Education

KwaZulu-Natal Department of Education
REPUBLIC OF SOUTH AFRICA

MATHEMATICAL LITERACY P1

COMMON TEST

JUNE 2017

NATIONAL SENIOR CERTIFICATE

GRADE 10

MARKS: 50

TIME: 1 hour

This question paper consists of 7 pages.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of **FOUR** questions. Answer ALL the questions.
2. Number the answers 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 the calculations clearly.
6. Round ALL the final answers off appropriately according to the given context, unless stated otherwise.
7. Indicate units of measurement, where applicable.
8. Write neatly and legibly.

QUESTION 1

1.1 A restaurant pays a waiter R18 per hour. In one week he worked 5 shifts from 12h00 to 23h00.

1.1.1 Calculate the number of hours the waiter works per shift. (2)

1.1.2 Determine his total wage for the week. (3)

1.2 A box of smarties contains 6 red, 4 yellow; 3 white; 7 blue and 5 green smarties only.

If a smartie is selected at random, determine the probability that the colour of the smartie will be:

1.2.1 black (2)

1.2.2 white (2)
[9]

QUESTION 2

2.1 Lucas and Lindiwe are a married couple who prepared this budget. TABLE 1 below shows their budget for February 2017.

TABLE 1: Lucas and Lindidwe's Budget

	Lucas	Lindiwe
Income(salary)	**R16 470,00**	**R 12 550,00**
Expenditure		
Home loan	R9 879,45	
Car finance & insurance		R5 534,70
Education policy	R 200,00	
Funeral policy	R 245,00	
Life cover policy	R 650,00	R 500,00
Petrol	R 950,00	
Furniture instalment	R 690,00	
Clothing		R 900,00
Water and electricity	R 990,00	
Food/cleaning material		R3 500,00
School fees	R 780,00	
Entertainment		R 500,00
Cell phone bills	R 300,00	R 200,00
TOTAL	**A**	**R10 684,70**

2.1.1 Calculate **A**, Lucas's total expenses for February. (2)

2.1.2 Determine how much Lindiwe has left over after paying all her expenses. (2)

2.1.3 Calculate the amount that Lindiwe spends on clothing as a percentage of her total income. (2)

2.1.4 In February the cost of petrol was R11,95 per litre.

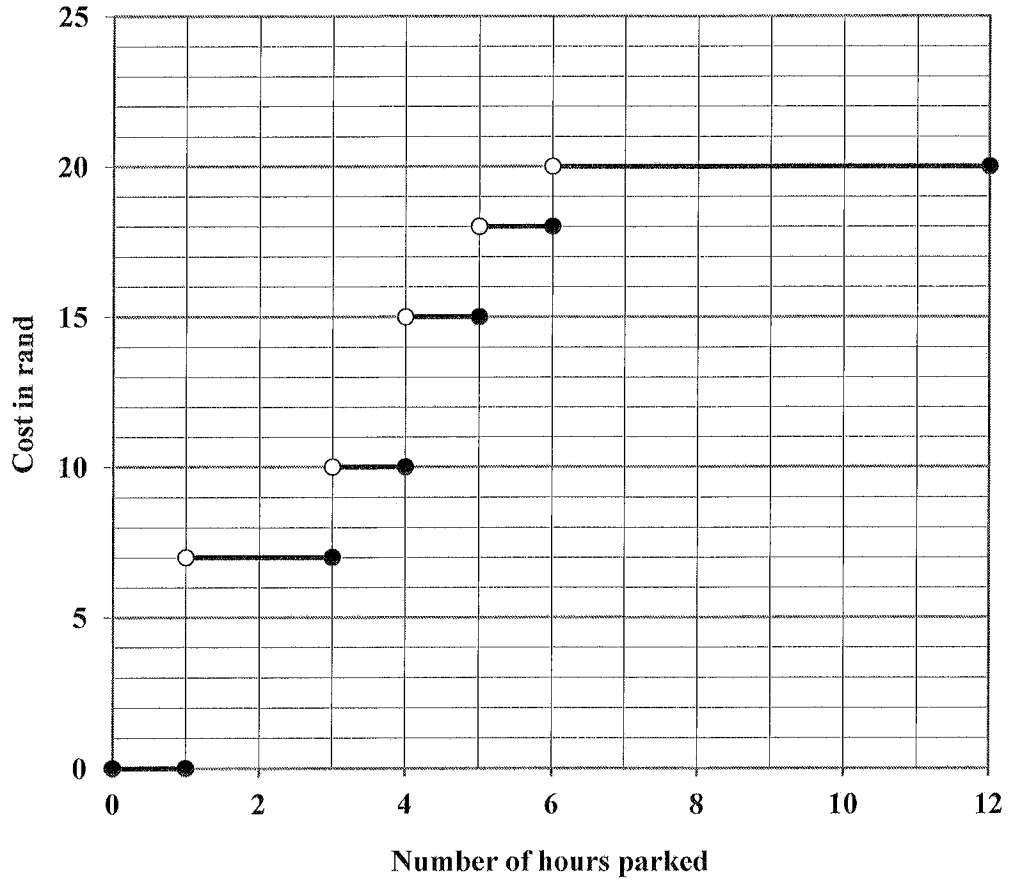
Determine how many litres of petrol Lucas filled in his car. Round your answer off to the nearest litre. (3)

2.1.5 The average fuel consumption of their car is 6,3 litres per 100 km.

Calculate how far (to the nearest 5 km) can they travel with 45 litres of fuel. (3)

2.2 Lindiwe visited a shopping mall to pay her clothing account. She parked in the parking garage.
The graph below shows the cost of parking at a parking garage that is open 12 hours daily.

COST OF PARKING IN THE PARKING GARAGE



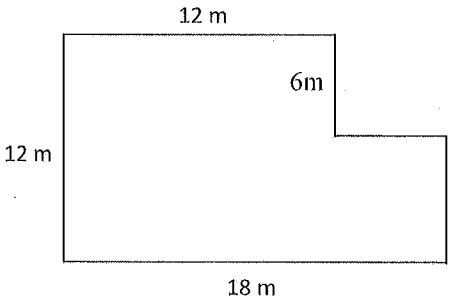
2.2.1 What is the maximum time that you can park at the parking garage for free? (2)

2.2.2 If you paid R10,00 for parking, how long was your car at the parking garage? (2)

2.2.3 How much would you pay if you parked your car at the parking garage for 6 hours 42 minutes? (2)
[18]

QUESTION 3

3.1 The diagram below represents a sketch of a garden.

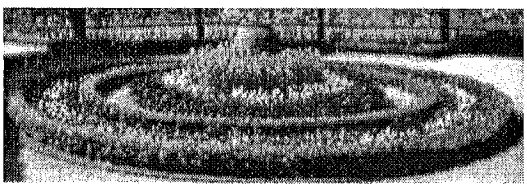


3.1.1 Calculate the perimeter of the garden. (3)

3.1.2 Determine the area of the garden.
You may use the formula:

Area of a rectangle = length × breadth (4)

3.2 A circular flower bed has a radius of 2,5 m.



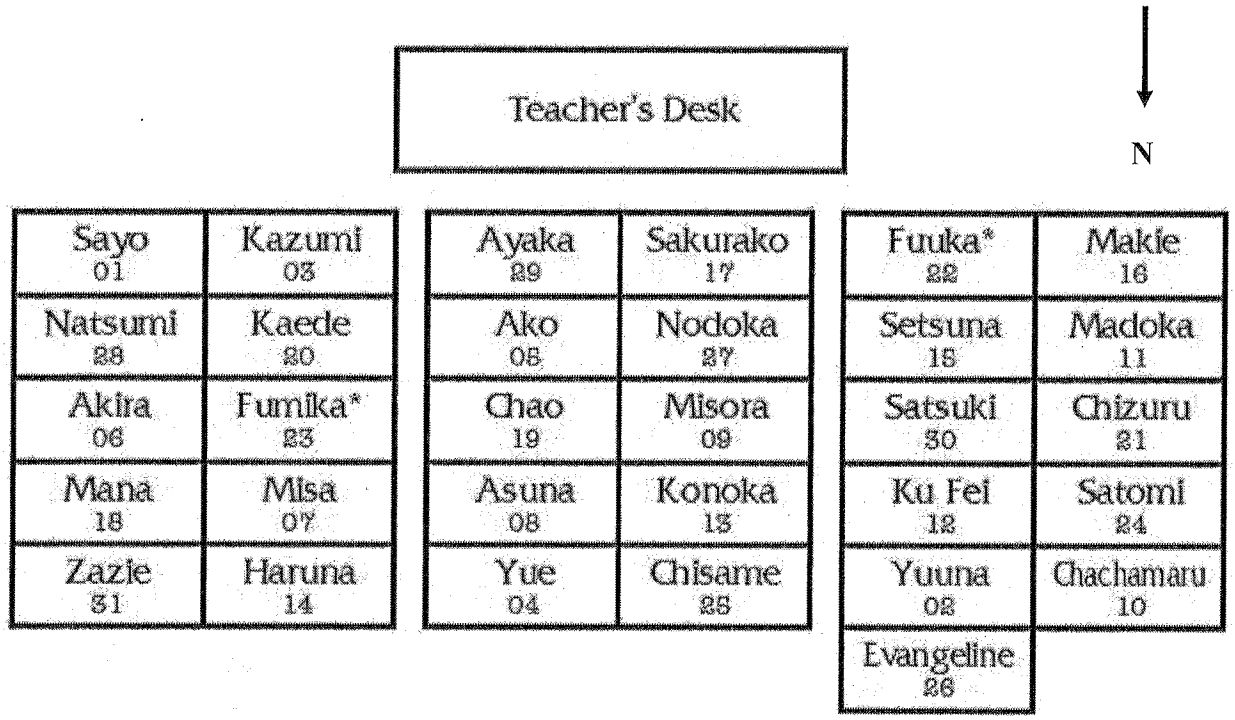
3.2.1 Write down the diameter of the flower bed. (2)

3.2.2 Calculate the circumference of the flower bed.

You may use the formula:
Circumference of circle = 2 × π × radius. Use π = 3,142 (3)
[12]

QUESTION 4

The seating plan of a classroom is given below.



Source: http://en. Wikipedia.org/wiki/file:Negima_seat_Plan.jpg

4.1 Define the term seating plan. (2)

4.2 Madoka is seating in which seat number? (2)

4.3 In which direction is the teacher's desk from Evangeline? (2)

4.4 Which seat numbers are second from the last row and directly opposite the teacher's desk? (2)

4.5 Kaede wants to go to Fuuka to get his calculator.
Describe possible direction he will have to follow without disturbing the lesson. (3)

[11]

TOTAL MARKS: 50

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MARKING GUIDELINE

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Symbol	Explanation
M	Method
M/A	Method with Accuracy
CA	Consistent Accuracy
A	Accuracy (Answer)
C	Conversion
S	Simplification
RT / RG / RM	Reading from table / Reading from graph / Reading from map
F	Choosing the correct formula
SF	Substitution in formula
O	Opinion
P	Penalty e.g. for no units, incorrect rounding, etc
R	Rounding off / Reason
U	Unit
AO	Answer only full marks

This marking guideline consists of 6 pages.

QUESTION 1 [9 marks]

Ques	Solution	Explanation	Topic/L
1.1.1	Time from 12h00 to 23h00 = 11 hours ✓✓A	2A answer (2)	F L1
1.1.2	Daily wage = 11 × R18,00 ✓M = R198 ✓CA Weekly wage = 5 × R198,00 = R990,00 ✓CA **OR** ✓CA ✓M Weekly wage = 11 × R18,00 × 5 = R990,00 ✓CA	1M multiplying 1CA daily wage 1CA weekly wage 1CA 11 hour 1M multiplying 1CA weekly wage AO (3)	F L2
1.2.1	$P_{black} = 0$✓✓A	2A solution (2)	P L1
1.2.2	$P_{white} = \frac{3}{25}$ ✓A ✓A	1A numerator 1 denominator (2) [9]	P L2

QUESTION 2 [18 marks]			
Ques	**Solution**	**Explanation**	**Topic/L**
2.1.1	Expenses = R9 879,45 + R200 + R245 + R650 + R950 + R690 + R990 + R780 + R300 ✓M = R14 684,45 ✓A	1M adding 1A solution AO (2)	F L1
2.1.2	Amount left = R12 550,00 – R10 684,70 ✓M = R1865,30 ✓A	1M subtracting 1A solution Answer Only AO **(no penalty if reversed with positive answer)** (3)	F L1
2.1.3	% spent on clothing = $\frac{900}{12\,550} \times 100\%$ ✓M =7,17% ✓A	1M % concept 1A solution AO (2)	F L1
2.1.4	Number of litres petrol = $\frac{R950}{R11,95}$ ✓M = 79,4979... ✓A = 79 ✓R	1M dividing 1A simplification 1R rounding AO (3)	F L1
2.1.5	6,3 litres : 100 km ✓M 45 litres will cover: $\frac{45}{6,3} \times 100$ km ✓A = 714,2857... = 710 km ✓A	1M ratio concept 1A × 100 1R rounding AO (3)	F L2

Ques	**Solution**	**Explanation**	**Topic/L**
2.2.1	1 hour ✓✓RG	2RG reading (2)	F L1
2.2.2	More than 3 hours but less than 4 hours ✓✓RG	2RG reading (2) **(accept any time between 3 - 4 hours)**	F L1
2.2.3	R20,00 ✓✓RG	2RG reading (2) **[18]**	F L1

QUESTION 3 [12 marks]			
Ques	**Solution**	**Explanation**	**Topic/L**
3.1.1	✓M ✓A Perimeter = 12 m + 12 m + 6 m + 6 m + 6 m + 18 m = 60 m ✓CA **OR** ✓M Perimeter = 2 × (12 m + 18 m) ✓A = 60 m ✓CA	1M adding 1A all values correct 1CA solution 1M adding 1A all values correct 1CA solution (3) **(omitting/extra 1 length max 2/3)**	M L2
3.1.2	✓M Area of the garden = 12 m × 18 m − (6 m × 6 m) ✓SF = 216 m² − 36 m² = 180 m² ✓A ✓CA **OR** ✓M Area of the garden = 12m × 6m + 18m × 6m ✓SF = 72 m + 108 m =180m² ✓A ✓CA **OR** ✓M Area of the garden = 6m × 6m + 12m × 12m ✓SF = 36 m + 144 m = 180 m² ✓A ✓CA	1M subtracting 1SFsubstitution 1A simplification 1CA solution 1M addition 1SFsubstitution 1A simplification 1CA solution 1M addition 1SFsubstitution 1A simplification 1CA solution (4)	M L2
3.2.1	Diameter = 2 × 2,5 m ✓MA = 5 m ✓A	1MA diameter concept 1A diameter AO (2)	M L1
3.2.2	Circumference = 2 × 3,142 × 2,5 m ✓SF ✓A ✓A = 15,71 m **OR** Circumference = 3,142 × 5 ✓SF ✓A ✓A = 15,71 m	1SF substitution 1 A solution 1A unit 1SF substitution 1 A solution 1A unit (3) **[12]**	M L2

QUESTION 4 [11 marks]			
Ques	**Solution**	**Explanation**	**Topic/L**
4.1	✓A It is a diagram that determines where people should take their seats. ✓A **OR** ✓A ✓A It is a plan which shows where each person is to sit in a venue.	1A Diagram/Plan 1A Sit 1A Diagram/Plan 1A Sit (2)	MP L1
4.2	11 ✓✓A	2A answer (2)	MP L1
4.3	South East ✓✓A **OR** SE ✓✓A	2A answer (2)	MP L1
4.4	✓A ✓A 4 and 25	1A for 4 1A for 25 (2)	MP L1
4.5	- Turn right towards the back of the class. ✓A ✓A - Turn left and pass seat 4 & 25 - Turn left to the aisle and Fuuku will be seated on the right. ✓A	1A initial procession 1A direction at the back 1A final destination (3) **[11]**	MP L3

TOTAL MARKS: 50