LIMPOPO

PROVINCIAL GOVERNMENT

REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF

EDUCATION

CAPRICORN SOUTH DISTRICT

MATHEMATICAL LITERACY

GRADE 11

CONTROLLED TEST NO 1

DATE: 12 March 2024

DURATION: 2 Hours

MARKS: 100

This question paper consists of 12 pages including the cover page and 2(TWO) Answer sheets.

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INSTRUCTIONS AND INFORMATION:

1. This question paper consists of FOUR questions. Answer ALL the questions.
2. Number the questions correctly according to the numbering system used ‘ in this question paper.
3. Start EACH question on a NEW page.
4. You may use an approved calculator (non-programmable and non-graphical), unless stated otherwise.
5. Show ALL calculations clearly.
6. Round ALL the final answers appropriately according to the context, unless stated otherwise.
7. Indicate units of measurement, where applicable.
8. Maps and diagrams are NOT necessary drawn to scale, unless stated otherwise.
9. Write neatly and legibly.

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QUESTION 1

In TABLE 1 below is a list of explanations and definitions of concepts used in Mathematical literacy.

TABLE 1 EXPLANATIONS AND DEFINITIONS OF CONCEPTS

A	The distance from the centre of a circle to the outer part of the circle
B	The use of cardinal directions (i.e. north, south, east and west) to describe the location of one point to the other.
C	The distance around a 2-dimensional shape.
D	A position which is not exact, but roughly shows the location of an object
E	A measure of body fat based on the height and weight of an adult person
F	Length of a line joining two points
G	A special type of diagram used to determine the outcomes of an event in probability example
H	The path or boundary that surrounds a circular-shaped object or surface.
I	A measure of the amount of space contained in the interior of a solid.
J	The rate of covering a certain distance over time

Use the information above and TABLE 1 to answer the questions that follow.

1.1.1 Distance (2)

1.1.2 Volume (2)

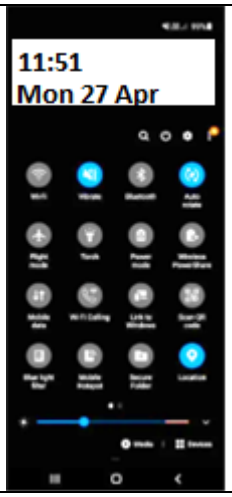
1.1.3 Radius (2)

1.1.4 Circumference (2)

1.1.5 Perimeter (2)

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1.2 The following is a picture of the Samsung S20 cell phone together with the dimensions of the cell phone.

PICTURE OF SAMSUNG CELLPHONE	DIMENSIONS OF CELLPHONE
	Length: 151,7 mm Width: 69,1 mm Thickness: 7,9 mm Weight (mass) = 163 g

[Source: deviceguides.vodafone.co.uk]

Use the information above to answer the questions that follow.

1.2.1 Determine the weight (mass) of 7 of these cell phones in kg. (3)

1.2.2 Which formula (A to D) can be used to calculate the perimeter of the Samsung S20 cell phone?

A length × width
B 2 × (length × width)
C 2 × (length + width)
D length × width × height

(2)

1.2.3 Sandile leaves his home exactly at the time displayed on the cell phone and arrives 1,4 hours later at his friend's home. Determine what time he reaches his destiny and write that time in words. (4)

1.2.4 Determine the difference between the width and the thickness of the cell phone (in mm). (2)

1.2.5 The Samsung S20 is available in the following colours: Grey, blue and white. (2)
A customer can also choose between the following colours for a protective cell phone cover: Pink, blue, black and grey.

Write down the number of options a customer has when choosing a phone and a protective cover.

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QUESTION 2

Miss Naidoo is baking brownies using the ingredients and information given below. She wants to be finished with baking at 16:45. She can only bake one batch of brownies at a time. While a batch is in the oven, she prepares the next batch and places it in the oven the moment the previous batch is taken out.

INGREDIENTS AND INFORMATION FOR THE BROWNIE RECIPE

Preparation time	**Baking time**	**Temperature**
15 minutes	35 minutes	330 °F

16 Brownies

Ingredients:	**Frosting:**
• $\frac{1}{2}$ cup butter	• 3 tablespoons butter softened
• 1 cup white sugar	• 3 tablespoons unsweetened cocoa powder
• 2 eggs	• 1 tablespoon honey
• 1 teaspoon vanilla extract	• 1 teaspoon vanilla extract
• $\frac{1}{3}$ cup unsweetened cocoa powder	• 1 cup confectioner's sugar
• $\frac{1}{4}$ teaspoon salt	
• $\frac{1}{4}$ teaspoon baking powder	
• $\frac{1}{2}$ cup all-purpose flour	

[Adapted from: allrecipes.com/recipe 10549.]

NOTE :
Brownies are baked in an 8 inch by 8 inch square pan
1 batch = 16 brownies

Conversion table for butter:

1 tablespoon = 14 grams

$\frac{1}{2}$ cup = 113 grams

1 block = 250 g

Use the information above to answer the questions that follow.

2.1.1 Miss Naidoo would like to bake 80 brownies. Determine the number of batches she needs to bake. (2)

2.1.2 Calculate what time she must start to preparing the first batch of brownies to be finished with the baking on time. (5)

2.1.3 Convert the baking temperature to degrees Celsius (℃), rounded off to the nearest 10 degrees. (3)

You may use the formula: ℃ = **(**℉ **- 32°) ÷ 1,8**

2.1.4 Miss Naidoo only has $2\frac{1}{2}$ blocks of butter. Verify if whether the butter that she has is sufficient for 80 brownies. (6)

2.2

Miss Naidoo uses a square baking pan with dimensions of 8 inches by 8 inches. She cuts the brownies in the baking pan into 16 equal sized blocks.

NOTE : 1 inch = 2,54 cm

You may use the formula: **Area of a square = side × side**

Use the information above to answer the questions that follow.

2.2.1 Calculate the area of the baking pan incm^2. (5)

2.2.2 Only 80% of the brownies were sold. Write down the number that was left. (4)

2.2.3 Write the ratio number of brownies sold to number of brownies left in a simplified form. (3)

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QUESTION 3

3.1

Jane and his sister are baking dough nuts and sell them to school children next to their home. It costs the R4,80 to make one dough nut. It cost them R240 for electricity and transport to buy the ingredients. They sell one dough nut at R7.00.

TABLE 1: INCOME AND COST FOR JANE'S DOUGH NUTS

No. of dough nuts	0	5	10	30	**A**	80	120	150	200
Cost in Rand(s)	240	264	288	384	600	624	816	**B**	1 200
Income in Rand(s)	0	35	70	210	525	560	**C**	1 050	1 400

****

Use the information above to answer the questions that follow.

3.1.1 Determine which variable is dependent and which one is independent. (2)

3.1.2 Calculate the values of **A**, **B** and **C**. (6)

3.1.3 Income graph for Jane's business has been drawn on the answer sheet provided. Draw the cost graph on the same answer sheet (Answer sheet 1). (4)

3.1.4 If Jane and the sister decide to increase the selling price of one dough nut to R7, 50, what will happen to the point of intersection of these graphs? (2)

3.1.5 The Income amount in rand(s) is always starts at 0. Give a reason why? (2)

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3.2

Thato and Moja are friends who are planning to take a trip to visit Cape Town during the Easter holidays. They plan to hire a car. The return trip from Polokwane to Cape Town is 3 444 km.

TABLE 2 shows the rates for Moonlight car rental and Lifestyle car rental.

TABLE 2: FEES FOR CAR RENTAL COMPANIES

	MOONLIGHT CAR RENTAL 	**LIFESTYLE CAR RENTAL** 
BOOKING DEPOSIT	**R2 000**	**NONE**
FREE KILOMETERS	**NONE**	**NONE**
TARIFF	**R5,00**	**R7,80**

[Adapted from : www.Hertz.co.za]

Use TABLE 2 above to answer the questions that follow.

3.2.1 The formula below is used to calculate the cost of Lifestyle car rental. (3)

Cost (R) = R7, 80 × d, where d = number of kilometers travelled.

Provide the formula to calculate the cost of Moonlight car rental

3.2.2 Thato decides to use Moonlight car rental. (6)
Verify, showing ALL calculations, whether his choice is the most economical

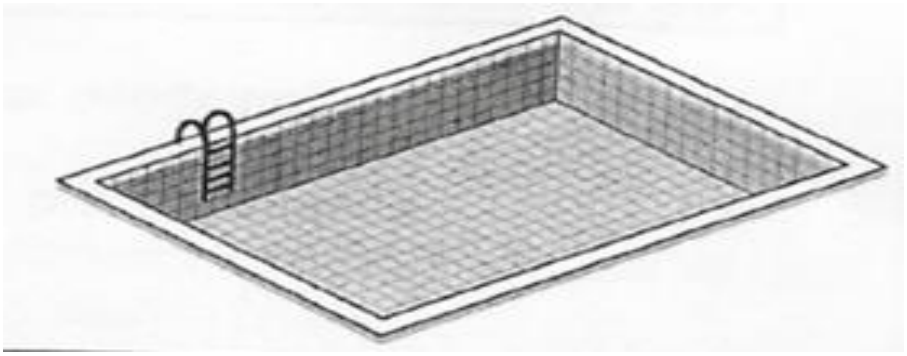
3.2.3 Draw both graph of Moonlight car rental and Lifestyle car rental on the same answer sheet and label it correctly (Answer sheet 2). (5)

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QUESTION 4

Mr. Jake, a swimming instructor at Turfloop High school, wants to renew a swimming pool at the school.

THE PICTURE BELOW SHOW A RECTANGULAR SWIMMING POOL



The inner dimensions of the pool
Length = 8 m
Width = 6,5 m
Depth = 1,3 m

Use the information above to answer the questions that follow.

4.1.1 Calculate the perimeter of the pool. (3)

4.1.2 Calculate the surface area of the pool. (4)

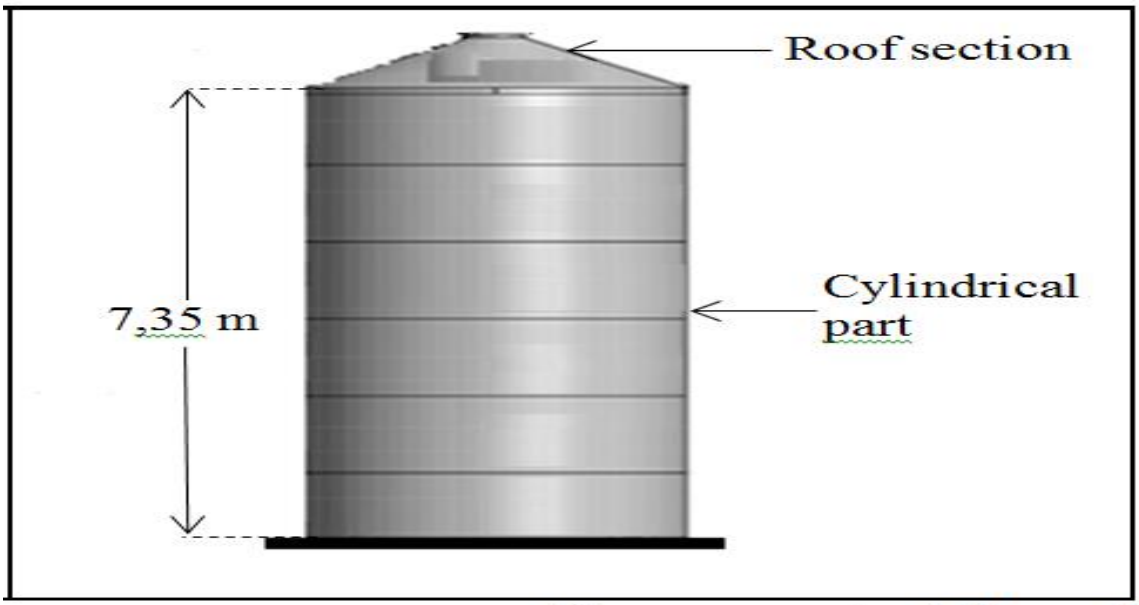
You may use the formula: **Surface area** = $(\boldsymbol{l} \times \boldsymbol{b}) + \mathbf{2}(\boldsymbol{l} \times \boldsymbol{h}) + \mathbf{2}(\boldsymbol{b} \times \boldsymbol{h})$

4.1.3 **Write down ONE reason why the learners at Turfloop High should attend swimming lessons.** (2)

4.2

Mrs. Maruma, a farmer, has a water tank on her farm in which she stores water for irrigation, as shown in the photograph and diagram below. The tank has a diameter of 220 cm.

DIAGRAM OF A SILO



[Source: www.cicrobulk.co.za]

The following formula and conversion rates may be used:

Volume of a cylinder = π × (radius)² × height; using $\pi = 3{,}142$

Circumference = $2\pi r$

Use the information above to answer the questions that follow.

4.2.1 **Convert the height of the water tank to cm.** (2)

4.2.2 Calculate the volume of water to fill up this tank in m^3. (5)

4.2.3 Calculate the circumference of the base of the tank. (3)

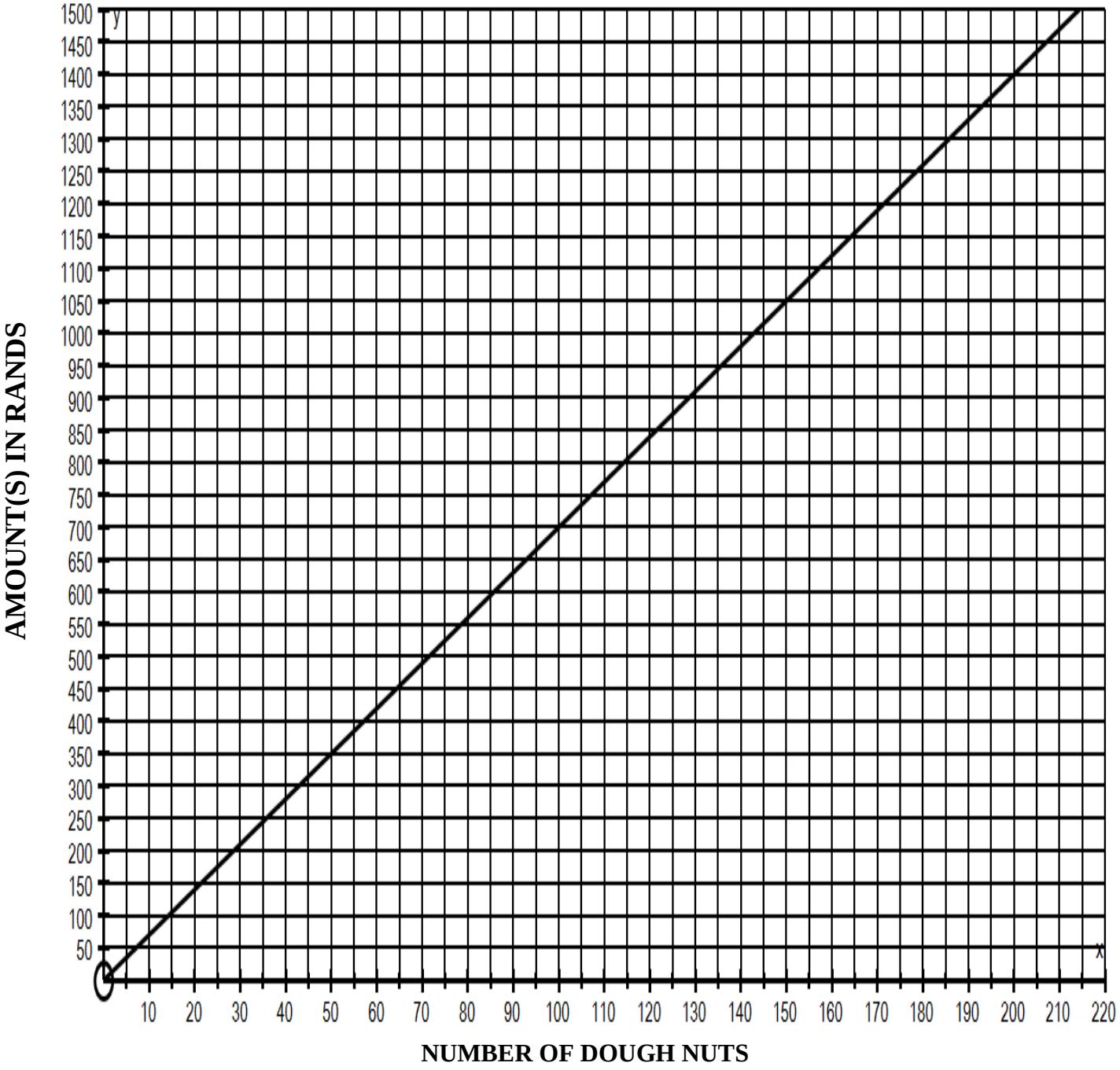
TOTAL MARKS: 100

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ANSWER SHEET 1

NAME: …….

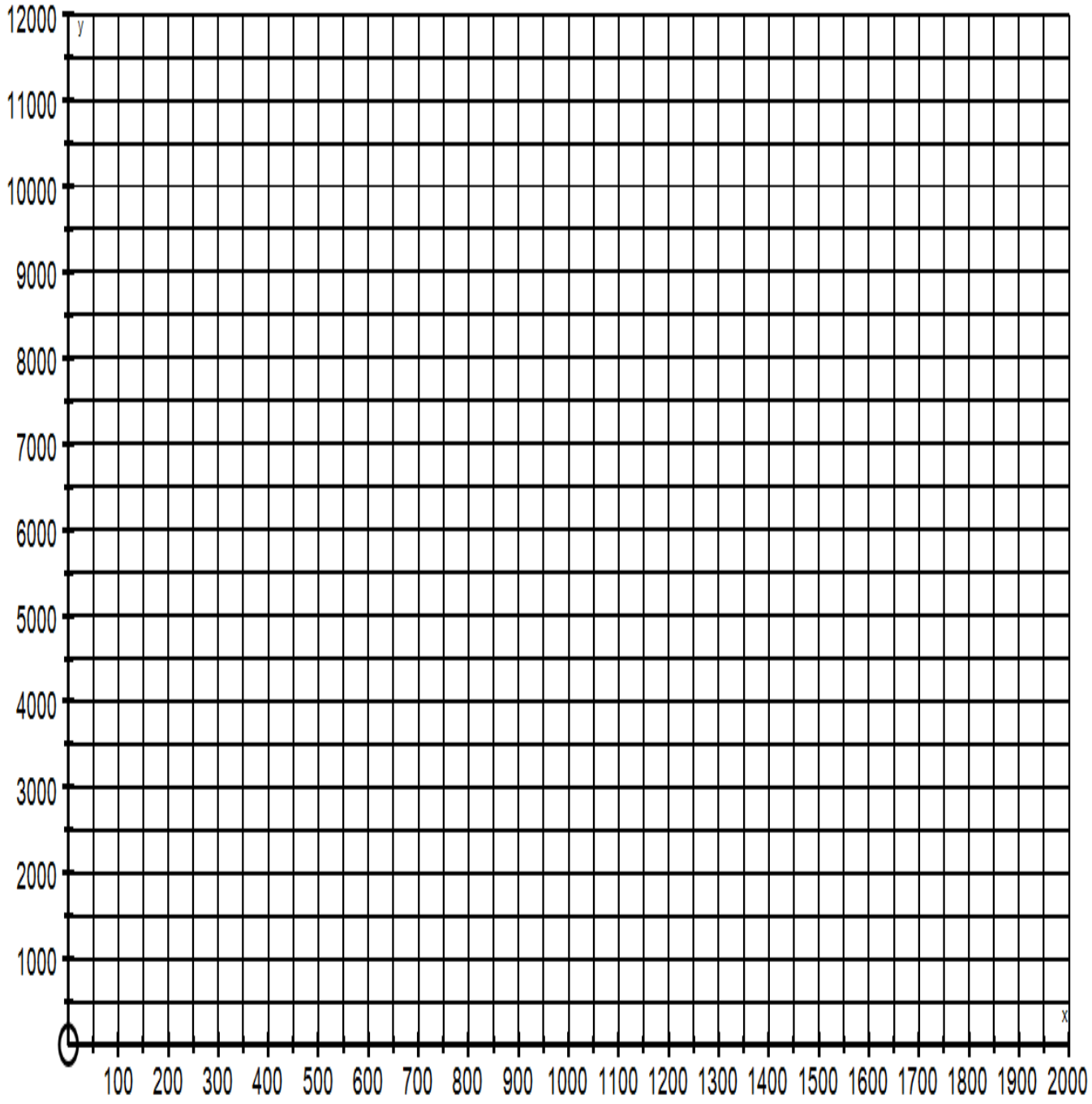
Question 3.1.3



ANSWER SHEET 2

NAME: …….

Question 3.2.3



NUMBER OF DOUGH NUTS