



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

**NATIONAL
SENIOR CERTIFICATE**

GRADE 11

MATHEMATICAL LITERACY P2

EXEMPLAR 2013

MARKS: 100

TIME: 2 hours

This question paper consists of 9 pages and 2 annexures.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of FOUR questions. Answer ALL the questions.
2. Answer QUESTION 1.4 and QUESTION 4.3.1 on the attached ANNEXURES. Write your name and class in the spaces provided on the ANNEXURES and hand in the ANNEXURES 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 calculations clearly.
7. Round off ALL final answers to TWO decimal places, 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

Lerato wants to earn extra money to use towards her studies. After seeing how many people buy Chip Twisters, she investigated the possibility of selling Chip Twisters herself.

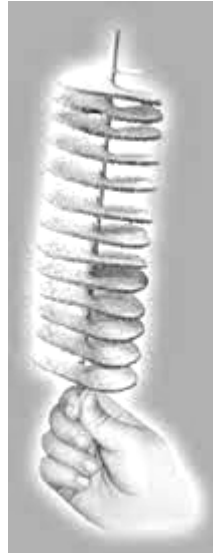
She will need the following to start her business:

Fixed assets

- A cutter to slice the potatoes into rings
- A deep-fryer to fry the potatoes

Consumable goods

- Potatoes
- Bamboo sticks
- Oil for frying
- Seasoning

Chip Twister**Cutter****Deep-fryer**

She finds out that she can buy the cutter and the deep-fryer for R1 730. She asks her uncle to lend her the money to buy the cutter and the deep-fryer. He agrees that she can repay him at the end of 2 years, but at a compound interest rate of $7\frac{1}{2}\%$ per year, compounded annually.

1.1 Calculate how much she must repay her uncle after 2 years. (5)

1.2 Lerato incurs the following costs:

ITEM	COST
A 10 kg bag of medium-sized potatoes (average of 48 potatoes per bag)	R49,00
100 bamboo sticks	R19,99
200 g bottle of seasoning	R8,75
750 ml bottle of cooking oil	R12,50
9 kg gas bottle	R259,00

1.2.1 In order to produce one Chip Twister, Lerato uses:

1 potato; 1 bamboo stick; 1,5 g of seasoning

Calculate the cost of producing ONE Chip Twister using these ingredients. (7)

1.2.2 In order to fry the Chip Twister:

The deep fryer uses 2 ℓ cooking oil to fry one 10 kg bag of medium-sized potatoes.

The 9 kg bottle of gas can fry up to 500 chip twisters.

Calculate the total cost of producing ONE Chip Twister. (7)

1.3 Lerato sells her Chip Twisters at a local flea-market. Her rent and transport costs per week amount to R450,00.

1.3.1 Write down the formula that Lerato can use to calculate her weekly costs to produce and sell Chip Twisters if the total cost to produce one Chip Twister is R2,50.

Write the formula in the form:

Weekly costs (in rand) = 450 + ... (2)

1.3.2 Hence, or otherwise, calculate how many Chip Twisters she will make if her weekly costs are R1 700. (3)

1.4 The graph showing Lerato's weekly income from the sale of Chip Twisters is drawn on ANNEXURE A.

Use ANNEXURE A to draw, on the same grid, the graph showing Lerato's costs to produce and sell Chip Twisters. (4)

1.5 Use the graphs in QUESTION 1.4 above to answer the following questions.

1.5.1 Determine the selling price of a Chip Twister. (3)

1.5.2 How many chip twisters must Lerato sell in order to break even? (2)

1.6 The recommended temperature to fry the Chip Twisters is 220 °C. The temperature of the deep-fryer is given in °F.

Convert 220 °C into °F.

Use the following formula:

°F = (1,8 × °C) + 32° (2)

[35]

QUESTION 2

Rocco wants to redo the cushions on a couch in his living room. The couch has a rectangular cushion which is 1,2 m long, 45 cm wide and 8 cm high and two identical cylindrical cushions with a diameter of 18 cm and a length which is equal to the width of the rectangular cushion. The cushions are made of foam plastic and then covered with material.

ROCCO'S COUCH

Use the following formulae if necessary:

$$\text{Volume of a rectangular prism} = l \times b \times h$$

$$\text{Volume of a cylinder} = \pi \times r^2 \times h$$

$$\text{Surface area of a rectangular prism} = 2(l \times b + l \times h + b \times h)$$

$$\text{Surface area of a cylinder} = 2 \times \pi \times r^2 + 2 \times \pi \times r \times l$$

Where $\pi = 3,142$

l = length

b = width

h = height

r = radius of the circle

- 2.1 Calculate, giving your answer in m^3 , the volume of the foam plastic in:
- 2.1.1 The rectangular cushion (3)
- 2.1.2 One cylindrical cushion (4)
- 2.2 Calculate how much the foam plastic for the cushions will cost, if it is sold at R400 per cubic metre. (3)
- 2.3 Rocco calculated the total surface area of the cushions and stated that he would need approximately 2 m^2 of material to cover it.
- Verify, showing ALL the necessary calculations, if Rocco was correct or not. (9)

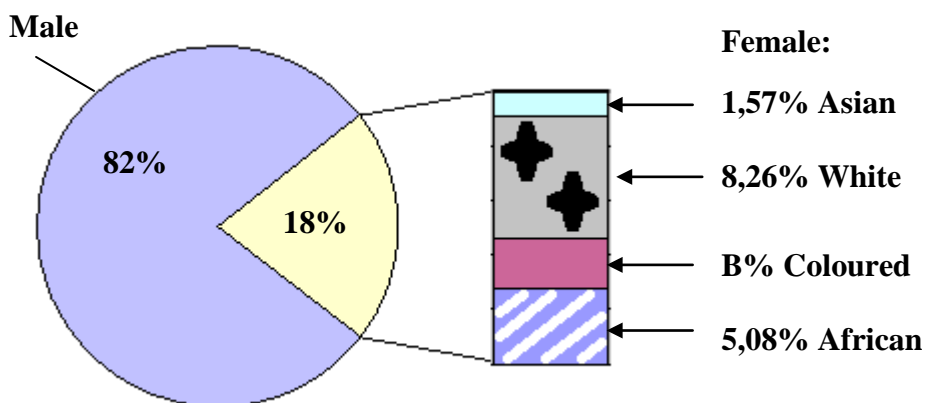
[19]

QUESTION 3

Marvin has a gym. In 2012 a total of 1 150 people attended the weight-lifting classes. He kept a record of the number of males, females and races who attended the weight-lifting class from 1 January to 31 December 2012.

TABLE: Number of males and females attending the weight-lifting classes

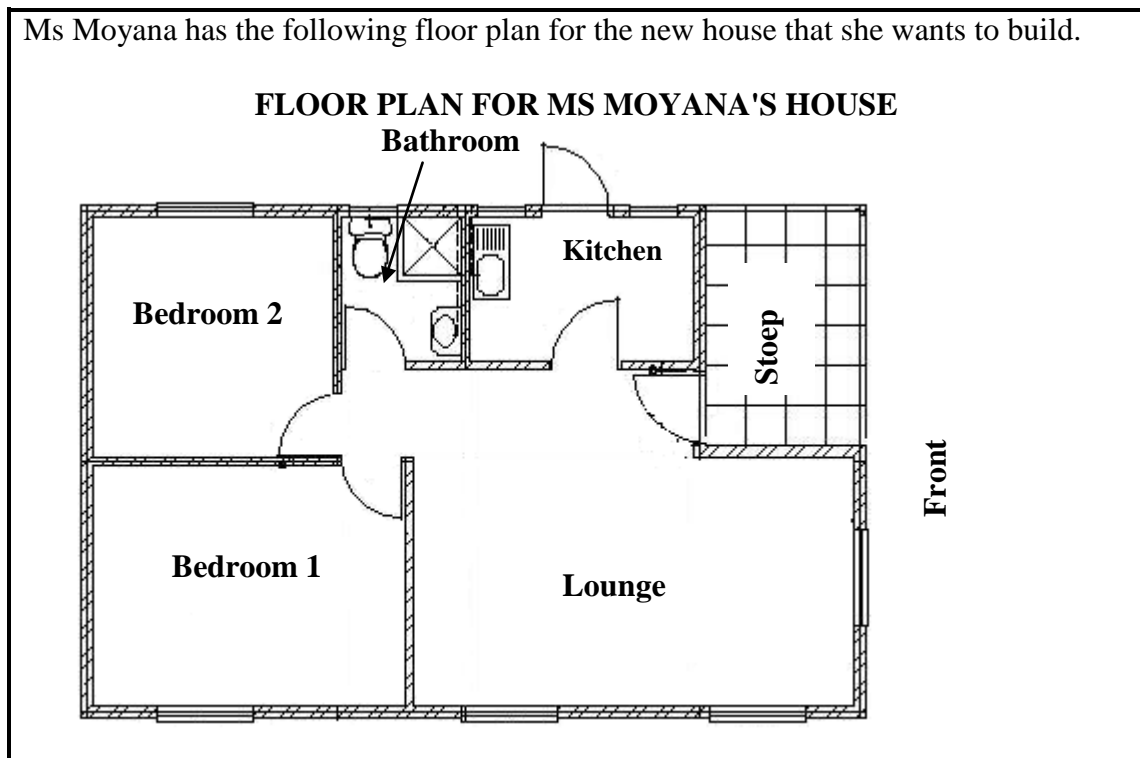
MONTH	NUMBER OF MALES	NUMBER OF FEMALES
January	60	16
February	71	19
March	63	18
April	82	15
May	80	19
June	52	13
July	96	A
August	79	14
September	80	15
October	119	20
November	76	25
December	85	18
TOTAL	943	



Use the pie chart and the table above and answer the following questions.

- 3.1 Give the ratio (in simplest form) of the number of female weight lifters to male weight lifters who attended the weight-lifting classes in September 2012. (2)
- 3.2 Calculate the missing values **A** and **B**. (5)
- 3.3 If a weight lifter is chosen at random from the whole year's weight-lifting class, what is the probability that the weight lifter will be a white female? (5)

- 3.4 Determine the:
- 3.4.1 Mean (average) of the number of males in the weight-lifting class (3)
 - 3.4.2 Modal monthly number of females in the weight-lifting class (2)
 - 3.4.3 Median of the number of males in the weight-lifting class (3)
 - 3.4.4 Range of number of females in the weight-lifting class (2)
- 3.5 State, with reasons, whether the mean, mode or median best describes the data values of the number of males in the weight-lifting class. (3)
- [25]**

QUESTION 4

4.1 Use the plan above and answer the questions that follow.

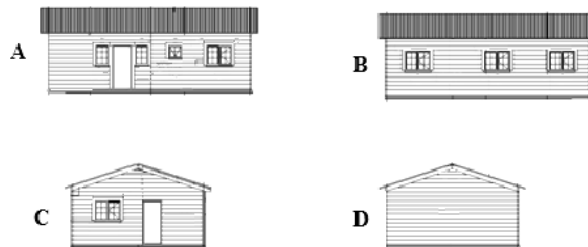
4.1.1 The outer dimensions of bedroom 2 are 3,45 m × 3,45 m.

Measure the dimensions of bedroom 2 on the plan and determine the scale used. (5)

4.1.2 How many windows are at the front of the house? (2)

- 4.2 The diagrams below show different elevations of the house whose plan is shown on the previous page.

Use the diagrams below to answer the questions that follow. Answer by writing down the letter (A–D) of the correct elevation.



- 4.2.1 Which ONE of the diagrams above is the front elevation? Justify your answer. (3)
- 4.2.2 For which rooms on the floor plan are the windows shown in DIAGRAM B? (2)

- 4.3 Ms Moyana and her husband are planning to have three children.

A tree diagram showing all possible combinations of boys and girls in a family of three children has been drawn on ANNEXURE B.

- 4.3.1 Complete ANNEXURE B by filling in the outcomes in the spaces provided. (3)
- 4.3.2 What is the probability of Ms Moyana having at least two girls? (3)
- 4.3.3 List ALL the outcomes where Ms Moyana can have two boys and one girl. (3)

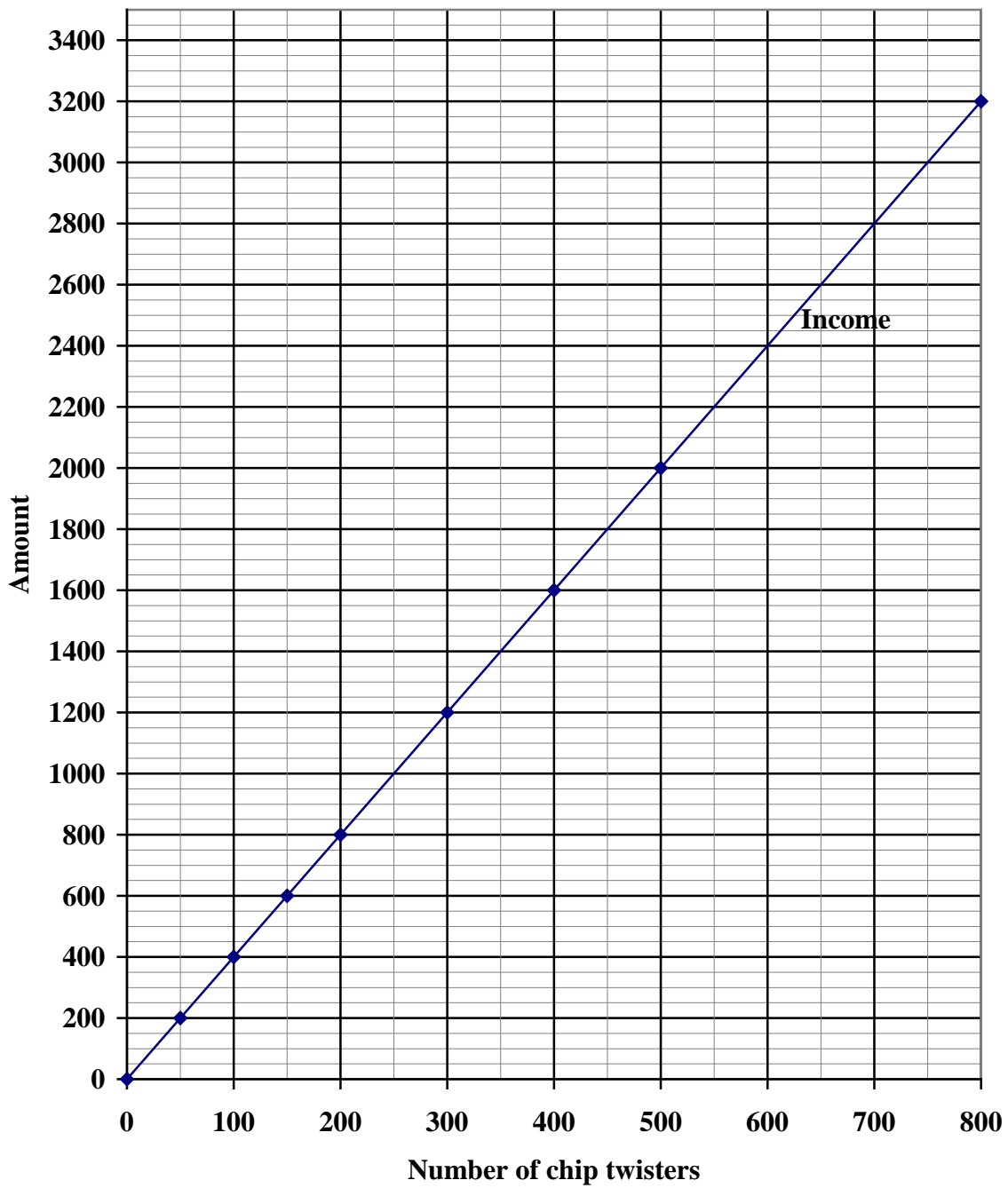
TOTAL: 100

NAME: _____ CLASS: _____

ANNEXURE A

QUESTION 1.4

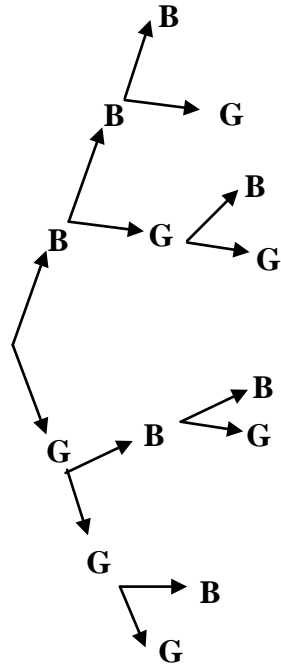
INCOME AND COSTS FOR CHIP TWISTERS



NAME: _____ CLASS: _____

ANNEXURE B

QUESTION 4.3.1



OUTCOMES

- BBB
-
- BGB
- BGG
-
- GBG
- GGB
-