

Basic Education

KwaZulu-Natal Department of Basic Education
REPUBLIC OF SOUTH AFRICA

MATHEMATICAL LITERACY P1

COMMON TEST

MARCH 2016

**NATIONAL
SENIOR CERTIFICATE**

GRADE 10

MARKS: 75

TIME: 1½ hours

This question paper consists of 7 pages and 1 answer sheet.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of **FOUR** questions. Answer **ALL** the questions.
2. Answer **QUESTION 4.2.2** on the attached answer sheet. Write your **NAME** in the space provided on the answer sheet and 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 calculations clearly.
7. Round **ALL** the final answers off to **TWO** decimal places, unless stated otherwise.
8. Indicate units of measurement, where applicable.
9. Write neatly and legibly.

QUESTION 1

1.1

Table 1 below shows the number of children per grade in Nu Horizon High school.

TABLE 1: The number of boys and girls in Nu Horizon High school

GRADE	BOYS	GIRLS	TOTAL
8	95	102	197
9	120	118	238
10	99	101	A
11	B	95	186
12	75	80	C

Study TABLE 1 and answer the questions that follow:

- 1.1.1 Determine the value of A, B and C (6)
- 1.1.2 In which grade are there more boys than girls? (2)
- 1.1.3 Determine the ratio of boys : girls in Grade 12 in a simplified form. (2)

1.2

Mrs Dube would like to take 38 learners on an excursion to visit the museum. She decides to hire mini-bus taxis to transport the learners. The cost of hiring the taxi is R320 per taxi for a return trip. The taxi can seat a maximum of 16 learners.

The department regulation states that the teacher: learner ratio for an excursion is 1: 30

Note: The teacher(s) will travel with their own vehicle or the teacher will travel for free.

- 1.2.1 Determine the total number of taxis she would hire. (3)
- 1.2.2 Calculate how much each learner would pay to cover the full cost of the taxis. (3)
- 1.2.3 State how many teachers would go on the trip. (2)

[18]

QUESTION 2

2.1 Mrs Xaba is a single mother with 3 children. She received a R12 600 bonus from her company. Mrs Xaba would like to share her bonus with her children in the ratio

Mrs Xaba's share : Total children's share = **2 : 1**

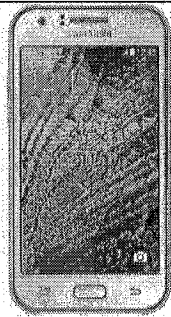
2.1.1 Show that Mrs Xaba will give her children a total of R4 200. (3)

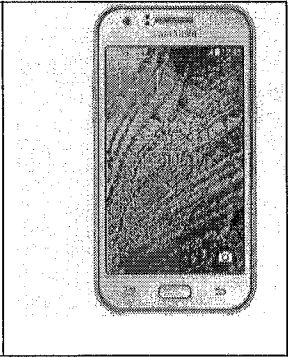
2.1.2 Calculate the total amount Mrs Xaba gave her children as a percentage of the amount she received. (2)

2.1.3 Determine the amount of money each of her children will get. (2)

2.2 Lindiwe Xaba, one of Mrs Xaba's daughters decided to buy a cell phone. She checked on *Price Check* for price of a Samsung Galaxy J1. The price ranged from R1 459,00 to R2 220,00 TABLE 2 lists some of the features of the cell phone.

TABLE 2: List of features and picture of a cell phone

<p>An entry-level smartphone 4.3-inch WVGA (480 x 800) display Dual SIM capabilities Android 4.4 KitKat on board 5 MP camera with LED flash on the back 2 MP snapper on the front</p>	
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2.2.1 Calculate the percentage savings Lindiwe would make if she purchased the cell-phone at the minimum price.

Use the following formula:

$$\text{Percentage savings} = \frac{\text{maximum price} - \text{minimum price}}{\text{maximum price}} \times 100\% \quad (3)$$

2.2.2 State ONE valid reason why the back camera is a better quality than the front camera. (2)

2.2.3 State ONE valid reason why a person may choose to buy the cell-phone at the more expensive price. (2)

[14]

QUESTION 3

3.1

Lily decides to make “old Time Sugar Cookies” to give to the children in her class. There are 40 learners in her class.

She uses the recipe alongside.

Use the recipe alongside and conversion table below to answer the questions that follow.

Conversion Table

5 mL = 1 teaspoon

1 tablespoon = 12,5 mL

1 cup = 250 mL

OLD-TIME SUGAR COOKIES
(makes 36)

3 cups sifted flour

2 teaspoons baking powder

1/2 teaspoon salt

1 cup butter

1 1/2 cups sugar

2 large eggs

1 tablespoon milk

1 teaspoon vanilla

2 tablespoons sugar (for sprinkling)

2 teaspoons cinnamon

Bake at 400 °F. oven for 9 minutes

3.1.1 Write down the ratio of **flour : sugar** in simplified form. (2)

3.1.2 Determine the amount of salt used in the recipe in mL (2)

3.1.3 Determine the total number of mL of sugar used in the recipe. (3)

3.1.4 Lily started making the cookies at 09:50. It took her half an hour to prepare and mix the cookies before she placed them in the oven.

Determine the time that she took the cookies out of the oven. (3)

3.1.5 If there are 40 learners in her class, how many batches of cookies will Lily have to make so that each learner has 3 cookies? (3)

3.2 Lily bought concentrated juice to mix juice for her classmates. The instruction on the label reads dilute in the ratio 1 : 5.

3.2.1 Explain what is meant by this dilution factor. (2)

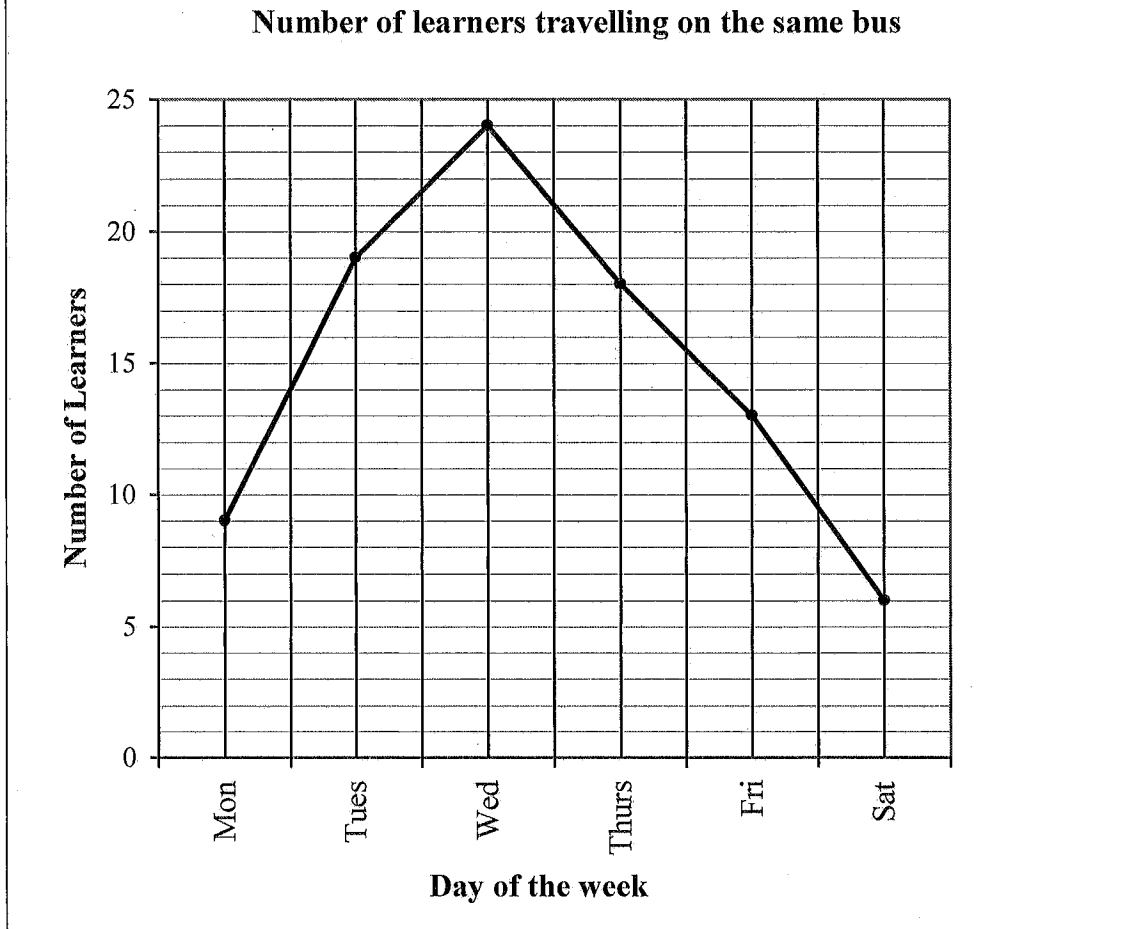
3.2.2 The diluted drink is served in glasses with a capacity of 200 mL.

Determine how many full glasses of diluted juice can be poured from using 1 litre of concentrated juice. (4)

[19]

QUESTION 4

- 4.1 Bongani travels by bus to school. He kept a record of the number of learners who travelled on the same bus as he did in the same week. The graph below shows the information he recorded.



- 4.1.1 Write down the lowest number of learners that travelled on the bus on a particular day (2)
- 4.1.2 On which day of the week did 19 learners travel on the bus? (2)
- 4.1.3 Give one valid reason why learners attended school on a Saturday. (2)
- 4.1.4 Give one valid reason why the same numbers of children do not travel on the bus every day. (2)
- 4.1.5 The bus takes 42 minutes to travel to school. Bongani arrived at school at 07:35. Determine the time that Bongani got on the bus. (2)

4.2

The bus that Bongani travels on can accommodate a maximum of 65 passengers.

The table below shows the relationship between the number of passengers on the bus and the total fare (amount of money) paid to the driver of the bus.

TABLE 3: Number of passengers and total amount

Number of passengers	0	10	20	25	30	B	60
Total fare in rand	0	68	136	A	204	238	408

4.2.1 Calculate the value of:

(a) **A** (2)

(b) **B** (3)

4.2.2 Use the set of axis drawn on the attached answer sheet to draw a graph that illustrates the relationship between the number of passengers and the total fare in rand. (5)

4.2.3 Use the graph drawn in **QUESTION 4.2.2** to determine how many passengers travelled on the bus if the total fare collected was R306. (2)

4.2.4 Give a reason why the driver could collect a total amount of R503, 60 on a single trip. (2)

[24]

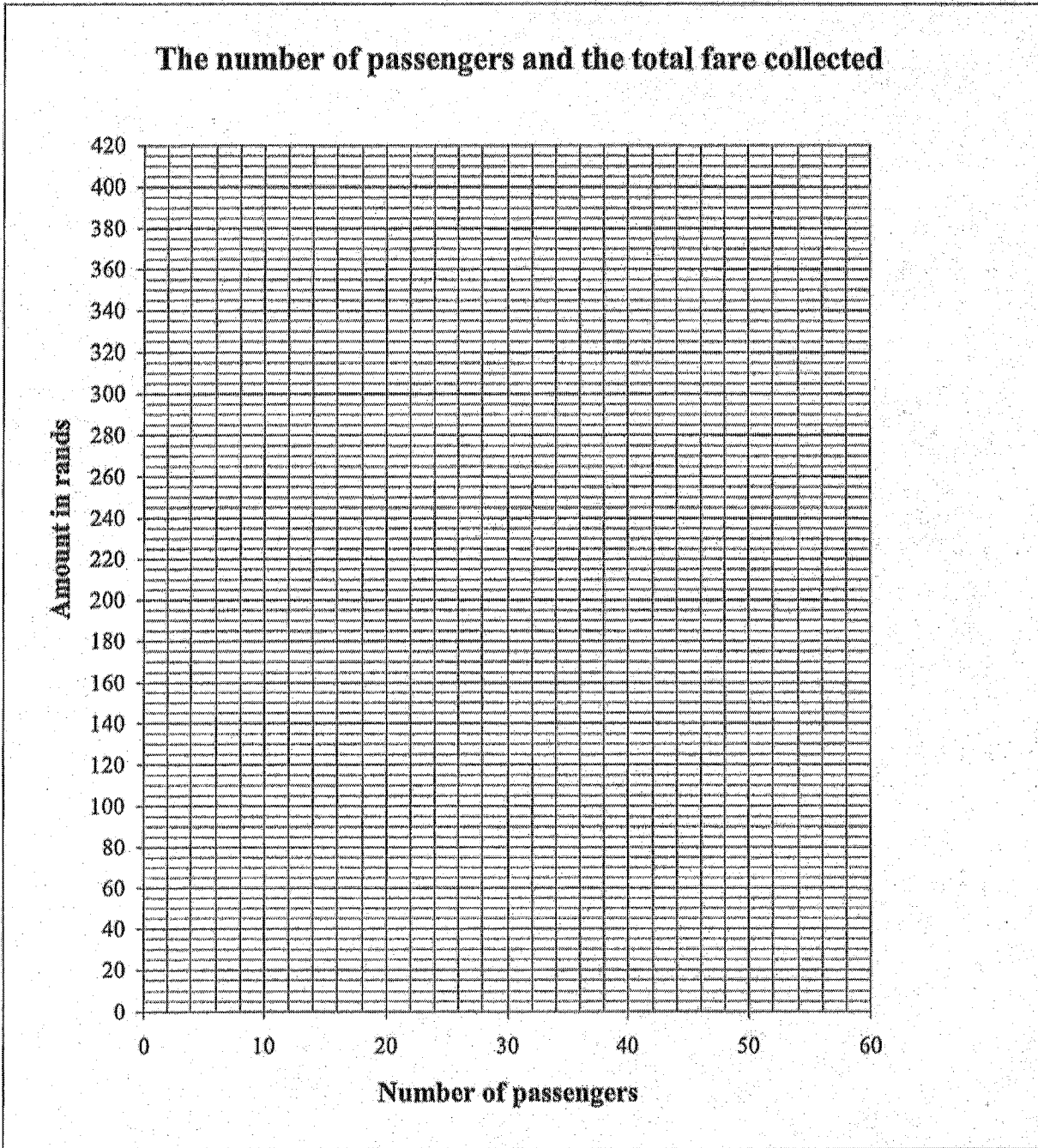
TOTAL: [75]

Answer Sheet

Name: _____

Grade 10 _____

Question 4.2.2





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Symbol	Explanation
M	Method
MA	Method with Accuracy
CA	Consistent Accuracy
A	Accuracy
C	Conversion
J	Justification/Reason/Explain
SF	Substitution into a given formula
S	Simplification
RD	Reading from a table OR a graph OR a diagram OR a map OR a plan
O	Opinion
P	Penalty, e.g. for no units, incorrect rounding off, etc.
R	Rounding Off
NP	No penalty for rounding OR omitting units

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QUESTION 1 [18 Marks]

Ques	Solution	Explanation	Level
1.1.1	$A = 99 + 101$ $= 200 \quad \checkmark A$ $B = 186 - 95$ $= 91 \quad \checkmark A$ $C = 75 + 80$ $= 155 \quad \checkmark A$	IMA adding correct values IA solution IMA subtracting correct values IA solution IMA adding correct values IA solution Answer only full marks	L1
1.1.2	Grade 9 $\checkmark \checkmark A$	2A answer only	L1
1.1.3	boys : girls = 75 : 80 $\checkmark M$ $= 15 : 16 \quad \checkmark CA$	IM correct ratio ICA simplification Answer only full marks	L1
1.2.1	Number of taxis = $\frac{38}{16} \checkmark M$ $= 2,375 \quad \checkmark A$ $= 3 \quad \checkmark R$	IM division IA simplification IR rounding up Answer only full marks	L2

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Ques	Solution	Explanation	Level
1.2.2	Total costs = $3 \times R320 \checkmark M$ = R960 $\checkmark CA$ Cost per learner = $\frac{R960}{38}$ = R25,26 $\checkmark CA$	IM multiplying ICA solution ICA cost per learner (3)	L2
1.2.3	2 teachers $\checkmark \checkmark A$	2A answer (2) [18]	L1

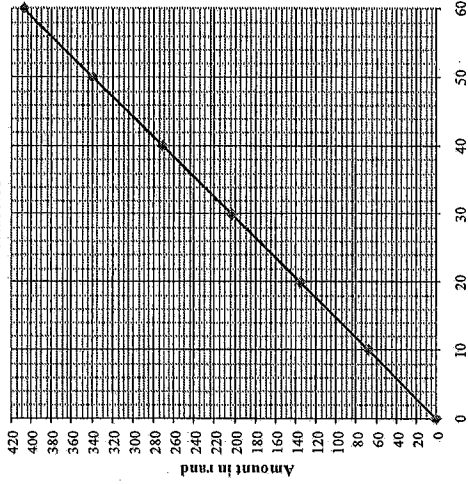
QUESTION 2 [14 Marks]			
Ques	Solution	Explanation	Level
2.1.1	Number of parts = $2 + 1 \checkmark MA$ = 3 $\checkmark A$ Children's share = $\frac{1}{3} \times R12\ 600 \checkmark M$ = R4 200	IMA adding correct values IA solution IM division (3)	L1
2.1.2	Total children's share = $\frac{R4\ 200}{R12\ 600} \times 100\% \checkmark MA$ = 33,3% $\checkmark A$	IMA %concept IA solution (2)	L1
2.1.3	One child's share = $\frac{R4\ 200}{3}$ = R1 400 $\checkmark A$	IMA dividing IA solution (2) Answer only full marks	L1

Ques	Solution	Explanation	Level
2.2.1	Percentage savings = $\frac{\text{maximum price} - \text{minimum price}}{\text{maximum price}} \times 100\%$ = $\frac{R2\ 220 - R1\ 459}{R2\ 220} \times 100\% \checkmark SF$ = $\frac{R761}{R2\ 220} \times 100\% \checkmark S$ = 34,28% $\checkmark CA$	1SF substitution 1S simplification 1CA solution (3)	L2
2.2.2	Generally when taking a photo the person is snapping someone at the back of the camera. OR 5 MP better than the 2 mega Pixel (any valid reason) $\checkmark \checkmark J$	2J reason (2)	L4
2.2.3	The store could be far away (no transport) Do not know about the cheaper phone (Any valid reason) $\checkmark \checkmark J$	2J reason (2) [14]	L4

QUESTION 3 [19 Marks]			
Ques	Solution	Explanation	Level
3.1.1	flour : sugar = $3 : 1 \frac{1}{2} \checkmark MA$ = 2 : 1 $\checkmark CA$	IMA correct ratio 1A solution (2)	L1
3.1.2	amount of salt = $\frac{1}{2} \times 5\ \text{ml} \checkmark M$ = 2,5 ml $\checkmark A$	IM multiplying 1A solution (2) Answer only full marks	L2

Ques	Solution	Explanation	Level
3.1.3	Amount of sugar = $1\frac{1}{2} \times 250 \text{ ml} + 2 \times 12,5 \text{ ml}$ = 375 ml + 25 ml ✓A = 400 ml ✓CA	IMA multiplying IA simplification ICA final answer (3)	L3
3.1.4	Total time = 30 min + 9 min ✓MA = 39 min ✓CA Time taken out oven = 09:50 + 39 min = 10:29 ✓CA	IMA adding correct values ICA answer CA final time (3) Answer only full marks	L3
3.1.5	Number of cookies needed = 120 ✓A Number of batches = $\frac{120}{36}$ ✓M = 3,33 = 4 ✓R	1A total number of cookies 1m dividing 1R rounding up (3)	L2
3.2.1	For every one part of juice, 5 parts of water must be added ✓J	2J explanation (2)	L4
3.2.2	1 l juice + 5 l water = 6 l mixed juice ✓MA = 6 000 ml ✓CA Number of glasses = $\frac{6\ 000}{200}$ ✓M = 30 glasses ✓CA	IMA correct dilution ICA solution 1M dividing ICA answer (4)	L2
			[19]

QUESTION 4 [24 Marks]			
Ques	Solution	Explanation	Level
4.1.1	6 ✓✓A	2A solution (2)	L2
4.1.2	Tuesday ✓✓A	2A solution (2)	L2
4.1.3	Extra lessons ✓✓O Parents meeting Using the school facilities (library; internet) Sport (any valid reason)	2O opinion (2)	L4
4.1.4	Travel on a later bus Got up late and missed the bus ✓✓O Absent (any valid reason)	2O opinion (2)	L4
4.1.5	Time he got on the bus = 07:35 - 42 minutes = 06:53 ✓A	IMA subtracting 1A solution Answer only full marks (2)	L3
4.2.1 (a)	A = 170 ✓✓A	2A answer (2)	L2
4.2.1 (b)	B = 35 ✓✓✓A	3A answer (3)	L2

4.2.2	<p style="text-align: center;">The number of passengers and the total fare collected</p>  <p>Starting at (0; 0) ✓/A Plotting 3 points ✓✓/A ✓/CA Joining points ✓/A</p>	L1 L2
4.2.3	45 ✓✓/CA	(5)
4.2.4	Passengers jump off the bus during the journey and more passengers and get on. ✓✓/O (Any valid reason)	2CA solution (2) 20 opinion (2) [24]
TOTAL: 75		