higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

MATHEMATICAL LITERACY

(Second paper)

NQF LEVEL 3

(10401023)

17 February 2025 (X-paper)
09:00–12:00

REQUIREMENTS: Graph paper

Non-programmable calculators and drawing instruments may be used.

This question paper consists of 9 pages and 2 answer sheets.

021Q2S2517

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MATHEMATICAL LITERACY
NQF LEVEL 3
(Second paper)
TIME: 3 HOURS
MARKS: 150

INSTRUCTIONS AND INFORMATION

1. Answer all the questions.
2. Read all the questions carefully.
3. Number the answers according to the numbering system used in this question paper.
4. Answer QUESTION 1.3.1 and 1.3.2 on ANSWER SHEET 1 and QUESTION 2.2.2 on ANSWER SHEET 2 (attached).
5. Round off answers correctly according to the given context. In all other cases where the context is not specific, round off answers correctly to two decimal places.
6. Indicate units of measurement where applicable.
7. Diagrams are not necessarily drawn to scale.
8. Show all calculations clearly.
9. Use only a black or blue pen.
10. Write neatly and legibly.

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QUESTION 1

1.1 A restaurant recorded the number of female vs male customers who ordered a cup of coffee over a certain number of days. The results are shown in the table below:

Female	30	55	40	80	25	28	34	26	21	34	26	65	21	39
Male	33	41	29	36	61	31	27	37	41	28	25	47	26	42

1.1.1 Calculate the mean for each data set. (4)

1.1.2 Determine the median for each data set. (4)

1.1.3 Compare the measures of the central tendencies of the two data sets (3)

1.2 A company that supplies the restaurant decided to test a new coffee flavour on a group of customers before selling. The table below shows the information they collected from 2 group of customers:

		Would buy this flavour of coffee	**Would not buy this flavour of coffee**	**TOTAL**
GENDER	**MALE**	32	25	C
	FEMALE	28	B	D
	TOTAL	A	52	112

1.2.1 Complete the given table by writing only missing values next to the letter (A–D) in the ANSWER BOOK. (4 × 1) (4)

1.2.2 How many people participated in the survey? (1)

1.2.3 If a customer is chosen at random, what is the probability of choosing someone who would buy the coffee with new flavour? Express the answer in fraction form. (4)

1.2.4 If a male customer is chosen at random, what is the probability of choosing someone who would not buy coffee? Give the answer as a percentage. (4)

1.3 1.3.1 A table below shows the ages of 15 customers who ordered a cup of coffee. Use ANSWER SHEET 1 (attached) to complete the frequency table.

42	18	12
30	23	16
20	49	43
25	45	47
10	32	40

(5)

1.3.2 Use the data in QUESTION 1.3.1 to draw a histogram on ANSWER SHEET 1 (attached) and provide a suitable heading. (6)

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QUESTION 2

2.1 The earbuds shop owner buys earbuds from a factory and sells them at a profit. A table below shows the fixed cost to run the shop, expenses and income due to earbuds.

Number of earbuds	0	50	100	A	250	300
Total cost	10 000	25 000	40 000	70 000	B	100 000
Income	0	C	50 000	100 000	125 000	150 000

2.1.1 Determine shop owner's fixed costs. (2)

2.1.2 How much does the shop owner pay for a single earbud? (5)

2.1.3 For how much the shop owner sells an earbud? (4)

2.1.4 Write down a formula that the shop owner can use to calculate the:

(a) Total costs (3)

(b) Income (2)

2.1.5 Determine the value of A, B and C in the given table. (3 × 2) (6)

2.2 Use ANSWER SHEET 2 (attached) to answer the following questions:

2.2.1 Draw the graph of shop owner's total costs and label it accordingly. (7)

2.2.2 Describe the relationship between the total costs and income. (2)

2.2.3 Determine the total cost at the break-even point. (2)

2.2.4 Write down the dependent and the independent variable between the number of earbuds and amount. (2)

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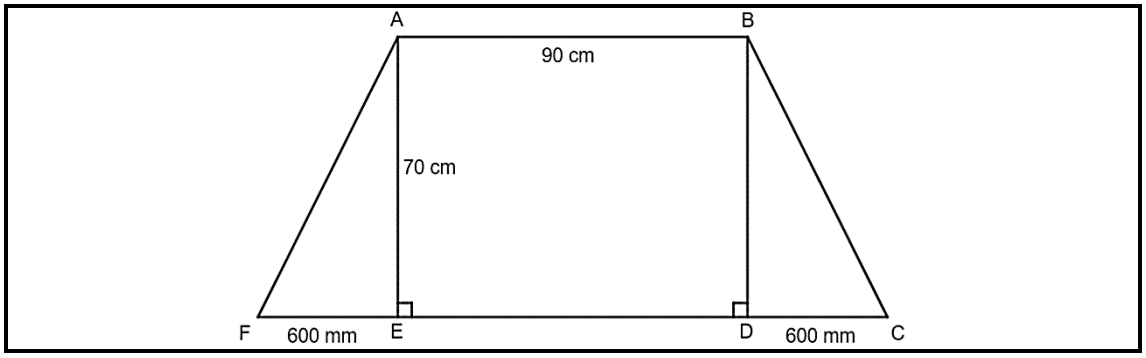
QUESTION 3

3.1 Given below is a table that has three parts. The rectangular portion measures 90 cm by 70 cm and each triangle has a base measurement of 600 mm.

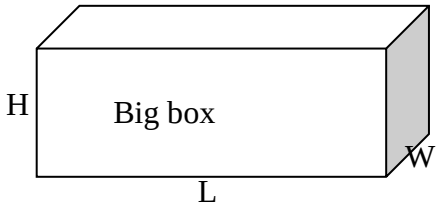
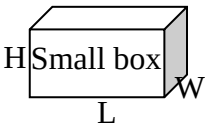


3.1.1 Use the theorem of Pythagoras to determine the length of AF. (5)

3.1.2 Calculate the area of the figure and give the answer in cm^2. (8)

3.1.3 Calculate the perimeter of the edge of the figure in centimetres. (3)

3.2 Small gift boxes must be packed inside a big box to be sold. Shown below are the shapes and dimensions the big box and a small box

 Height (H) = 33,5 cm Width (W) = 42,1 cm Length (L) = 54,8 cm	 Height = 5,5 cm Width = 8,7 cm Length = 8,2 cm

3.2.1 Calculate the number of boxes that can be packed in the large box if the length of a small box is packed along the width of the large box. (8)

3.2.2 Calculate the total surface of the big box using this formula:

Surface area = 2WL + 2LH + 2HW (4)

3.2.3 When the big box is fully packed, it weighs 9 kg. The transport company uses a small trailer to transport these gift packs but will only pack 2 tonnes at a time.

How many boxes can be delivered on a single trip if 1 tonne = 1000kg? (3)

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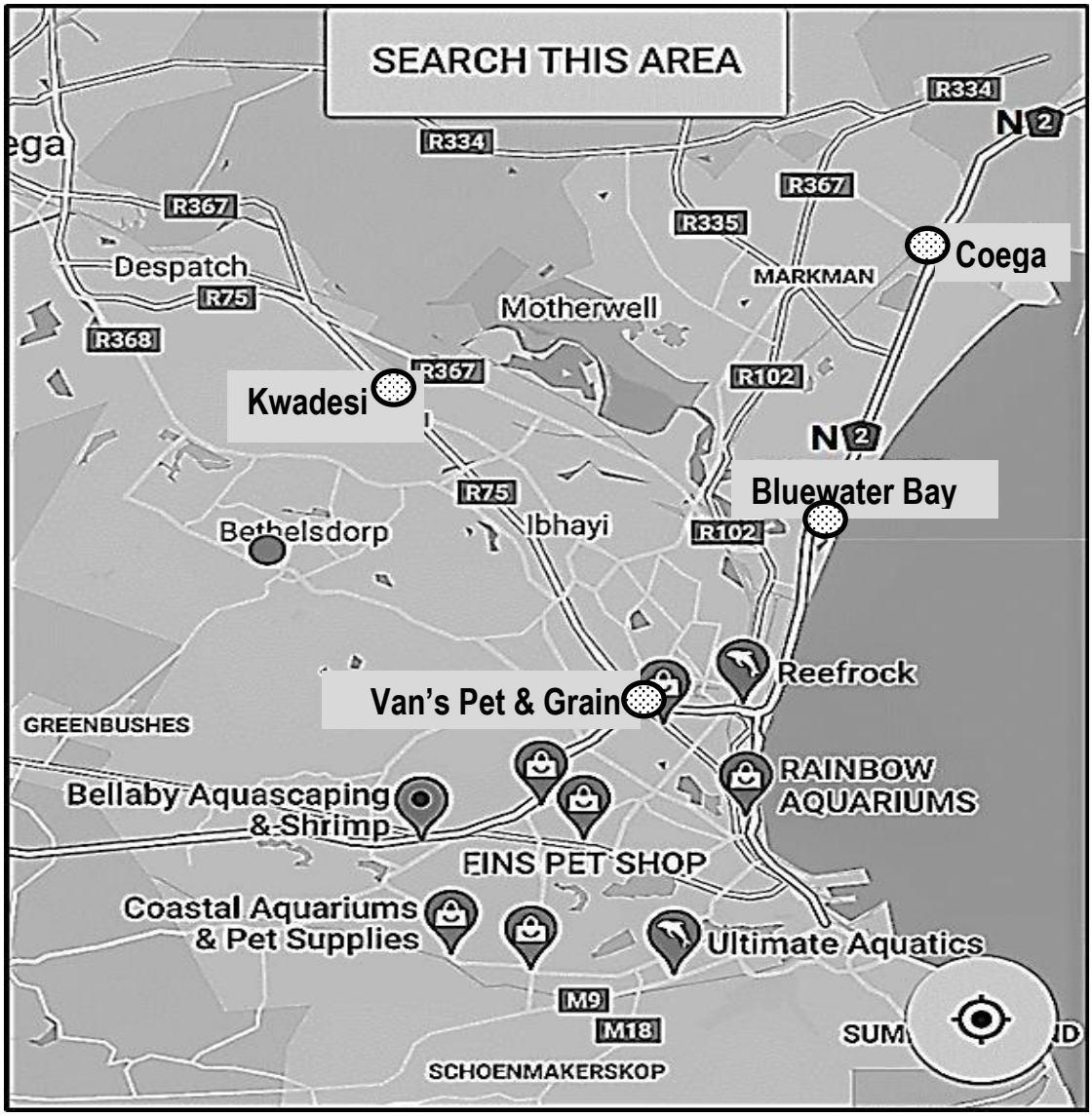
3.3 Use the iformation provided on the map to answer the questions.



3.3.1 Name the main national route that connects Coega with Bluewater Bay. (1)

3.3.2 The scale is 1:25 000 on the map.

Calculate the distance between Kwadesi and Van's Pet & Grain if the distance on the map is 5 cm. (4)

3.3.3 Use the same scale in QUESTION 3.3.2 to calculate the distance on the map if the actual distance between Rainbow Aquariums and Schoenmakerskop is 15 km. (4)

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QUESTION 4

4.1 Given below is Ms Ditlhare's payslip.

DEPARTMENT OF SPORTS			
		Payslip Number: 14	
Employee details			
ID: 9907150936085	K Ditlhare	Pay date: 15 June 2021	
Bank Account: 21*****4281		Department: General Affairs	
Tax no. 12151620		Occupation: Cleaning service staff	
EARNINGS	**AMOUNTS**	**DEDUCTIONS**	**AMOUNTS**
Basic salary	R5 200	Provisional tax (SITE)	R22
Meal allowance	R1 000	Retirement insurance	R250
Transport allowance	R1 000	UIF (1% of gross salary)	**A**
		Company load	R680
Total gross salary	R7 200	Total deductions	**B**
	Net salary = **C**		

4.1.1 Calculate the value of A, which is Ditlhare's monthly UIF contribution. (2)

4.1.2 Calculate the values of B and C on the payslip. (2 + 2) (4)

4.1.3 What is the percentage retirement insurance deduction from the basic salary. (2)

4.2 Neo, who lives in Indaba Municipality, uses the table below to determine residential electricity consumption charges:

Block	Range (kWh)	Charge/kWh (excl. VAT)	Charge/kWh (incl. VAT)
1	0 – 50	0,7298	0,8393
2	51 – 350	0,9373	1,0779
3	351 – 600	1,3349	1,5351
4	601 – 1 500	1,3961	1,6055
5	> 1 500	1,5931	1,8321

4.2.1 Show how the tariff rate of R0,8393 per kWh was calculated. (2)

4.2.2 Neo used 278 kWh of electricity.

Calculate what he was charged excluding VAT. (3)

4.2.3 At the end of January 2020 Neo paid R781,96 including VAT.

Calculate the amount of electricity consumed. (7)

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4.3 The table below shows Layla's business annual income and expenditure. Use the information provided in the table to answer the questions.

DANCE VEGETARIAN FOOD Income and expenditure for the year ending 29 February 2021		
Income	Expenditure	
Income from sales: R385 000	Fixed expenses:	
	Rent Salaries Repayment (Delivery scooter)	R25 000 A R9 500
	Variable expenses: Electricity and water Consumables	 R8 200 R120 000
Total income: R385 000	Total expenditure:	R327 700

4.3.1 Calculate the value of salaries (A). (2)

4.3.2 Rent for the following year will increase by 7,5%. What will the total annual rent be for the following year? (2)

4.3.3 Give a reason why electricity and water is mentioned as variable expense. (1)

4.3.4 Calculate the total of the fixed expenses. (3)

4.4 The table below shows Clifford's bank statement. Use the information provided to answer the questions.

BANK STATEMENT				
Date	**Item description**	**Amount (R)**	**Balance (R)**	**Bank charges**
23 March	Opening balance		R22 598,09	
23 March	Cell transfer to card	2 000,00	24 598,09	
23 March	Airtime	110,00	24 486,99	1,10
24 March	Purchase change card @ CFR Shop	539,32	23 947,67	
24 March	ATM cash	4 500	**A**	
24 March	Airtime	55,00	19 391,57	1,10
24 March	E-wallet	500,00	18 882,07	9,50
25 March	Cheque card fuel	450,00	18 582,07	
	Closing balance		18 582,07	

4.4.1 What is the amount of the opening balance? (1)

4.4.2 On 24 March 2023 the bank charges for the amount sent was R9,50. Determine the bank charges as a percentage of the amount sent. (3)

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4.4.3 Calculate Clifford's charges for the given statement to the closest rand value. (3)

4.4.4 Determine the value of A. (3)

4.4.5 How much was spent on airtime between 23 and 25 March 2023? (2)

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TOTAL: 150

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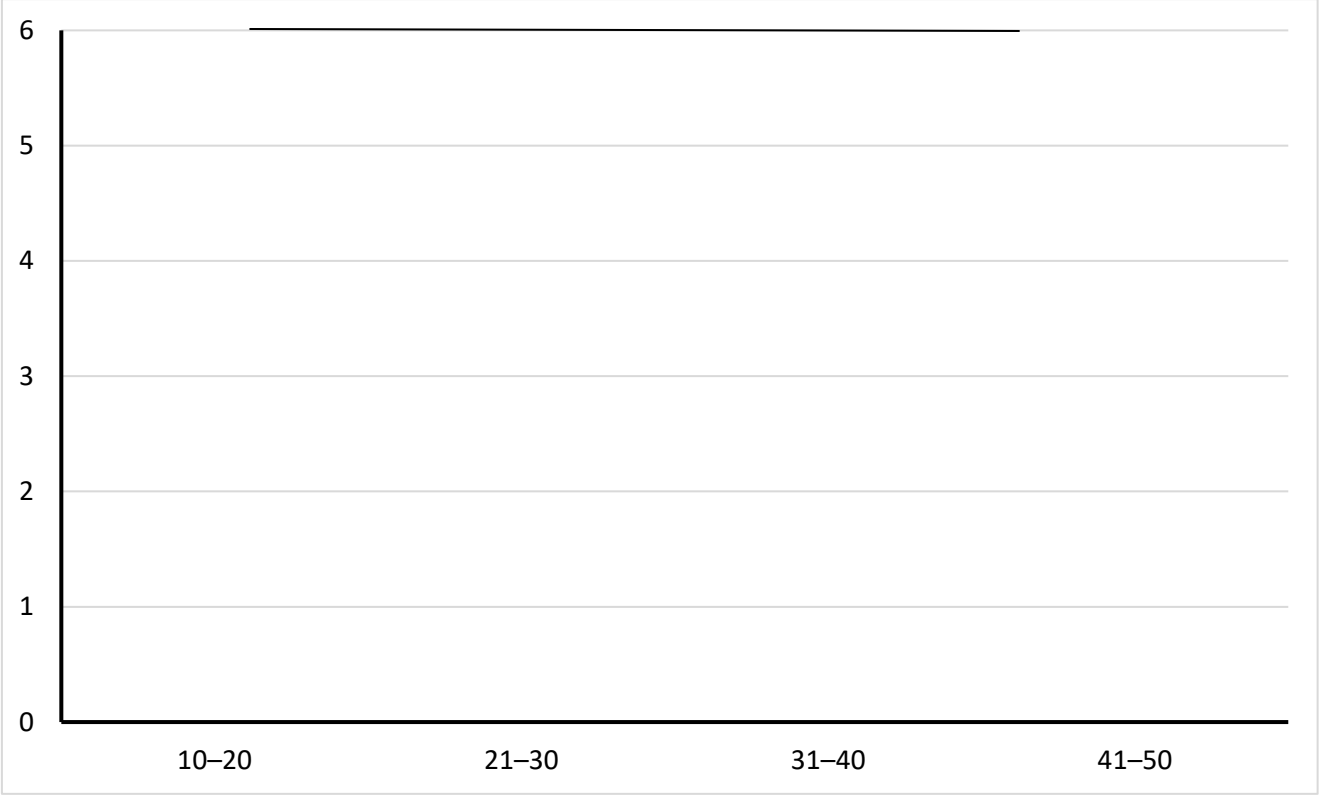
ANSWER SHEET 1 **EXAMINATION NUMBER:**

QUESTION 1

1.3 1.3.1

Frequency	Tally	Total
10–20		
21–30		
31–40		
41–50		
TOTAL		

1.3.2



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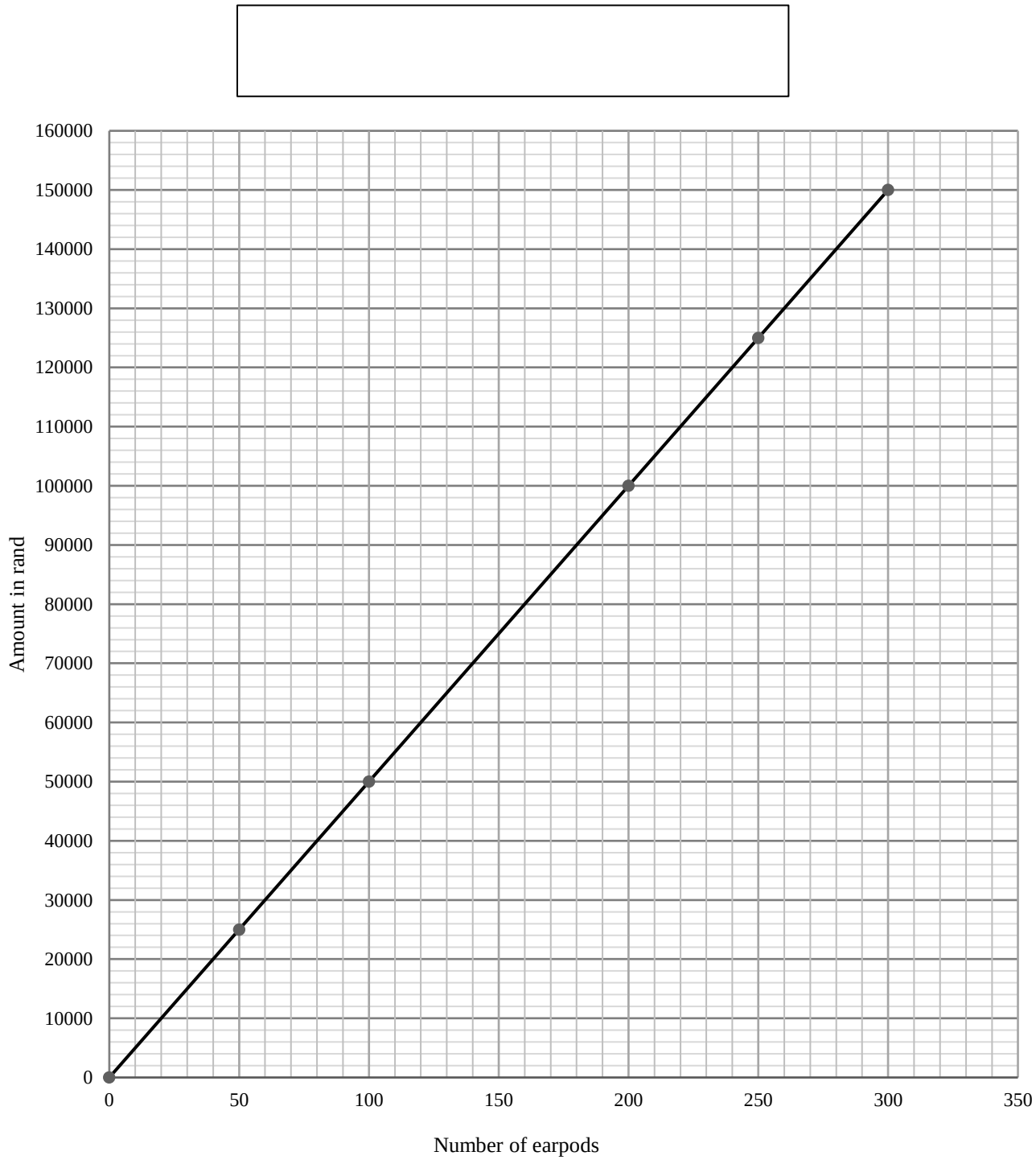
ANSWER SHEET 2 **EXAMINATION NUMBER:**

QUESTION 2

2.2 2.2.1



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