



Province of the  
**EASTERN CAPE**  
EDUCATION

**NATIONAL  
SENIOR CERTIFICATE**

**GRADE 12**

**JUNE 2016**

**MATHEMATICAL LITERACY P2**

**MARKS: 100**

**TIME: 2 hours**



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This question paper consists of 11 pages, including 1 annexure sheet.

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**INSTRUCTIONS AND INFORMATION**

Read the following instructions carefully before answering the questions.

1. This question paper consists of FOUR questions. Answer ALL the questions. QUESTION 3.1 must be answered with reference to the ANNEXURE.
2. Number the questions 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 calculations must be shown clearly.
5. Round off ALL final answers appropriately according to the given context, unless stated otherwise.
6. Start EACH question on a NEW page.
7. Write neatly and legibly.

**QUESTION 1**

- 1.1 Mandy and Andy are about to get married, but they want to buy their own house. They are interested in buying the house shown below. The price of the house is R 0,98 million. To buy a house it is not only the purchase price that should be taken into account, because there is still money needed for additional costs.



Specifications of the house:

Large kitchen, living room and dining room with TV-room. Built-in cupboards in all three rooms [linen cupboard in passage] and 2 bathrooms. Rondawel with own bedroom, outside building, laundry room, 2 garages with undercover parking for 2 vehicles. Property is fenced. House is close to a hospital, school and shopping complex.

Adapted [Source: <http://www.freepropertyads.co.za>]

- 1.1.1 If there must be money available for additional costs, what does this additional costs refer to? Mention ONLY ONE additional cost. (2)
- 1.1.2 Mandy and Andy are going to apply for a home loan of 110% to cover for the home loan and all other additional cost. Calculate how much money they will borrow from the bank. (3)
- 1.1.3 Why do you think that this couple see this house as an ideal place to buy? (2)

- 1.2 The bank offers Mandy and Andy a loan at the interest rate of 9,5% per annum compounded monthly as well as 30 years to pay off their home loan. The bank uses a factor table to determine the monthly repayments. The factor table is given below.

**Table 1: Bond Factor Table**

<b>Bond Repayment Factor Table</b>						
		<b>Loan Period in years</b>				
		<b>10</b>	<b>15</b>	<b>20</b>	<b>25</b>	<b>30</b>
<b>Interest Rate per annum</b>	<b>8%</b>	12,13	9,56	8,36	7,72	7,34
	<b>8,5%</b>	12,4	9,85	8,68	8,05	7,69
	<b>9,0%</b>	12,67	10,14	9	8,39	8,05
	<b>9,5%</b>	12,94	10,44	9,32	8,74	8,41
	<b>10%</b>	13,22	10,75	9,65	9,09	8,78
	<b>10,5%</b>	13,49	11,05	9,98	9,44	9,15
	<b>11%</b>	13,78	11,37	10,32	9,8	9,52
	<b>11,5%</b>	14,06	11,68	10,66	10,16	9,9
	<b>12%</b>	14,35	12	11,01	10,53	10,29
	<b>12,5%</b>	14,64	12,33	11,36	10,9	10,67
	<b>13%</b>	14,93	12,65	11,72	11,28	11,06
	<b>13,5%</b>	15,23	12,98	12,07	11,66	11,45
	<b>14%</b>	15,53	13,32	12,44	12,04	11,85

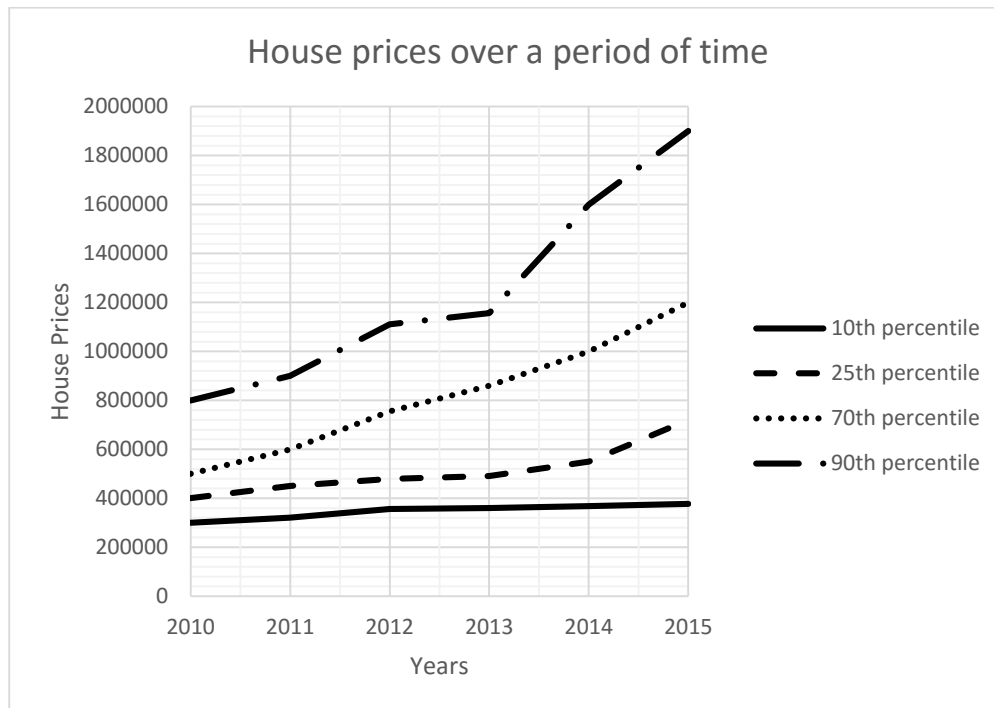
[Source: [http://huis-huis.co.za/bond\\_repayment\\_factor\\_table\\_full.htm](http://huis-huis.co.za/bond_repayment_factor_table_full.htm)]

The monthly repayment is calculated using the following formula:

$$\text{Monthly repayment} = \frac{\text{Bond Amount}}{1\,000} \times \text{Factor}$$

- 1.2.1 Based on the amount that they are going to borrow from the bank, calculate the following:
- (a) Monthly Repayment
  - (b) Real cost at the end of the loan period
  - (c) Interest that they will pay on the loan (8)
- 1.2.2 Calculate the percentage interest that will be paid on the final amount. (2)
- 1.2.3 Compare the factor values for a loan at 11% interest over the different loan periods and explain the impact of the loan period on the repayment of a loan. (4)
- 1.2.4 Currently in South Africa, the interest rate is on the increase. Comment by making a comparison how a change in the interest rate will have an effect on the monthly repayments of a loan if the loan period is 15 years at an interest rate of 12%, 12,5% and 13%. (4)

- 1.3 The following graph shows how house prices in different price categories have changed from 2010 to 2015. Study the graph to answer the questions that follow.



- 1.3.1 Explain what the 90<sup>th</sup> percentile means in terms of house prices. (2)
- 1.3.2 What percentage of houses in 2014 cost more than R 1 000 000? (2)
- 1.3.3 What percentage of houses in 2010 cost less than R 400 000? (2)
- 1.3.4 Why do you think that the 10<sup>th</sup> percentile graph has a different shape than that of the other percentile graphs? (2)
- 1.3.5 Due to inflation, prices of all services and goods increase annually. Predict, with the necessary calculations, what the new price of a house will cost in 2017 if the inflation rate remains constant at 6,6%. Use the house price on the 70<sup>th</sup> percentile for 2015. (3)

**[36]**

**QUESTION 2**

- 2.1 Brendon has a small garden in his backyard that is already fenced. He wants to have a garden gate so that he can keep the dogs out of his garden. An example of the garden gate that Brendon wants to put up, is illustrated in the photograph below. Read the information below to answer the questions that follow.



[Source: *minimalisti.com*]

The garden gate will have 1 post on each side which will support the gate. Each post will be 0,4 m below the ground and 6 cm above the height of the gate.

The height of the vertical planks are 1,3 m and has a width of 110 mm. At the bottom of the gate is a 8 cm clearance gap above the ground. The gaps between each vertical plank are 3 cm. He will fit 2 horizontal planks and 1 diagonal plank to which the vertical planks will be attached.

The gate is 126 cm wide.

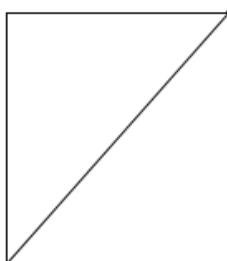
You may use the formula:

$$(\text{Length of diagonal plank})^2 = (\text{Vertical height})^2 + (\text{Width of gate})^2$$

- 2.1.1 Determine the length of each post in centimeters. (3)

- 2.1.2 Why must there be a clearance gap at the bottom of the gate? (2)

- 2.1.3 The following diagram not drawn to scale is how the horizontal planks, vertical planks and diagonal plank are put together.



If the horizontal planks are placed 18 cm from the bottom and top of the vertical planks, determine the length of the diagonal plank in metres.

(7)

- 2.1.4 You are going to assist Brendon in the project. Give a detailed description of how you would go about in doing this, using the given information.

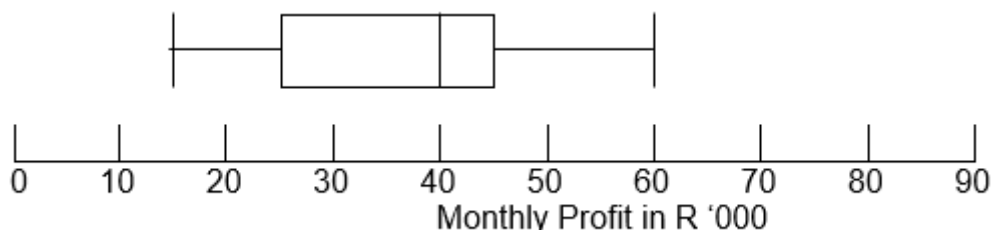
(5)

- 2.2 Sakhiswa High School and Aphiwe Secondary School compared their profits that they have made from their tuck shops. The box-and-whisker plots below shows information about the profits of these two schools.

**Sakhiswa High School**



**Aphiwe Secondary School**



- 2.2.1 Calculate the range for both schools. (3)

- 2.2.2 "The difference in the range can also be determined by comparing the lengths of the two plots."

Explain this statement.

(2)

- 2.2.3 Explain what it means in terms of the profit that the right-hand side of Aphiwe Secondary School plot is much shorter than that of Sakhiswa High School.

(2)

- 2.2.4 Compare and comment on the schools in terms of the middle 50% of the profits.

(5)

- 2.2.5 Which of the schools yield better profits? Explain your answer.

(4)

**[33]**

**QUESTION 3**

- 3.1 Study the strip chart of the directions from Johannesburg to Zimbabwe (**ANNEXURE A**) and answer the questions that follow.

- 3.1.1 "Strip charts is a very useful tool when travelling between two locations."

Explain why strip charts is a useful tool. (2)

- 3.1.2 How far is it from Pretoria to Bela-Bela (Warmbaths)? (2)

- 3.2 3.2.1 Jean lives in Johannesburg. On the 23<sup>th</sup> of February 2016, she had to be Harare, Zimbabwe. She returned home on the 2<sup>nd</sup> of March 2016. She is driving a vehicle that uses 7,5 liters of fuel per 100 kilometers and the vehicle uses unleaded 93 petrol.

Attached find a table with the fuel pricing from January 2016 to April 2016.

**Table 2: Petrol price in cents from January 2016 to April 2016**

<b>Petrol Pricing (in cents) in South Africa</b>						
Petrol	Reef			Coast		
	Unleaded	LRP	Unleaded	LRP	Unleaded	
	<b>93</b>	<b>95</b>	<b>93</b>	<b>93</b>	<b>95</b>	<b>95</b>
06-Apr-16	1232	1262	1232	1194	1214	1214
02-Mar-16	1146	1174	1146	1120	1131	1131
03-Feb-16	1215	1243	1215	1189	1200	1200
06-Jan-16	1209	1237	1209	1183	1194	1194

[Source: <https://www.aa.co.za/on-the-road/calculator-tools/fuel-pricin/>]

Compare with the necessary calculations Jean's petrol cost for her trip to and from Harare and comment on the difference in costs. (8)

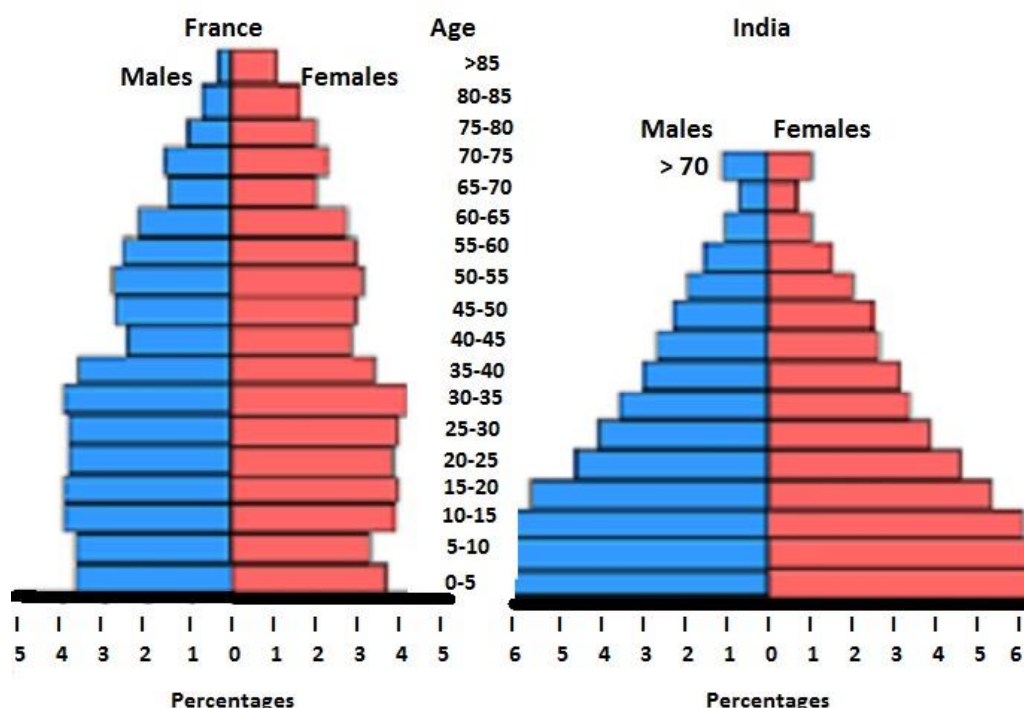
- 3.2.2 Do you think that petrol cost is the only cost that Jean must consider for undertaking the trip from Johannesburg to Harare? Mention TWO other costs evident from the map that Jean must also take into account.

(4)  
**[16]**

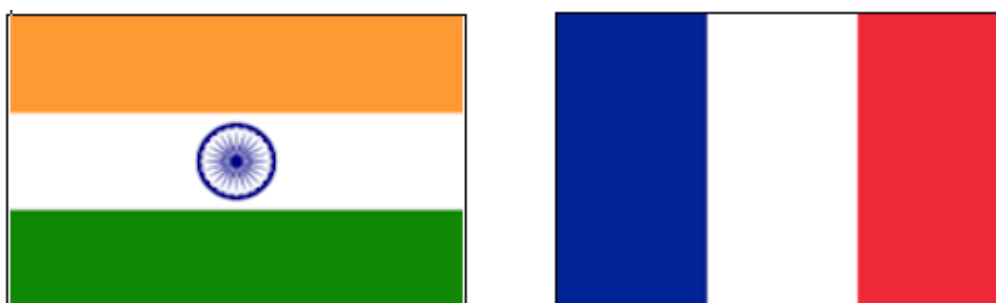


## QUESTION 4

- 4.1 Study the population pyramids of France and India below and answer the questions that follow.

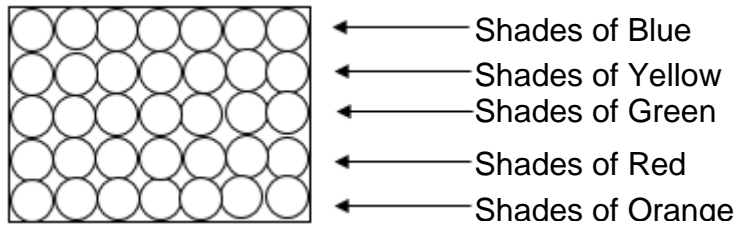


- 4.1.1 Approximately what percentage of France's population fall in the category 30 – 35 years? (2)
- 4.1.2 Compare and comment on the bases of each of the countries. (4)
- 4.2 Hanim has two friends, one from India and one from France. She wants to surprise each of them with a flag of their own countries which she made herself. The flags will be of the same size. She used a scale of 1 : 23 to draw the flags.



- 4.2.1 She wants to use the scale to cut the dimensions on a piece of white material. Show with the necessary calculations that the area of each flag when she is done, will be 12 378,60 cm<sup>2</sup>. (6)

- 4.2.2 Hanim has a tray with various colours of paint that she wants to use to paint the colours of the flags of the countries on the white material. Below is an example of the paint tray.



Determine the probability of choosing a red or yellow shade from the tray. Give your answer as a percentage.

(3)  
[15]

**TOTAL: 100**

## ANNEXURE

### QUESTION 3.1

1

JOHANNESBURG/PRETORIA TO BEITBRIDGE



446 km from  
Beitbridge to Harare

## Bela-Bela (Warmbaths)









