



Basic Education

KwaZulu-Natal Department of Basic Education
REPUBLIC OF SOUTH AFRICA

MATHEMATICAL LITERACY P1

PREPARATORY EXAMINATION

SEPTEMBER 2015

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

MARKS: 150

TIME: 3 Hours

This question paper consists of 12 pages and 2 Annexures.

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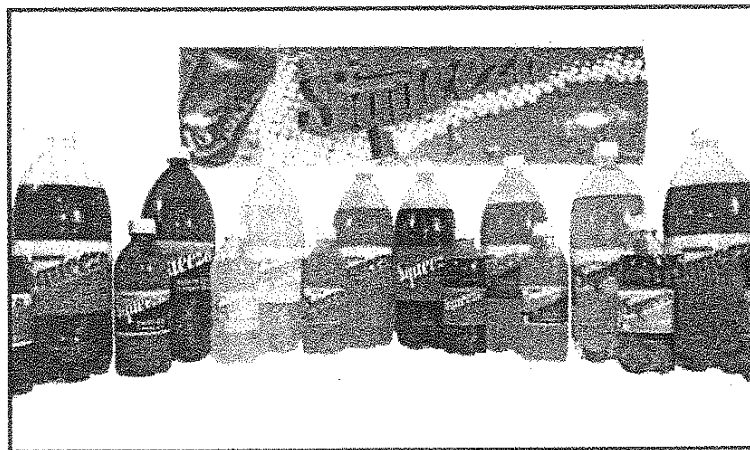
INSTRUCTIONS AND INFORMATION

1. This question paper consists of FIVE questions. Answer ALL questions.
2. Use ANNEXURE A to answer QUESTION 1.6.6 and ANNEXURE B to answer QUESTION 4.6. Write your name and grade/class in the spaces on ANNEXURE A and B and hand them in 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 the calculations clearly.
7. Round off ALL the final answers correct to TWO decimal places or 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

Ms Norma Duze owns a Squeeza soft drink outlet in Volksrust which she buys from a Squeeza company in Nelspruit. Norma stocks 500 ml and 2l soft drinks as shown in the photo below. The cost price of a six pack of 2 litres is R42,00 and Norma sells each 2 litre at R9,99. A dozen of 500 ml costs R30,00 from the company and she sells each 500 ml at R3,99.

Photo of squeeza drinks



- 1.1 Determine the cost price of one 2 litre of Squeeza soft drink. (3)
- 1.2 Calculate the cost of ten (6 packs) of 2 litres of Squeeza drinks. (2)
- 1.3 (a) Determine the profit that Norma will make if she sells one dozen 500 ml soft drinks. (3)
- (b) Hence calculate the profit margin. You may use the following formula:

$$\text{Profit Margin} = \frac{\text{income} - \text{expenses}}{\text{expenses}} \times 100\% \quad (2)$$

- 1.4 A customer can buy a 2 litre in the form of four 500 ml or buy one 2 litre bottle. How much more a customer could pay if they decide to buy four 500 ml instead of one 2l. (3)

- 1.5 Norma invests R9 500 for a period of 5 years at a bank which offers 4% interest per annum on the amount of money that is invested. Interest is compounded annually. The table below shows part of the statement for investment account.

Norma's statement for investment account

	Interest Credited	Balance
Opening Balance		R9 500
End of year 1	R380	R9 880
End of year 2	R395,20	A
End of year 3	R411,01	R10 686,21
End of year 4	B	R11 113,66
End of year 5	R444,55	C

- 1.5.1 Determine the missing values of A, B and C. (6)
- 1.5.2 Calculate the total interest earned by Norma over a period of 5 years. (2)
- 1.5.3 Express the amount of interest earned by Norma over the period of 5 years as a percentage of the amount invested. (2)
- 1.5.4 Calculate the interest Norma would have earned over a period of 5 years if she had earned 4% per annum simple interest for 5 years. (3)
- 1.6 Norma drives a car from Vryheid to visit her aunt in Port Shepstone. On the way, she stops at Durban to buy some groceries for her aunt. She parks her car at the Pine Parkade. Carefully study the information on the Pine Parkade parking tariffs and answer the following questions.

Day Rate		Night Rate	
Hours	Rate	Hours	Rate
0 - 1 hr	R13.00	0 - 30mins	R10.00
1 - 3 hrs	R19.00	30mins - 1 hr	R13.00
3 - 5 hrs	R25.00	1 - 2 hrs	R17.00
5 - 6 hrs	R28.00	2 - 3 hrs	R19.00
6 - 7 hrs	R35.00	3 - 4 hrs	R22.00
7 - 24 hrs	R60.00		

Lost Ticket Administration Fee R60.00

Wheel Clamp Release Fee R150.00

TERMS AND CONDITIONS OF PARKING FOR THE BENEFIT OF INTERPARK (SOUTH AFRICA)

Source: Interpark South Africa

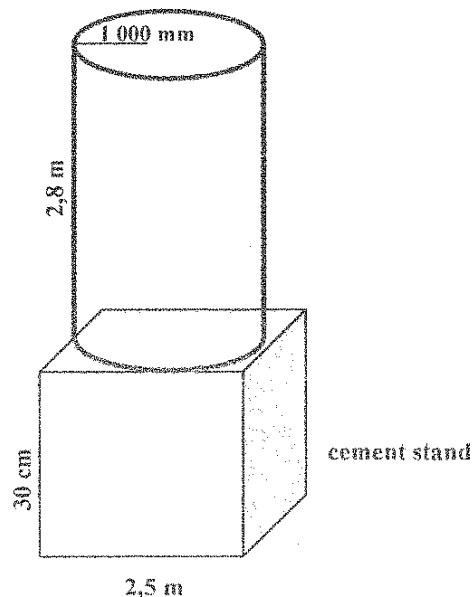
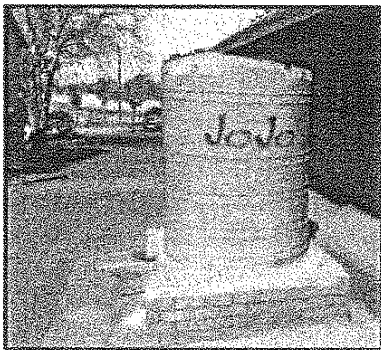
- 1.6.1 Norma arrives at the parking lot at 11:05 and leaves at 14:10, determine the time she spent at the parking lot and the amount paid. (3)
- 1.6.2 The driver has 15 minutes to exit the parking lot after making payment. Norma makes payment at 14: 10. Determine the latest time she could leave the parking lot. (2)
- 1.6.3 If the driver loses the parking ticket, determine how much the charge will be. (2)
- 1.6.4 Some irresponsible normal drivers park their cars at the parking bay reserved for the disabled people. If the driver is caught doing this, the wheels of a car are clamped. How much is the fine for releasing a car from a wheel clamp? (2)
- 1.6.5 How many hours per day is the parking lot opened for? (2)
- 1.6.6 Complete the graph for the night rate parking tariffs drawn on annexure A. (4)
- [41]**

QUESTION 2

Ms Norma Duze is a parent, her daughter goes to Funda High school. There is a shortage of running tap water at the school. Sip-a-drink company where Norma works, donates a water tank with a capacity of 5 000 ℓ. The tank will be put on a square concrete stand. The side length of the stand is 2,5m and the height is 30 cm. The cylindrical water tank is 2,8m high and has a radius of 1 000mm.

Diagram showing the water tank on a concrete stand.

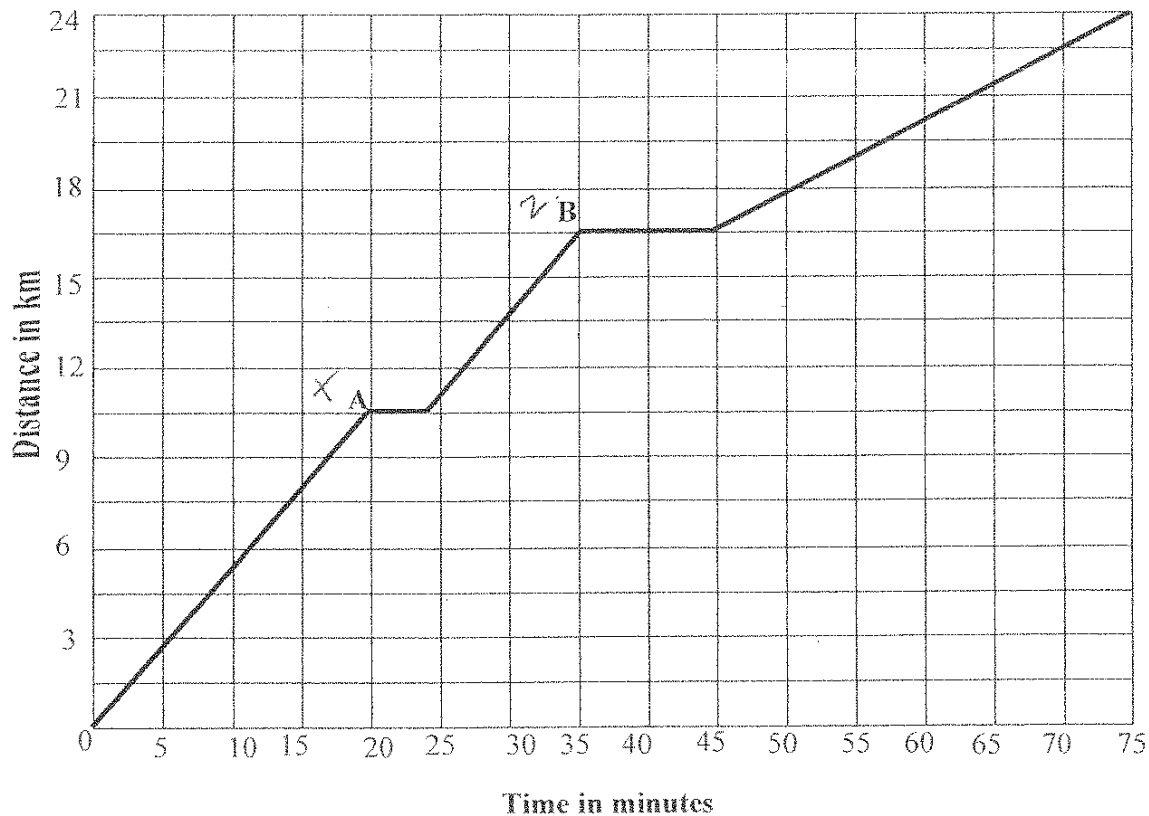
Photo of a water tank



- 2.1 Convert the capacity of the tank to kilolitres. NOTE: $1 \text{ k}\ell = 1\,000 \ell$ (2)

- 2.2 Calculate the surface area of the tank in metres (m).
You may use the following formula:
**Surface area of a cylinder = $2 \pi r^2 + \pi \times d \times h$, where r = radius,
 d = diameter, use $\pi = 3,142$.** (4)
- 2.3 Determine the area occupied by the concrete stand in metres (m)².
You may use the following formula:
Area square = (side length)² (2)
- 2.4 Determine the volume of concrete in cubic metres (m³) needed to build the stand.
You may use the following formula:
Volume of a square prism = $l \times b \times h$ (3)
- 2.5 If one cubic metre of concrete weighs 2,3 tons, determine the weight of concrete calculated in 2.4 above. **NOTE: 1 ton = 1 000 kg** (4)
- 2.6 What will the concrete cost at R895 per cubic metre? (2)
- 2.7 Learners at Funda high school consume 150 ℓ of water on average per day. After how many days will water be completely finished in the tank? (3)
- 2.8 For the concrete stand, builders charge R80 per hour for labour, if they finish building the stand in two days, how much will be the labour cost? They work 8 hours per day. (3)
- 2.9 Norma travels to work with her neighbours Thandi and Zaheeda. They all work for different companies. The following information describes Norma's routine after work each day. She drives from her workplace to pick up her neighbours. She picks up Thandi at point A, she then picks up Zaheeda at point B then they travel home together. Read the graph below and answer the questions that follow.

Norma's trip from work

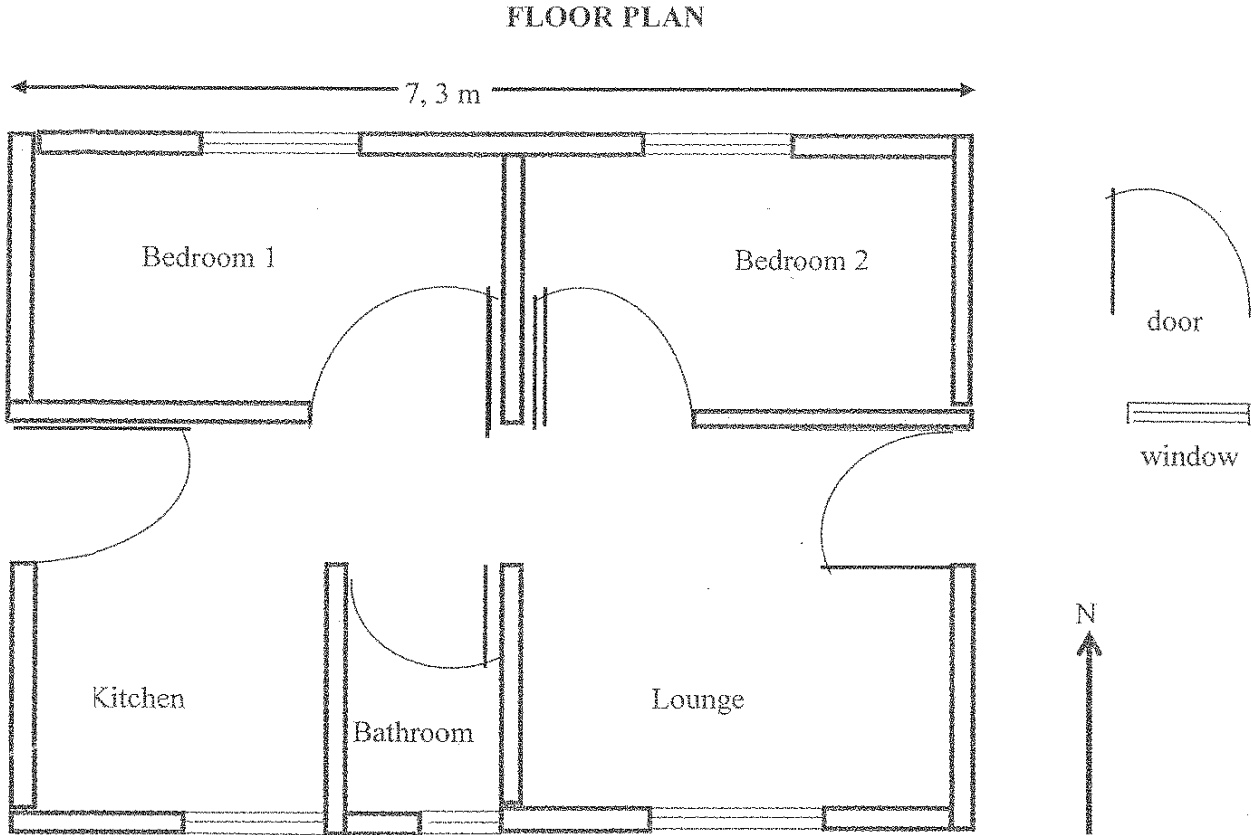


- 2.9.1 How far must Norma travel to pick up Thandi? (2)
- 2.9.2 How long did it take Norma to get to Zaheeda's workplace. (2)
- 2.9.3 Convert the answer in 2.9.2 above to hours only. (2)
- 2.9.4 Upon arriving at his neighbour's workplaces, Norma had to wait a while before she picked up her neighbours. How long did she have to wait for:
- (a) Thandi (2)
- (b) Zaheeda (2)
- 2.9.5 Express the time spent at Thandi's workplace and Zaheeda's workplace as a ratio in simplest form. (2)

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QUESTION 3

Lindy works as a domestic worker and earns R3 500 per month. She then qualifies for a RDP house. Below is the floor plan of Lindy’s RDP house.



- 3.1 The actual length of the house is 7,3 m and on the plan it is 133mm Determine the scale used in the form 1: (Round the answer to the nearest whole number) (4)
- 3.2 Explain what the scale calculated in 3.1 above means. (2)
- 3.3 Determine the number of windows and doors on the above floor plan. (4)
- 3.4 Give the general direction of bedroom 1 from the lounge. (2)
- 3.5 The width of the house is 7,1 m, use the number scale calculated in 3.1 to determine the width in mm on the plan. (3)
- 3.6 Determine the area covered by the house plan in (m²).
You may use the following formula:
Area of a rectangle = l x b (2)

- 3.7 Determine the perimeter of the house in metres (m).
You may use the formula:
Perimeter = 2 (l + b) (2)
- 3.8 Which entrance gets the sun in the morning? (2)
- 3.9 Does the door leading to the bathroom open to the right or to the left? (2)
[23]

QUESTION 4

M Makhubela lost his son during Easter holidays in April 2015. In 2013 the number of fatalities in South African roads was 287 during Easter holidays. In 2014 the number of fatalities was 193 and in 2015 the number increased to 287. Below is a table which shows the number of fatalities in South African roads in 2015 during Easter holidays.

Source: www.citizen.co.za

Table 1: Number of road fatalities in South African roads during Easter holidays in 2015

Province	Number of fatalities
KwaZulu Natal	55
Limpopo	44
Gauteng	38
Eastern Cape	35
Mpumalanga	34
North West	28
Western Cape	26

- 4.1 Northern Cape and the Free State are not mentioned in the table above.
Determine the total number of fatalities that occurred in both provinces. (3)
- 4.2 Which province had the highest road fatalities during Easter holidays? (2)
- 4.3 In 2014 the fatalities in South African roads was 193 and in 2015 it was 287.

Determine the percentage increase in road fatalities from 2014 to 2015.
You may use the following formula:

$$\% \text{ increase} = \frac{\text{new} - \text{old}}{\text{old}} \times 100\% \quad (2)$$

- 4.4 How many more deaths occurred in 2015 than in 2014? (2)
- 4.5 Calculate the percentage of KZN fatalities compared to the total number of fatalities in 2015. (2)
- 4.6 Use annexure B to draw a bar graph showing the road fatalities during Easter holidays. (6)

- 4.7 The following table shows weather prediction for Ladysmith from Tuesday 31 March 2015 to Saturday 04 April 2015 during Easter week. Study the table below and answer the questions that follow.

Table 2: Temperatures for five days

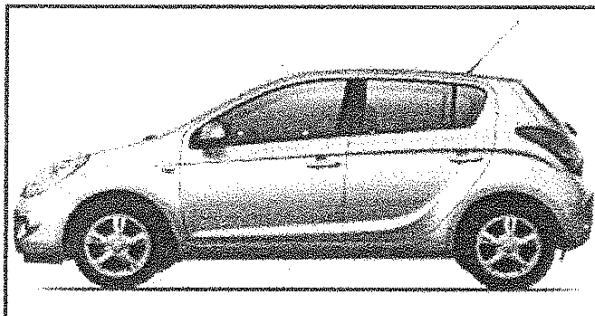
	Tuesday	Wednesday	Thursday	Friday	Saturday
Minimum Temperature in °C	16	17	16	15	17
Maximum Temperature in °C	27	25	30	29	28

Source: Accu Weather SA

- 4.7.1 Determine:
- (a) the median of the minimum temperatures. (2)
 - (b) the range of the maximum temperatures. (2)
- 4.7.2 (a) Calculate the mean of the maximum temperatures. (3)
- (b) Determine the mode of the minimum temperatures. (2)
- 4.7.3 What is the probability that the weather could be at a minimum temperature of 16 °C during the given period? Write the answer as a decimal fraction. (3)
- 4.7.4 A person wanted to visit Ladysmith during the Easter week of 2015, by referring to the given temperatures in the table above would you suggest that he or she packs winter or summer clothes? Give a reason for your choice. (3)
- 4.8 Convert the temperature of 30 °C to °F.
You may use the following formula:
- $$\text{Temperature (in } ^\circ\text{F)} = \text{temperature (in } ^\circ\text{C)} \times 1,8 + 32^\circ$$
- (2)
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QUESTION 5

John is a newly appointed chartered accountant. He would like to buy a reasonable car for travelling to work. When reading a newspaper, he comes across an advertisement of a small car that he wants to buy. Below is an advert of a car. Study it and answer the questions that follow.



FINANCE CONDITIONS	
Cash price : R89 995	
Monthly payment	R1 899
Interest rate	8,5%
Period	5 years
Deposit	10%
Monthly administration fee	R57

Source: www.carfind.co.za

The predicted inflation rate for the next three years is as follows:

2015/2016	5,8%
2016/2017	6,3%
2017/2018	5,9%

- 5.1 Determine the deposit amount of the car. (2)
- 5.2 John intends buying the advertised car. Use the predicted inflation rates above to calculate the cost of the car in three years' time. (6)
- 5.3 At a car dealer where John buys the car there are 8 red , 3 blue , 2 black , 8 white and 4 maroon cars.
- 5.3.1 When a car is chosen at random, what is the probability that John chooses a white car? (2)
- 5.3.2 When a car is chosen at random, what is the probability that John does NOT choose a red car? (2)

- 5.4 John's car is light in fuel such that it consumes 7 l per 100 km. If John travels a distance of 850 km, how many litres will be consumed? (3)
- 5.5 One litre of petrol costs R14,30, determine how much will he spend on petrol for the distance mentioned in 5.4 above. (2)

[17]**TOTAL: 150**