy
Grade 11**

Paper 2

2,5 hours

100 marks

INSTRUCTIONS AND INFORMATION

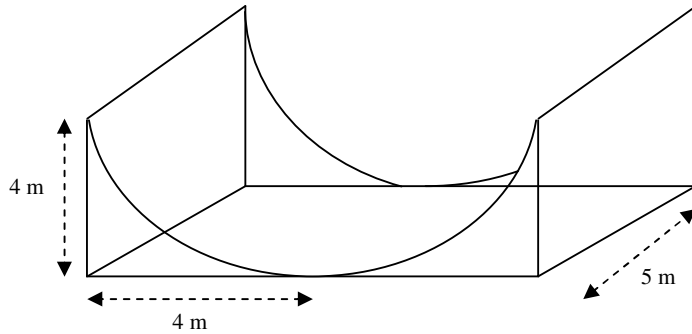
Read the following carefully before answering the questions:

1. Number the answers exactly as the questions are numbered.
2. Start the answer to each question at the top of a new page.
3. All graphs should be drawn in pencil and labelled in ink.
4. Write neatly and legibly.
5. Calculators may be used.
6. The diagrams in the question paper may not necessarily be drawn to scale.
7. Round off all answers to **two** decimal places unless instructed otherwise.
8. Use your time wisely!

Question 1:

Siyabonga and his friends have decided to build a half pipe for skateboarding in their local park. They plan to raise funds by gathering donations.

The design of the half pipe is shown below.



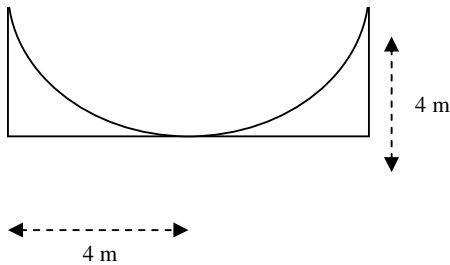
The design is basically a rectangular block with a half cylinder (radius 4 m) cut out.

1.1.1 What is the volume of the semi-cylinder that has been removed? (4)

1.1.2 What is the volume of the half pipe (the structure to be skateboarded on)? (3)

Siyabonga and his friends are struggling to work out what surface area they will have to paint in order to cover the half pipe. You help them by following these steps:

1.2 What is the surface area the shape shown below? (Remember that the semi-circle has been cut out, so you only want the surface area of what's left and that the area of a circle is given by πr^2 .)



(3)

1.3 Now that you know the surface area of the shape above, find the surface area of the outside of the half pipe. (We are ignoring the area of the curved surface on the inside for the moment.) (3)

1.4 The surface area of an open cylinder (no top or bottom) is $2\pi rh$, where r is the radius of the cylinder and h is its height. Find the surface area of the curved surface on the inside of the half pipe. (3)

1.5 Hence, determine the total surface area to be painted. (2)

Siyabonga and his friends have calculated that if they get R45 from 200 people, they will have enough money.

1.6 How much money will they gather in total? (2)

1.7 If only 100 people are willing to donate, then how much would they have to get from each person? (2)

1.8 If only 50 people are willing to donate, then how much money would they have to get from each person? (2)

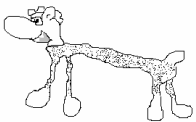

1.9 What kind of relationship is there between the number of people donating and the amount that each one donates? (1)

1.10 Sketch a graph of donation per person against number of donations. (5)

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Question 2:

Ralph is hopeless with money and has asked his girlfriend, Angelica, to help him make sense of his bank statement. There are some smudges on his bank statement, so some figures are missing. Angelica is also not very good with numbers, so she has come to you for help. The bank statement is shown below.

 Shepard's Bank 					
We aim to fleece					
Mr Ralph Meadows			Account number:		82347
24 Pansy Avenue			Account type:		Cheque
Flowerville					
Date	Details	Fee	Debit	Credit	Balance
1/Mar	Cash	5,00		2 500,00	3 251,68
4/Mar	EFT purch, Clicks	3,00		???????	3 164,03
7/Mar	Cheque, Mr Fig		1 200,00		???????
18/Mar	Cash	1,00		500,00	3 863,03
19/Mar	EFT purch, Adult World	10,67		867,49	2 984,87
19/Mar	EFT purch, Dischem	3,00		68,55	2 913,32
25/Mar	Cash	0,60		300,00	2 612,72
26/Mar	Deposit, George Hedge		750,00		3 362,72
31/Mar	Interest		???????		

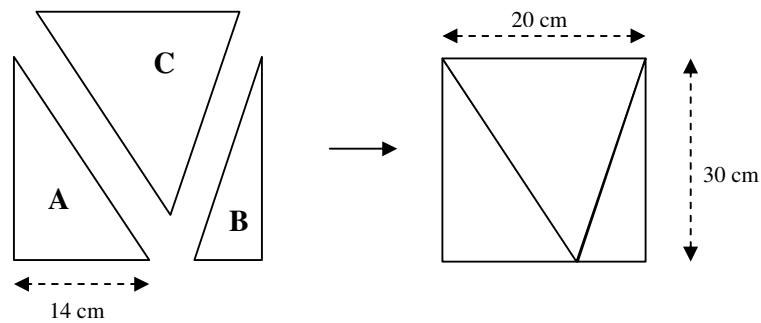
- 2.1 How much cash did Ralph withdraw in total for the month? (2)
- 2.2 How much did Ralph pay in total for the month in bank fees? (2)
- 2.3 Determine the missing amount for 4 March (the Clicks purchase). (2)
- 2.4 Look carefully at the EFT purch items. These are purchases that Ralph has made with his debit card. There is a minimum fee for transactions less than R100. What is this fee? (1)
- 2.5 Determine the missing balance on 7 March. (2)
- 2.6 Interest is calculated at 0,5 % of the average balance for the month.
 - 2.6.1 What is the average balance for the month? (3)

2.6.2 How much interest will be added on for the month? (3)

2.7 The fee for a cash withdrawal is a percentage of the total amount withdrawn. What is this percentage? (3)

2.8 What was Ralph's bank balance at the end of last month (i.e. Feb)? (3)

Ralph is so irritated with his bank fees that he cuts his bank statement up into pieces. The pieces fit together to make a 30 cm by 20 cm rectangular page as shown below.



- Remember that the area of a triangle is equal to $\frac{1}{2}$ base \times height.

2.9 What is the area of the page? (1)

2.10 What is the area of triangle A? (2)

2.11 What is the area of triangle B? (3)

2.12 What is the area of triangle C? (3)

[30]

Question 3:

Piet Stoffel has a biltong business. He buys meat from Namibia and then dries it and spices it to make biltong. He only buys as much meat as he needs to fill his orders each month, but he always has to pay for water and electricity and labour regardless of how much biltong he makes.

- Piet’s biltong is sold at R128 per kilogram.
- In order to run his business, Piet incurs the following costs:

Description	Amount
Water and electricity	R360 per month
Labour	R3 400 per month
Raw materials (meat and spices)	R48 per kilogram

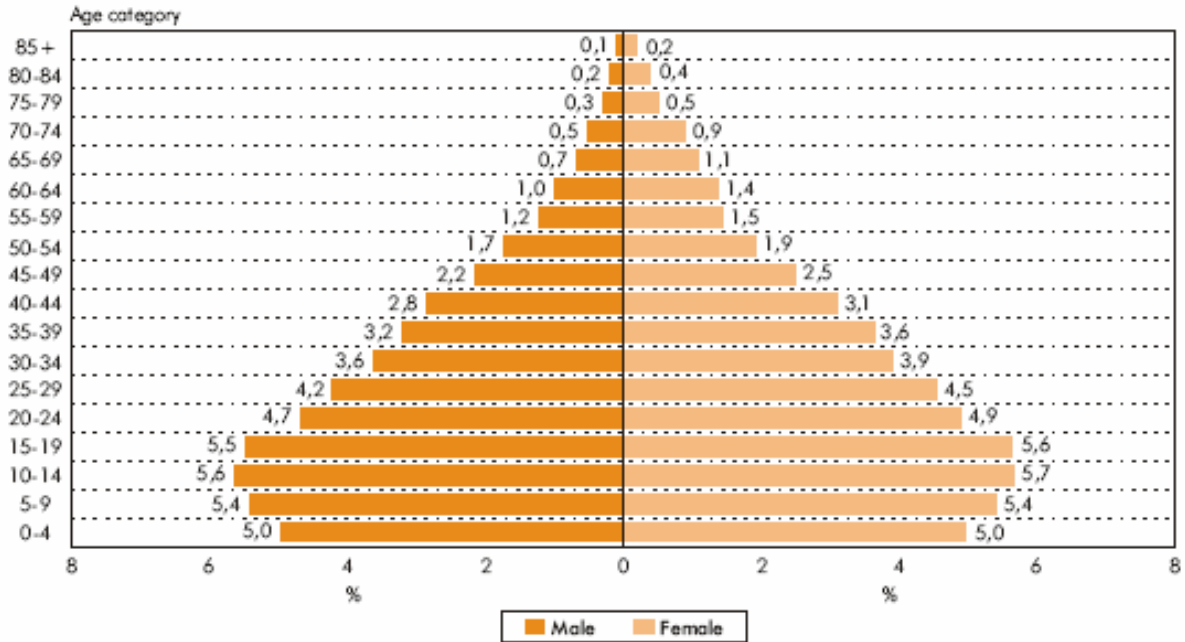
- 3.1 What are Piet’s fixed costs per month? (2)
- 3.2 Write down an expression for the total revenue coming from x kilograms of biltong. (2)
- 3.3 Write down an expression for the **total** cost of producing x kilograms of biltong. (3)
- 3.4 Use your answers to 3.2 and 3.3 to determine how many kilograms of biltong Piet has to produce in order to break even. (3)
- 3.5 Draw a graph of Piet’s revenue and cost for x kilograms of beef. Label the break-even point. (4)
- 3.6 How much profit does Piet earn on each kilogram of biltong? (2)
- 3.7 If Piet made a profit of R8 000, how many kilograms of biltong did he sell? (4)

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Question 4:

You are currently working for a market research company. They have provided you with the population pyramid below (taken from the 2001 population census published by Stats SA), which you must use to answer some questions about the population of South Africa.

A population pyramid is a graph that shows how the population of a country is split up amongst different age groups. For example, we can see from the graph that 0,1 % of the population of South Africa is male and over 85.



4.1 What percentage of South Africans are males aged 10 – 14? (1)

4.2 What percentage of South Africans are males aged 10 – 19? (3)

The population of South Africa has been estimated to be 48 502 063.

4.3 How many 15 – 19 year old females are there in South Africa, based on the pyramid? (4)

4.4 How many 15 – 19 year olds (male and female) are there in South Africa? (4)

4.5 What percentage of the population of South Africa is female, based on the pyramid? (3)

4.6 Do you think that the majority of South Africans are old or young? Give a reason. (2)

4.7 Do you think that the population of South Africa is increasing, decreasing, or staying the same? Justify your answer using the pyramid. (3)

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