



education

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NORTH WEST PROVINCE**

PROVINCIAL ASSESSMENT

GRADE 11

MATHEMATICAL LITERACY P2

NOVEMBER 2019

MARKS: 100

TIME: 2 hours

This question paper consists of 8 pages, 3 annexures and 2 answer sheets.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of FOUR questions. Answer ALL the questions.
2. 2.1 Use the ANNEXURES provided to answer the following questions:
ANNEXURE A for QUESTION 1.1.
ANNEXURE B for QUESTION 1.2.
ANNEXURE C for QUESTION 2.1.
- 2.2 Answer QUESTION 3.1.1; 3.1.2 and 4.3.1 on the ANSWER SHEETS attached.
- 2.3 Write your name in the space provided on the ANSWER SHEETS.
Hand in the ANSWER SHEETS with your ANSWERBOOK.
3. Number your 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 appropriately according to the given context, unless stated otherwise.
8. Indicate units of measurement, where applicable.
9. Maps and diagrams are NOT drawn to scale, unless stated otherwise.
10. Write neatly and legibly.

QUESTION 1

1.1

Pollution is a worldwide problem. The scattering of plastic products is a threat to the environment and life in the oceans. ANNEXURE A illustrates the worldwide increase in the production of plastic products since 1950 up to 2010. In 1950; 1,5 million tons of plastic products were produced and in 2009 the production was 250 million tons.

Use ANNEXURE A to answer the questions that follow.

- 1.1.1 Calculate the percentage increase in production of plastic products since 2002 up to 2009.

You may use the following formula:

$$\% = \frac{\text{Difference in production between 2002 and 2009}}{\text{Production in 2002}} \times 100 \quad (3)$$

- 1.1.2 Give ONE advantage of using plastic products. (2)

- 1.1.3 Between which years did the highest increase in the manufacturing of plastic products occur? (2)

- 1.1.4 Give a suggestion of a product that can be manufactured to replace plastic products. (2)

1.2

ANNEXURE B shows the increase in the recycling of plastic bottles in South Africa.

NOTE: t represents tons

Use ANNEXURE B to answer the questions that follow.

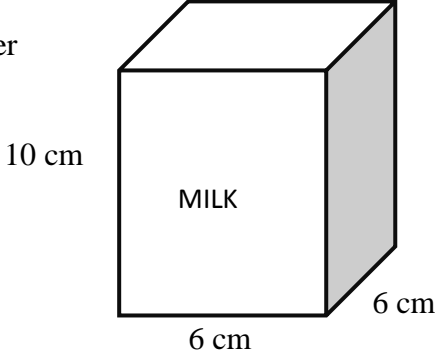
- 1.2.1 Calculate the average number of tons (rounded off to the nearest whole number) of plastic bottles that was recycled between 2013 en 2017. (3)

- 1.2.2 Determine the median percentage of recycling of plastic bottles. (2)

1.3

Milk containers illustrated below are made of cardboard and used to distribute milk to the user.

Milk container

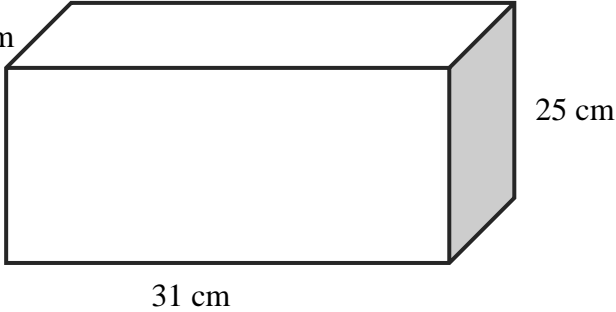


10 cm

6 cm

6 cm

For the purpose of transport the above containers are packed into bigger boxes as illustrated below.



24 cm

31 cm

25 cm

- 1.3.1 Calculate how much cardboard is needed to make one of the milk containers. Add 5% at the calculated area to provide for overlapping.

You may use the following formula:

$$\text{Surface Area} = 2[l \times b + l \times h + b \times h] \quad \text{OR}$$

$$\text{Surface Area} = 4 \times h \times l + 2 \times b \times l \quad (4)$$

- 1.3.2 The cost for the cardboard used to manufacture one milk container is 1,2 c/cm². The cardboard manufacturer claims that it cost more than R4,00 to make one milk container.

Verify by means of calculations whether the claim is valid. (4)

- 1.3.3 It is claimed that one big box cannot carry more than 40 milk containers. Assume that the containers are placed upright in the box.

Verify by means of calculations whether the claim is valid. (5)
[27]

QUESTION 2

2.1

A dairy farmer near Port Elizabeth transports milk on daily basis from Port Elizabeth to Bloemfontein with a milk tanker. One route that the tanker can follow is via Bisho.

Use ANNEXURE C and the information above to answer the questions that follow.

2.1.1 Give the general direction from Port Elizabeth to Bloemfontein. (2)

2.1.2 Give an alternative route that the milk tanker can follow. (2)

2.1.3 Calculate the actual distance between Port Elizabeth and Bloemfontein (4)

2.2

The farmer also delivers milk in George using a cylinder shaped tank with the length of 7 m and the diameter of 1,75 m.



The distance between George and Port Elizabeth is 325 km

Note: 1 000 litre = 1 m³

2.2.1 The farmer claims that the milk tanker will be able to cover the distance between Port Elizabeth and George in exactly 4 hours time if he drives at the average speed of 90 km/h.

Verify by means of calculation whether his claim is valid.

You may use the following formula: **Speed = $\frac{\text{Distance}}{\text{Time}}$** (3)

2.2.2 The milk tanker's fuel consumption is 6 litre/100 km. The cost of 1 litre of fuel is R13,95. The farmer stated that a trip to George and back will cost him more than R550.

Verify by means of calculations whether the farmer's statement is correct. (5)

2.2.3 Calculate the amount of milk (in litres) that can be transported in the tank.

You may use the following formula:

Volume = $\pi r^2 h$; $\pi = 3,142$ (4)

2.2.4 At the distribution depot, 0,01% of milk is spilled when poured into 2 liter containers. Calculate the number of 2 litre containers that can be filled. (4)

[24]

QUESTION 3

3.1 Jabuli Mokwena wants to buy himself a cellphone and has the following options:

Option A: Prepaid-Option. He will only pay R2,00/minute

Option B: On contract-Option. He will pay R180,00 per month.
He will receive 80 free minutes and thereafter pay R1,50/min

Use the information above to answer the questions that follow.

3.1.1 Complete TABLE 1 on ANSWER SHEET 1.

Call (minutes)	0	20	100	3.1.1(c)	200
Option A (in Rand)	3.1.1(a)	40	200	300	400
Option B (in Rand)	3.1.1(b)	180	210	285	360

(4)

3.1.2 A graph for Option A is drawn on ANSWER SHEET 1.

Draw a graph for Option B on the same set of axes and indicate the break-even-point with a "X" on the graphs.

(6)

3.1.3 Explain what the break-even-point means in this context.

(2)

3.1.4 When will Option A be the best for Jabuli?

(2)

3.1.5 Jabuli stated that cellphones have been used for more than half a century since 1973. Is his statement correct?

Justify your answer with calculations.

(3)

3.2

Jabuli decided to buy a prepaid cellphone. He divides the airtime he buys in the ratio 2:3 on calls and data respectively. On a particular month, he spent R108 on data.

Use the information above to answer the questions that follow.

3.2.1 Calculate the total amount spent on buying airtime.

(4)

3.2.2 Give ONE possible usage of data bundles.

(2)

3.3

A survey about the use of cellphones was done in the grade 11 class of Kopalang High school as illustrated below

**TABLE 2:
CELLPHONE SURVEY IN GRADE 11 CLASS OF KOPALANG HIGH SCHOOL**

	Boys	Girls
Pre-Paid Phone	16	15
On contract Phone	1	0
Total	17	15

Use TABLE 2 to answer the questions that follow.

3.3.1 Calculate the probability that a learner in the grade 11 class will be a girl with a prepaid phone. (2)

3.3.2 If there are 49 learners in the grade 11 class, calculate the percentage of the learners that do not own a cellphone. (3)

[28]

QUESTION 4

4.1

TABLE 3 below shows the weight status of a person according to the BMI.

The BMI of a person is calculated as follows:

$$\text{BMI} = \frac{\text{mass}}{(\text{height})^2}$$

TABLE 3: WEIGHT STATUS

BMI	WEIGHT STATUS
< 18,5	Underweight
18,5 - 24	Normal weight
24,1 - 29	Overweight
>29	Obese

Use the information above to answer the questions that follow.

4.1.1 Calculate the BMI of a person who weights 80 kg with a length of 1,67 m and identify his/her weight status. (3)

4.1.2 Give ONE advice to a person with the obese status. (2)

4.2

Peggi is a first year student at the Johannesburg University. She wants to loose weight and intends to buy the Tread mill below as advertised on TV.

SPECIAL OFFER!!!! ONLY FRIDAY 13 September 2019



Tread mill

Save: R610!

Now: R8 230!

****Deposit R820***

****R282 × 30 months***

[Source www.mifitness.co.za]

4.2.1 Peggi claims that she will save more than 7% on the original price if she waits until 13 September 2019 to buy the Tread mill.

Justify by means of calculations whether her claim is valid. (4)

4.2.2 The current exchange rate for the South African Rand (ZAR) against the American Dollar (\$) is: ZAR1 = \$0,07.

Mary bought the same Tread mill in America for \$610.

Mary claims that her purchase was a bargain because she paid less than Peggi.

Verify whether her statement is correct. (3)

4.3

TABLE 4 below illustrates the inflation rate in Namibia:

TABLE 4: Inflation rate in Namibia

Year	2010	2011	2012	2013	2014	2015	2016	2017
Inflation rate	6,7	1,6	8,2	6,7	6,7	3,9	5,3	8,2

[Source Republican]

Use TABLE 4 to answer the questions that follow.

4.3.1 Complete the bar graph on ANSWER SHEET 2. (3)

4.3.2 Determine the average inflation rate. (2)

4.3.3 What is the mode of the inflation rate? (2)

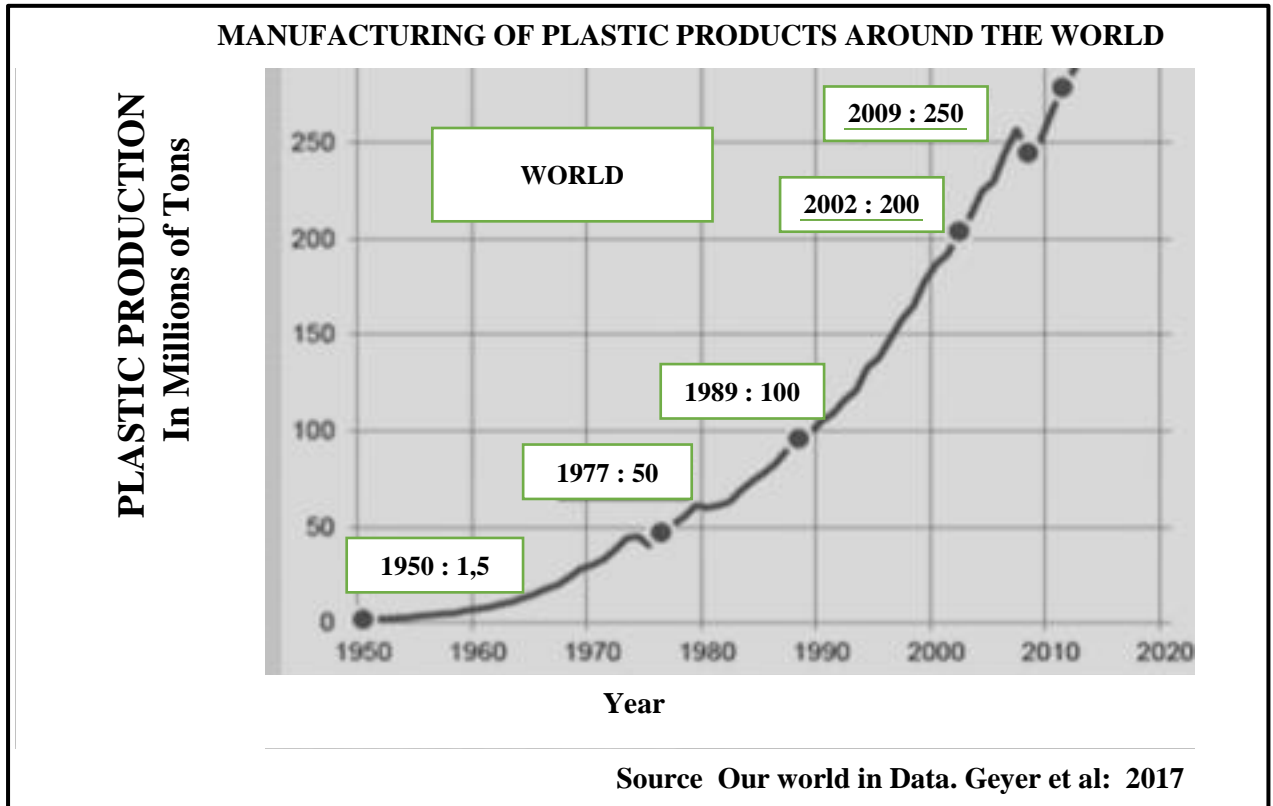
4.3.4 Explain the trend of the inflation rate in Namibia from 2014 to 2017. (2)

[21]

TOTAL: 100

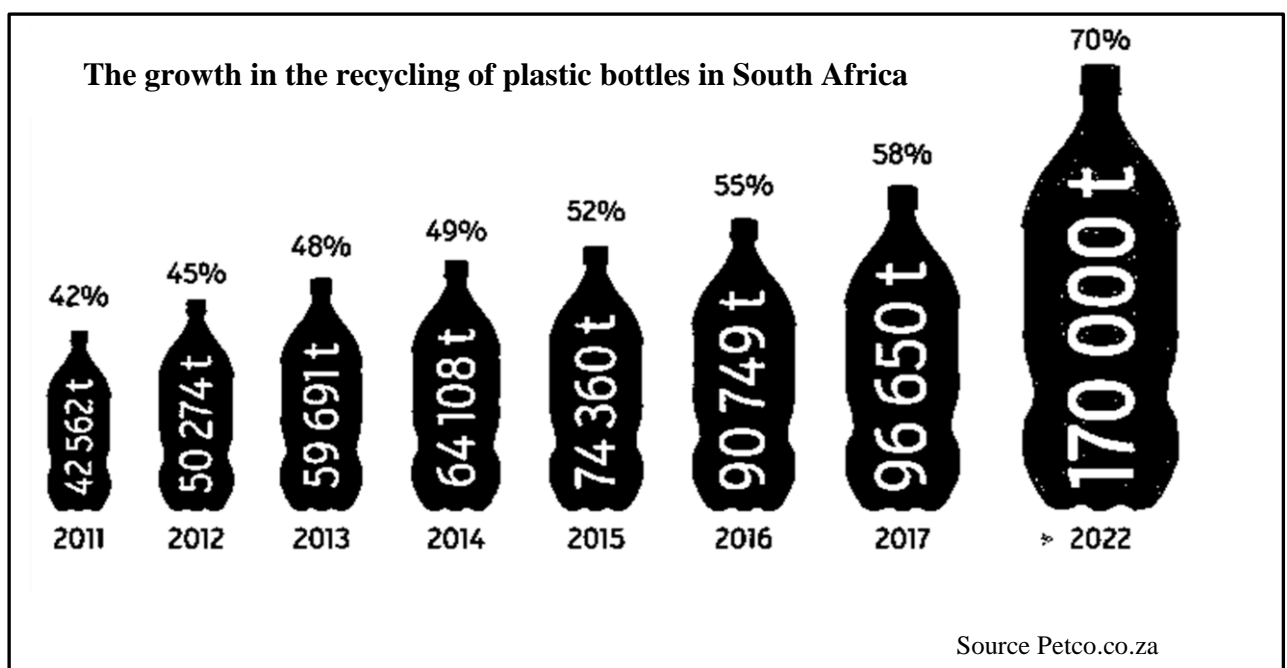
ANNEXURE A

QUESTION 1.1



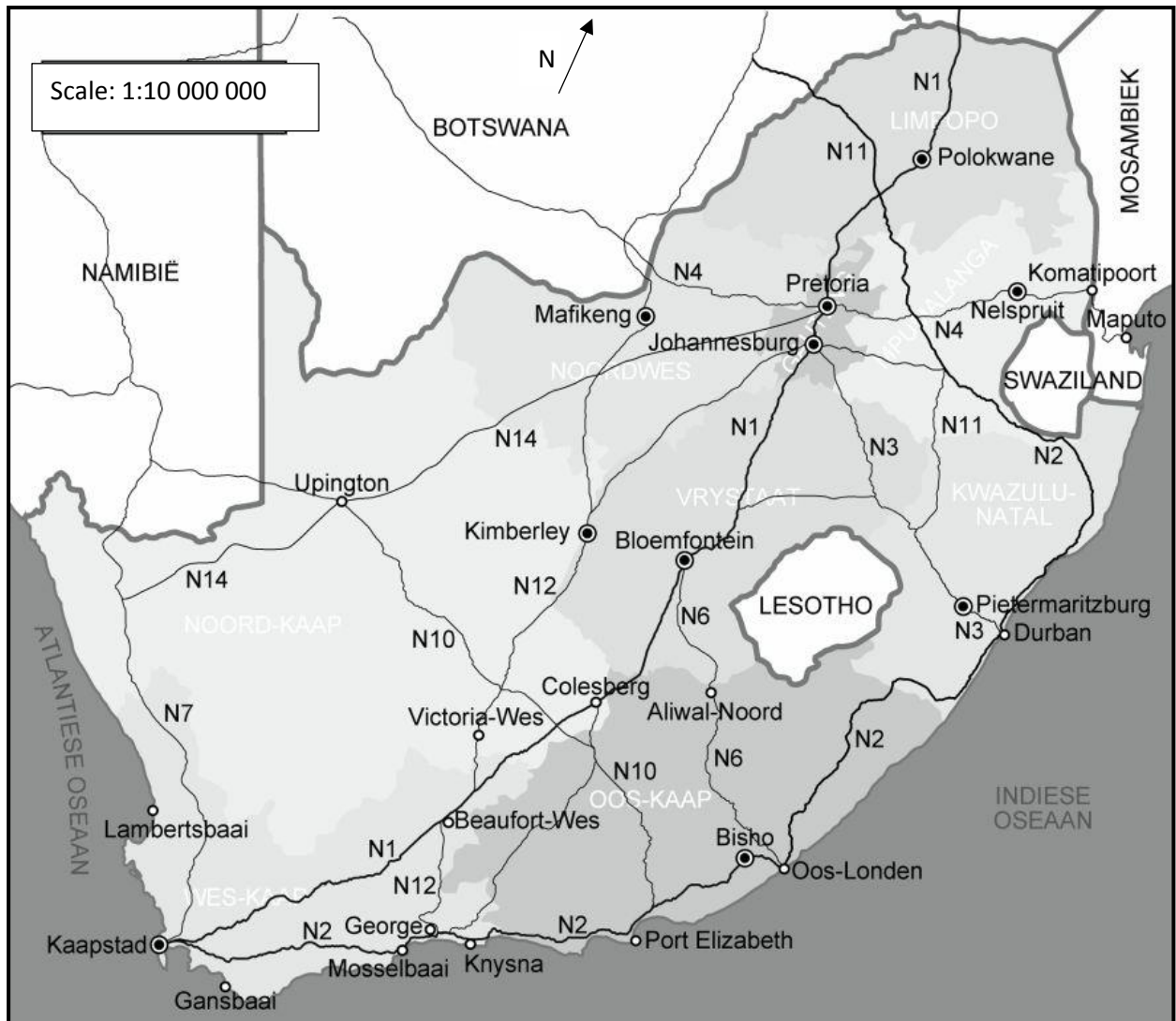
ANNEXURE B

QUESTION 1.2



ANNEXURE C

QUESTION 2.1



ANSWER SHEET 1

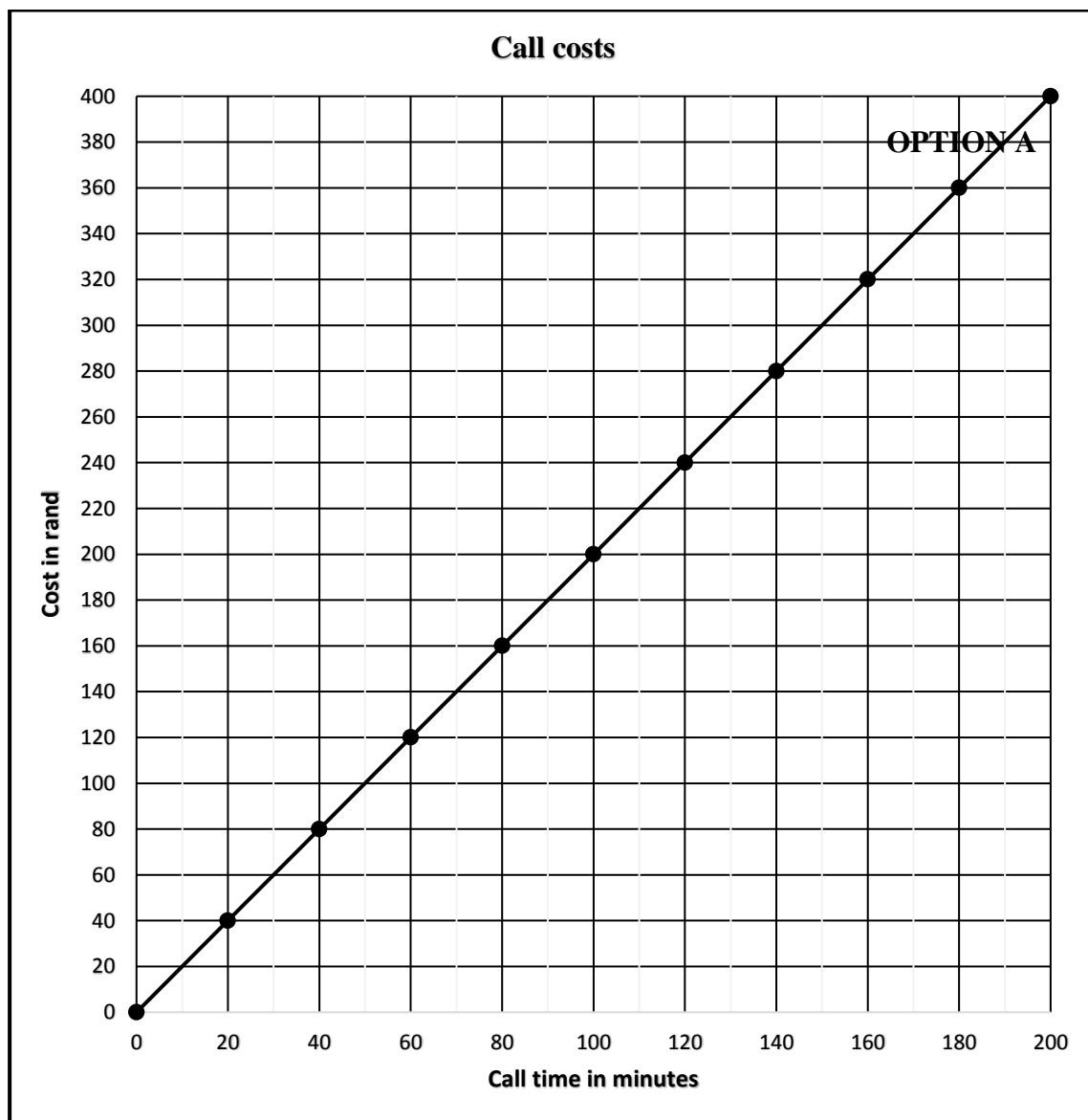
NAME OF LEARNER:

QUESTION 3.1.1

TABLE 1: CALL COSTS

Call(minutes)	0	20	100	3.1.1(c)	200
Option A (in Rand)	3.1.1(a)	40	200	300	400
Option B (in Rand)	3.1.1(b)	180	210	285	360

QUESTION 3.1.2



ANSWER SHEET 2

NAME OF LEARNER:

QUESTION 4.3.1

