KWAZULU-NATAL PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 11

MATHEMATICAL LITERACY

COMMON TEST

APRIL 2021

MARKS: 100

TIME: 2 Hours

This question paper consists of 10 pages, an addendum with 1 Annexure and 1 answer sheet.

NSC Grade 11

INSTRUCTIONS AND INFORMATION

1. This question paper consists of FOUR questions. Answer ALL the questions.

2. 2.1 Use ANNEXURE A to answer QUESTION 3.1.

   2.2 Answer QUESTION 4.1.4 on the attached ANSWER SHEET.

   2.3 Write your surname and name in the spaces provided on the ANSWER SHEET. Hand in the ANSWER SHEET 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 the calculation clearly.

7. Round off ALL the final answers appropriately according to the given context, unless stated otherwise.

8. Indicate units of measurements, where applicable.

9. Maps and diagrams are NOT necessary drawn to scale, unless stated otherwise.

10. Write neatly and legibly.

QUESTION 1

1.1

Dean's Athletics Club printed T-Shirts to raise awareness and prevent the spread of COVID-19. The picture below is a scaled drawing of a T-Shirt for Deans Athletics Club.

Front of T-shirt   **Back of T-shirt**

SOCIAL DISTANCING
REMEMBER!
KEEP 6 FEET AWAY

Scale   1:20   **Source:http//www.google.com/pictures**

Study the diagram above and answer the questions that follow.

1.1.1   Write down the time shown on the T-Shirt using the 24-hour format if it represents the time in the afternoon. (2)

1.1.2   Calculate the number of letters needed to print the logo on the back of the T-Shirt. (2)

1.1.3   Explain the meaning of the scale in the above drawing. (2)

1.1.4   Convert 6 feet to metres. NOTE: **1 foot = 0.3048m.** (2)

1.2   Stencil Crafts paint T-Shirts at a cost of R3.50 per letter and per digit with a spread rate of 2.4m ℓ of paint per THREE letters.

1.2.1   Determine the cost of painting 15 letters. (2)

1.2.2   Calculate how many millilitres of paint is required to print 800 letters. (2)

Please Turn Over

1.3

The century city athletic club is hosting a Virtual Run or Walk due to the COVID-19
Pandemic. Table 1 below shows the summary of the events. Some information has been
omitted.

TABLE 1: CENTURY CITY ATHLETIC ROAD RUNNING/WALKING EVENT

Event	Event A	Event B
Date	27-28 February 2021	27 -28 February 2021
Race Distance	15km Road run	5 000m run/walk
Time	06:00 start – 23:00 cut-off	06:00 start – 23:00 cut-off
Minimum age entry	14 years	9 years
Race fee	R229	R129,60

NOTE:

- virtual race – athletes run at any location at their own pace/start, with their friends/
  group and upload the results using track running apps

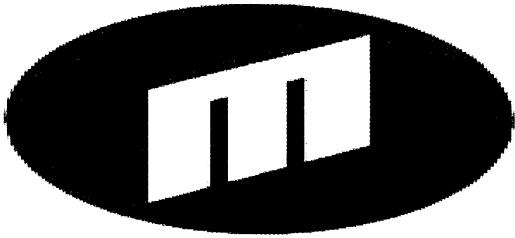Study the table and the information above and answer the questions that follow.

1.3.1   Identify the event that caters for both running and walking.   (2)

1.3.2   How many hours is the virtual run or walk?   (2)

1.3.3   Determine the difference between the race fees for Event A and B.   (2)

1.3.4   State the number of days the athlete is allowed to submit their results.   (2)

[20]

QUESTION 2

2.1

Study the Payslip for Mr Rajesh Gowda below and answer the questions that follow.

MONTHLY PAYSLIP FOR RAJESH GOWDA

ELS Electronics and security
17 Doom Street
Grants town
5287

Tel: 030 598 157   **cell:**077 815 1025

Fax/mail: elselectronics@security.co.za

Payslip for January 2021			
Employee Name: Rajesh Gowda		**Paid Days:**	30
Gender: Male		**Leave :**	00
Occupation: Installer		Payslip NO.	48
Earnings	**Amount**	**Deductions**	**Amount**
Basic	R10 000	Salary advance	R1 000
Overtime hours	50	PAYE	R1 290
Overtime Rate	R75	UIF : 1%of Total Earnings	R137.50
Overtime Payment	R3 750	Other deductions	-
Total payment	**R13 750**	**Total deductions**	**A**
Net pay	**R11 322.50**		

2.1.1   What is the difference between an employer and employee?   (4)

2.1.2   Calculate the value of **A**, total deductions.   (2)

2.1.3   Show by calculations how the overtime payment amount of R3 750 was
        calculated.   (2)

2.1.4   Define the term "net pay" according to the given context.   (2)

2.1.5   Calculate the PAYE amount as a percentage of the total payment amount.
        Round off your answer to the nearest percentage.   (4)

2.1.6   State ONE benefit of contributing towards UIF.   (2)

2.2

Mbali and Rajesh owns a small bakery. Mbali bakes circular birthday cakes.
She uses the recipe below.

Recipe: 23cm round carrot cake

Serving :8	**Preparation:25 min**	
cooking :1hour 30 min		
Pre heat oven to 170°C		
Ingredients		
340g flour 10ml cinnamon 5ml sugar 2,5ml nutmeg 5ml Bicarbonate 10ml baking powder 5ml salts 4 eggs	200ml sunflower oil 225g brown sugar 125ml golden syrup 500g carrot grated 60g pecan nuts 100g icing butter and 125g cream cheese 500ml icing sugar 5ml lemon juice	**Source:https://www.food24.com**

Study the recipe and the information above and answer the questions that follow.

2.2.1 Convert the total mass of flour, brown sugar and carrot to kilograms (kg). (3)

2.2.2 Write down the simplified ratio of golden syrup to lemon juice. (2)

2.2.3 Mbali shares the recipe with her sister who lives in Australia.
Her sister uses the oven that only has degree Fahrenheit readings.

Convert 170°C to degree Fahrenheit

You may use the following formula : **°F = °C × 1,8 +32°** (3)

2.2.4 Mbali starts preparing to bake at 09:10. At what time will the cake be ready
for serving? (3)

2.2.5 Mbali used FIVE dozen eggs. Determine the maximum number of cakes she
baked. (4)

2.2.6 The cost price of ONE cake is R450. To determine the selling price Mbali and
Rajesh increases the cost price by 45%. Determine the profit made from selling
FIVE cakes. (3)

[33]

QUESTION 3

3.1

> John lives in Brakpan and works at Braamfontein from Monday to Friday. John travels from Brakpan to work using N17, N12 route via Turffontein in the morning and afternoon.
>
> The Maps on ANNEXURE A show part of Gauteng and John's route to work

Use ANNEXURE A in the addendum to answer the questions that follow.

3.1.1   Refer to FIGURE 1. Determine the number of national roads shown on the map.   (2)

3.1.2   Give the general direction of Soweto from the airport.   (2)

3.1.3   Use the bar scale on the map to determine the actual distance in kilometres from Soweto to Midrand.   (4)

3.1.4   Give TWO possible reasons why John choose to travel on the national roads.   (4)

3.1.5   Refer to FIGURE 2. Calculate John's average speed in kilometres per hour (km/h), if he uses the longest route to work via Bedfordview.

You may use the formula: **Speed = Distance**
                                 Time   (3)

3.2

Below is the Avo cinema seating layout during covid-19 alert level 1.

Avo Cinema Seating layout

SCREEN

5-GUEST MAX. PER GROUP   2-SEAT GAPS

ALTERNATING AISLES

■ : EMPTY SEAT   ■ : OCCUPIED SEAT
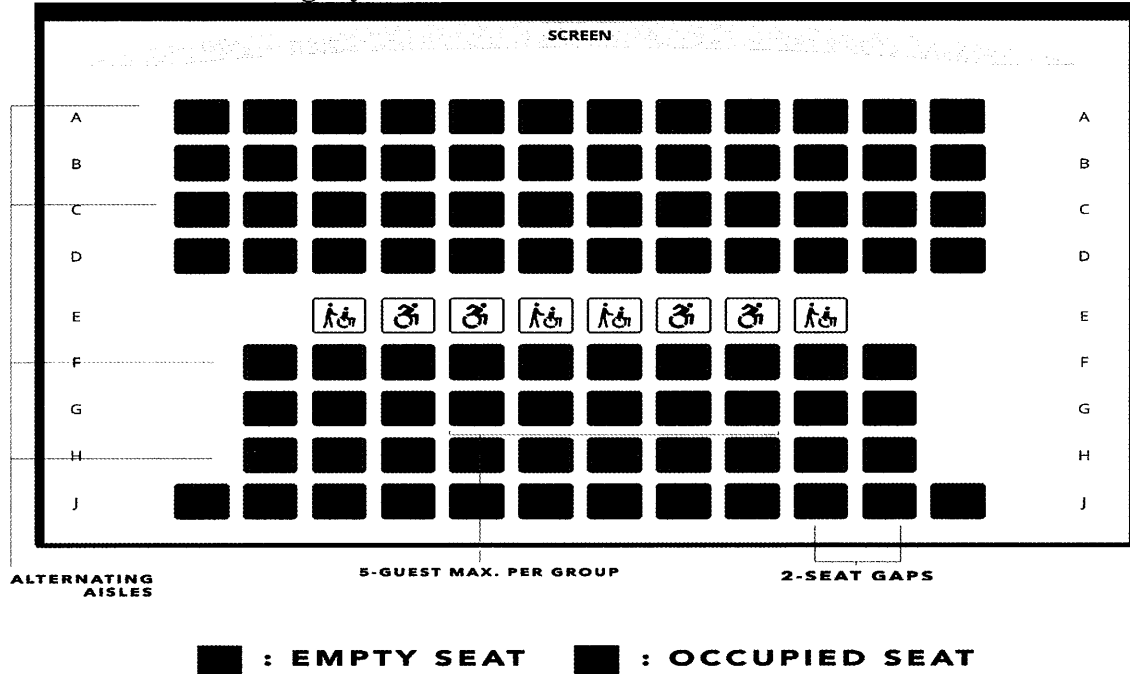
NOTE:

Cinema can ONLY take a maximum of 25% venue capacity and 5- guest max. per group

Use the layout and the information to answer the questions that follow.

3.2.1   Determine the total number of seats in the cinema.   (2)

3.2.2   Verify showing calculations that the seats occupied are 25% of the venue
        capacity.   (4)

3.2.3   Determine the maximum number of 5-guest group that can be occupied in the
        front block of the cinema.   (2)

3.2.4   Calculate the total amount the cinema will receive from the occupied seats,
        if one movie ticket costs R88,50   (2)

                                                                                              [25]

QUESTION 4

4.1

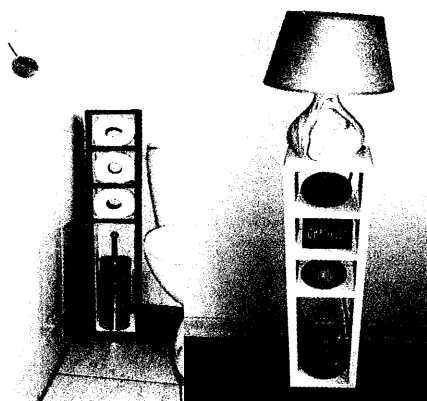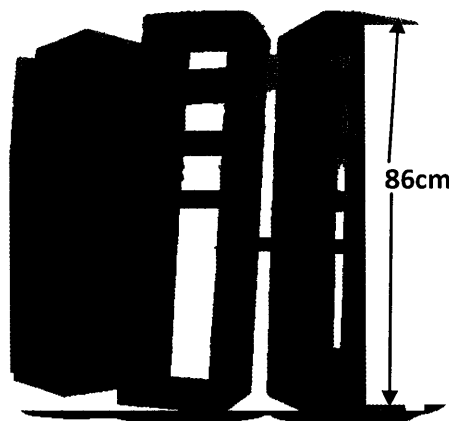| Mr Ndlovu makes custom furniture from plywood. The material costs R200 to make ONE complete stand and he sells them for R250 each. He pays R1500 per month for rent. |

Picture of a stand in use   **Diagram of a Stand**

86cm

Source:http//www.facebook.com/images.

NOTE:
- Stand is a multi-purpose holder for household items

Table 2: Total Income and Total Expenses

No. of Stands	0	10	20	30	40	...	C	90	100
Total income(R)	0	2500	5000	B	10000	...	15000	22500	25000
Total expenses(R)	A	3500	5500	7500	9500	...	13500	19500	21500

Total expenses = R1 500 + R200 × number of Stands sold

Use the information above to answer the questions that follow.

4.1.1   Write down the formula Mr Ndlovu will use to calculate his total income.
Income = ... × ...   (2)

4.1.2   Calculate the missing values **A**, **B** and **C**   (6)

4.1.3   Explain the meaning of the term break even according to the given context.   (2)

4.1.4   The graph drawn on the ANSWER SHEET shows the total expenses.
On the same set of axes, draw the graph showing the total income for the
number of stands sold.   (5)

4.1.5   What type of relationship is represented by the graphs in 4.1.4?
Give a reason for your answer.   (3)

4.2   The measured length on the picture of the Stand is 30mm.

4.2.1   Determine the scale used to draw the diagram of the stand, if the actual length
is 86cm. Round off your answer to the nearest 10 units.   (4)
                                                                                            [22]

                                                                        TOTAL: **[100]**

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ADDENDUM

APRIL 2021

This addendum consists of 2 pages with 1 annexure.

ANNEXURE A

Question 3.1

FIGURE 1

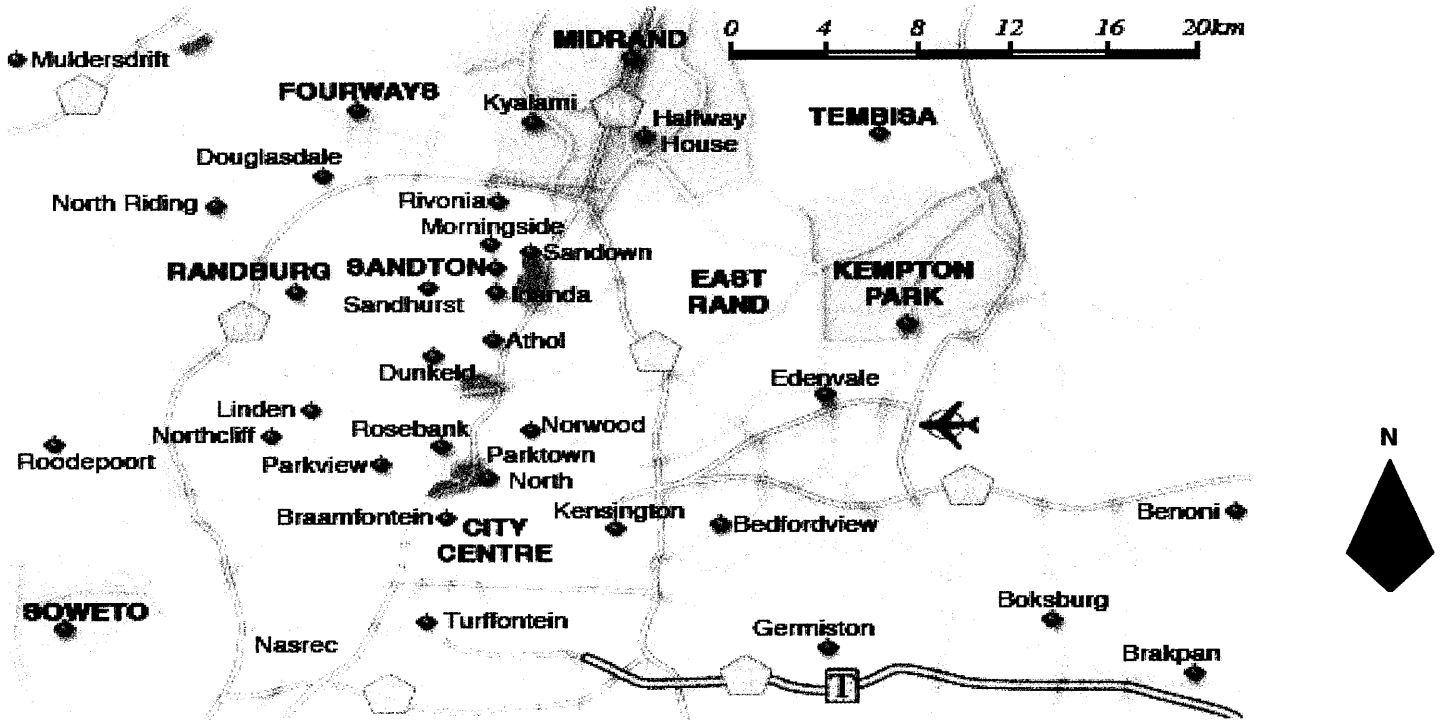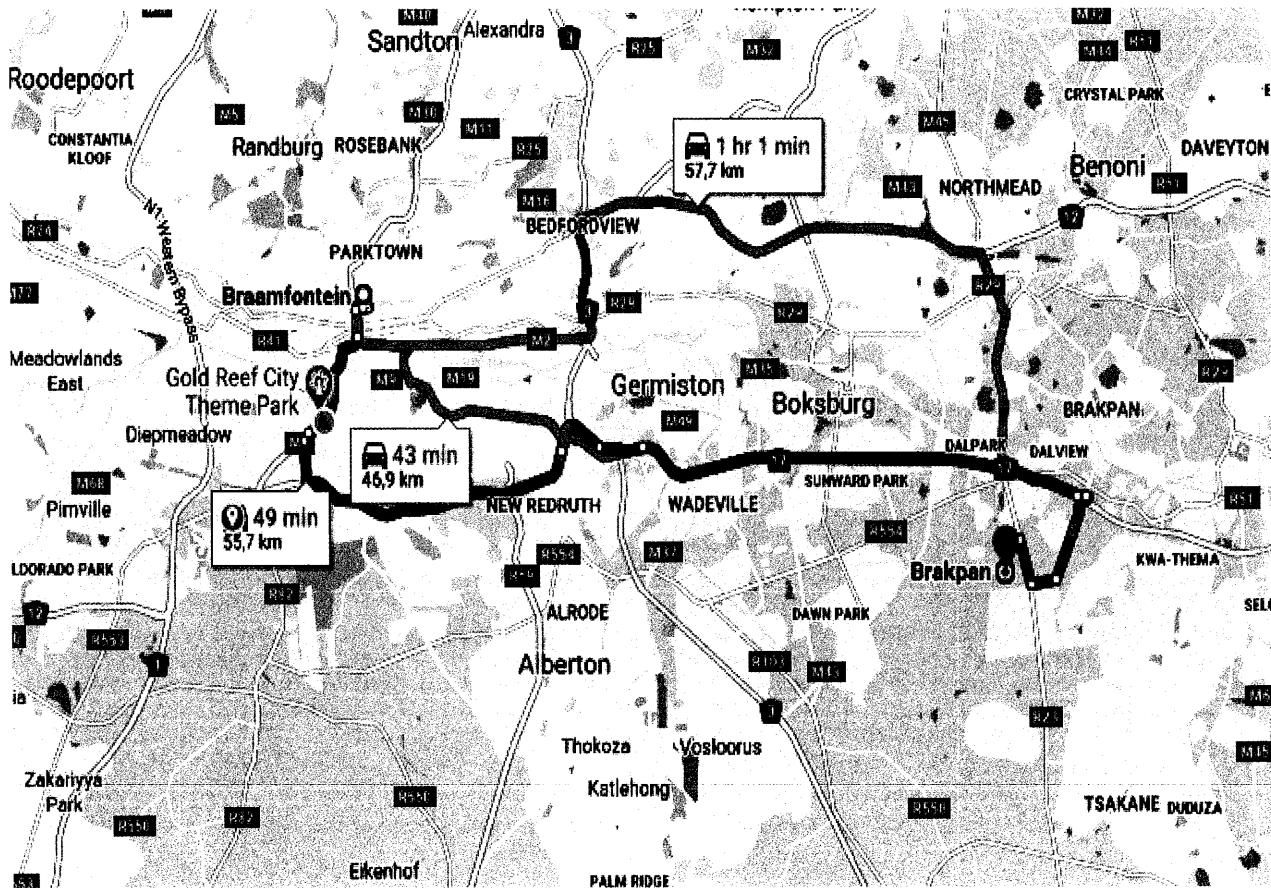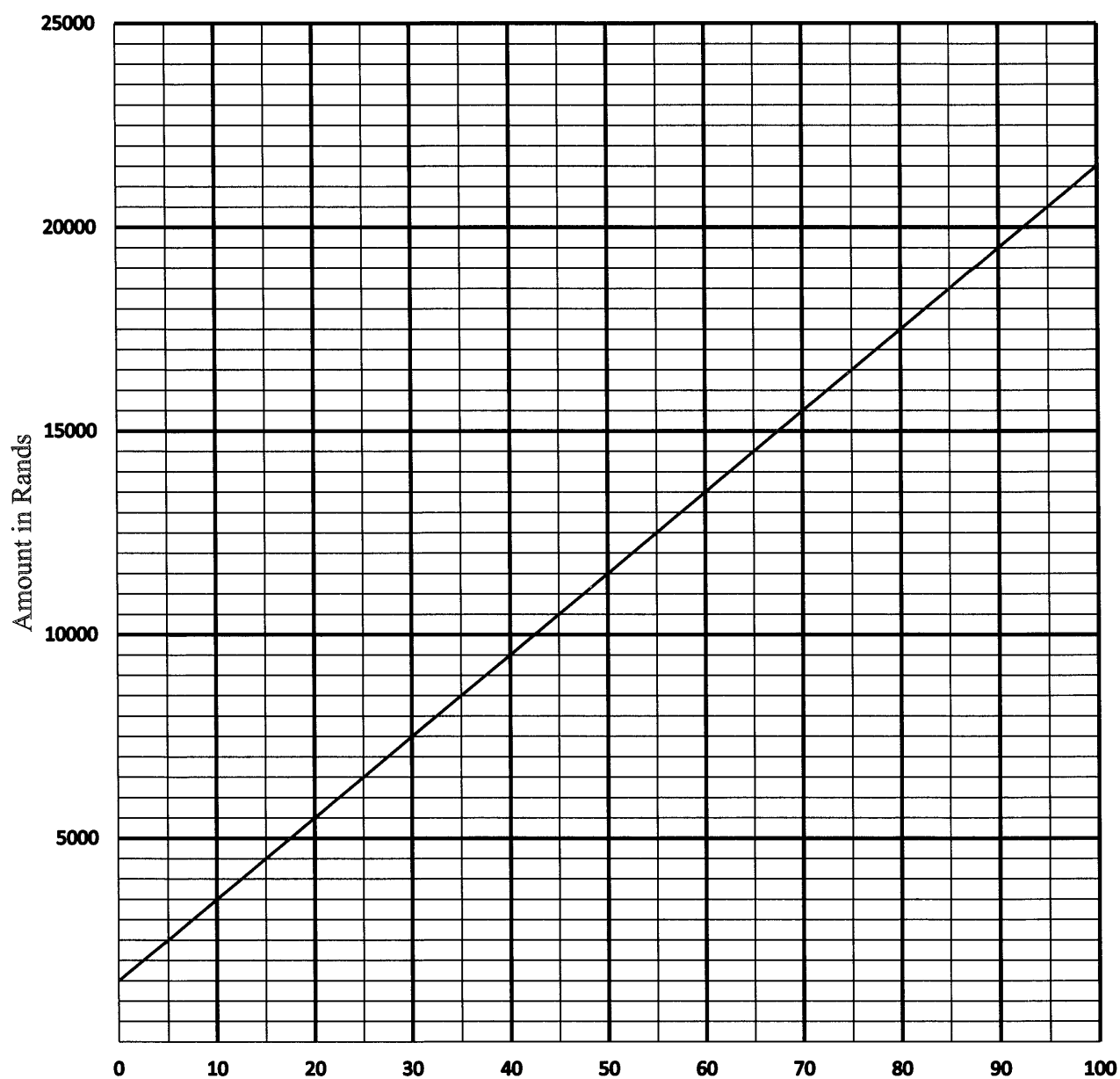**FIGURE 2**

ANSWER SHEET

QUESTION 4.1.4

NAME AND SURNAME: _____

GRADE 11:_____

Table 2: Showing total income and total expenses

No. of Stands	0	10	20	30	40	...	C	90	100
Total income(R)	0	2500	5000	B	10000	...	15000	22500	25000
Total expenses(R)	A	3500	5500	7500	9500	...	13500	19500	21500

Mr Ndlovu's total income and expenses for stands sold

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MARKING GUIDELINE

MARKS: 100

SYMBOL	EXPLANATION
M	Method
MA	Method with accuracy
CA	Consistent accuracy
A	Accuracy(Answer)
C	Conversion
S	Simplification
RT/RG/RD	Reading from a table/ graph/ diagram
NPR	No penalty for units/rounding
SF	Correct substitution in a formula
O	Opinion/ reason/deduction/example
J	Justification
R	Rounding off/
F	deriving a formula
E	Explanation
U	Units
AO	Answer only full marks
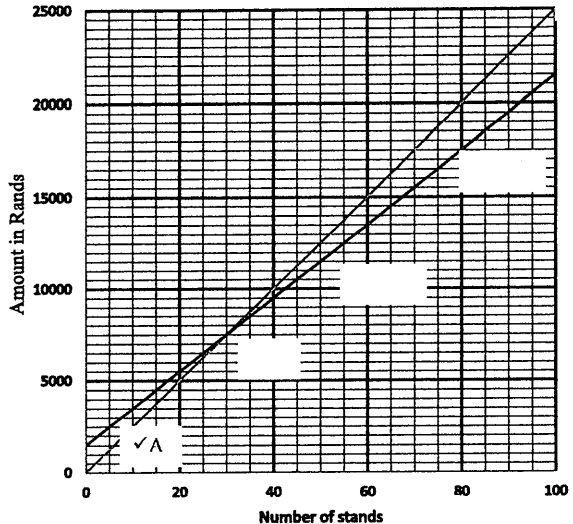
This marking guidelines consists of 6 pages.

QUESTION 1 [20 MARKS]

QUE	SOLUTION	EXPLANATION	L/T
1.1.1	13:50 ✓✓ A	2A. Correct time & format (2)	L1 M
1.1.2	36 ✓✓A	2A. Number of letters (2)	L1 MP
1.1.3	One unit on the diagram of the t-shirt represent twenty units in reality ✓✓E	2E. Explanation (2)	L1 MP
1.1.4	6feets = 6 × 0.3048m ✓M =1.8288m = 1.83m ✓CA	1M. Multiplying by 0.3048 1CA. Answer **AO NPR** (2)	L1 M
1.2.1	✓MA Cost = R3.50 ×15 = R52.50 ✓CA	1MA. Multiplying by R3.50 1CA. Answer **AO** (2)	L1 F
1.2.2	Paint required = $\dfrac{800 \times 2.4m \ell}{3}$ ✓M = 640m ℓ ✓A	1M. Multiplying by 2.4 ℓ 1A. Answer (2)	L1 M
1.3.1	Event B ✓✓A	2A. Answer (2)	L1 M
1.3.2	23:00 – 6:00 ✓MA 17hours ✓A	1MA. Subtracting time 1A. Correct No. of hours **AO** (2)	L1 M
1.3.3	Difference cost = R229 – R129.60 ✓M = R99.40 ✓A	1M. Subtracting correct values 1A. Answer **AO** (2)	L1 F
1.3.4	2 days ✓✓A	2A. Number of days (2)	L1 M
		[20]	

QUE	QUESTION 2 [33 MARKS]	EXPLANATION	L/T
2.1.1	Employer is the persons who hires/gives other peoples job to do ✓✓E Employee is a person/institution that has been hired to do a particular job✓✓E (4)	2E.Explanation 2E.Explanation	L1 F
2.1.2	A = R1000+R1 290+R137.50✓M = R2 427.50 ✓CA (2)	1M. Adding all correct values 1CA. Answer **AO**	L2 F
2.1.3	R3 750 = R75 ×50 hours ✓✓A (2)	2A. Multiplying R75 by 50 hrs.	L2 F
2.1.4	Net pay is the salary after deductions ✓✓E **OR** Net pay is gross salary less deductions ✓✓E (2)	2E. Explanation	L1 F

2.1.5	PAYE(%) = $\frac{R1\,290}{R13\,750}$ ✓MA · 100% ✓M
	  =9.3818 ✓CA
	  = 9%✓R (4)
		1MA. Dividing correct values
		1M. Percentage concept
		1CA. Answer
		1R. Rounding
			L2
			F

2.1.6	It gives short term relief to workers when they become unemployed✓✓ O (2)	2O. Opinion	L4 F
2.2.1	Total mass = $\frac{340g + 225g + 500g}{1000}$ ✓M ✓C = 1.065kg✓CA (3)	1M. Adding correct values 1C. Dividing by 1000 1CA. Answer	L3 M
2.2.2	125ml : 5ml ✓M 25 : 1 ✓A (2)	1M. Correct ratio order 1A. Simplified ratio	L2 M

2.2.3	°F = 170 × 1.8 + 32 ✓SF
	  = 306 + 32 ✓S
	  = 338°F ✓A (3)
		1SF. Correct substitution into formula
		1S. Simplification
		1A. Answer
			L2
			M

2.2.4	Finish = 09:10 + 1 hour 30min +25min ✓M = 11:05 ✓CA (2)	2M. Adding times 1CA. Finishing Time of the day **AO**	L2 M

2.2.5	No. of eggs = 5 dozens ×12 ✓MA
	  = 60eggs ✓CA
	No. of cakes = $\frac{60\ eggs}{4\ eggs}$✓M
	  = 15 ✓CA (4)
		1MA. 5 Dozens multiplied by 12
		1CA. Number of eggs
		
		1M. Dividing by 4
		1CA. Number of cakes
			L4
			M

2.2.6	Profit = $\frac{45 × R450}{100}$ ✓MA
	  = R202,50×5 cakes✓M
	  = R1 012,12 ✓CA (3)
		1MA.Percentage concept
		1M. Multiplying by 5
		1CA. Correct Profit
			L2
			F

			[33]

	QUESTION 3[26 MARKS]		
QUE	SOLUTION	EXPLANATION	L/T
3.1.1	5 National roads ✓✓A (2)	2A. Answer	L2 MP
3.1.2	South West (SW) ✓✓A (2)	2A. Correct General Direction	L1 MP
3.1.3	✓A Distance = $\frac{20km · 10.6cm}{6.2cm}$✓A ✓MA =34.19km ✓CA (4)	1A. Correct bar scale length 1A. Measured length 1MA.Concept of scale 1CA. Actual distance **NPR**	L3 MP
3.1.4	• To avoid traffick/not to be tale at work✓✓R • To avoid to many road works✓✓R • To drive fast on the road without consistent stops✓✓R • To travel at a constant speed✓✓R (4)	2R. Reason 2R. Reason	L4 MP

3.1.5	Ave. Speed = $\frac{57.7km}{1.01666..hrs}$ ✓SF ✓C
	  = 56.7540..
	  =56.8km/h✓CA (3)
		1SF.Correct substitution
		1C. Converting time to hours
		1CA. Answer
			L3
			M

3.2.1	No.of seats = 48 + 8 + 42 = 98✓✓A (2)	2A. Total Number of seats **AO**	L2 MP
3.2.2	Venue capacity = $\frac{24}{98}$✓A×100% ✓MA = 24.489%✓CA Rounded to the nearest 5% ✓R (4)	**CA From 3.2.1** 1A. correct numerator 1MA. Percentage concept 1CA. Answer 1R. Reason	L4 MP
3.2.3	4 groups ✓✓A (2)	2A. Answer	L4 MP
3.2.4	Total costs = 24 × R88.50✓M = R2 124 ✓CA (2)	**CA from 3.2.2** 1M. Multiplying by R88.50 1CA. Answer	L2 F
			[25]

	QUESTION 4[22 MARKS]			
QUE	SOLUTION	EXPLANATION		T/L
4.1.1	Income = R250 · number of stands✓✓A	2A. Correct equation (2)		L2 F
4.1.2	A = R 1 500✓✓A	2A. Answer 1MA. Multiplying by R250 1A. Answer		L3 F
	B = R250 · 30✓MA = R7 500✓A			
	C = R15 000 / R250 ✓MA = 60✓A	1MA. Dividing by R250 1A. Answer AO (6)		
4.1.3	Breake even point is the point at which the income is equal to the expenses✓✓E **OR** Mr Ndlovu will make no profit or loss/ his income is exactly as the expenses. ✓✓E	2E. Explanation (2)		L1 F
4.1.4

Mr Ndlovu's total income and expenses for stands sold | 1A.Starting point
2A. Any two correct points
1CA. Straight line
1A. Labelling x-axis

(5) | | L3 F |
| 4.1.5 | Direct proportion✓✓A
As the number of stands increase the income also increase✓R | 2A. Type of proportion
1R. Justification
(3) | | L4 F |

4.2.1	30mm : 860mm✓C 30mm · 30mm✓MA 1 : 28.6666✓CA 1 : 30 ✓R	1C. Conversion 1MA. Dividing by 30mm both sides 1CA. Answer 1R. Rounding. (4)		L3 MP
			[21]	
		TOTAL:	**[100]**	

Please Turn Over