



Education

KwaZulu-Natal Department of Education
REPUBLIC OF SOUTH AFRICA

MATHEMATICAL LITERACY P2

COMMON TEST

JUNE 2017

**NATIONAL
SENIOR CERTIFICATE**

GRADE 10

MARKS: 50

TIME: 1 hour

This question paper consists of 6 pages.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of **THREE** 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

Karla travelled from Durban to Kimberley by train. The train time-table below shows the time and places that the train stopped at on its journey.

Time-Table of train journey from Durban to Kimberley departing every Wednesday

Town	Arrival	Departure	Time in minutes stopped at station
Durban		18:30	
Pietermaritzburg	20:53	21:10	17
Ladysmith	00:33		27
Harrismith	03:23	03:53	30
Bethlehem	05:20	05:40	20
Kroonstad	07:49	08:19	30
Hennenman	08:57	08:59	2
Virginia	09:17	09:19	2
Theunissen	09:50	09:52	2
Brandfort	10:25	10:27	2
Bloemfontein	11:15	11:45	30
Kimberley	14:50		

Source: www.metrorail.co.za

- 1.1 On which day of the week does this train from Durban arrive in Kimberley (2)
- 1.2 How long, in hours, was the total train journey from Durban to Kimberley? (4)
- 1.3 Not counting stops, the actual travel time for the train journey is 17 hours 36 minutes and the distance between Durban and Kimberley is 842 km.
Calculate the average speed, in at which the train is travelling.
You may use the formula: **Distance = speed × time** (4)
- 1.4 James travels from Durban to Brandfort on the same train. He needs to board a bus in Brandfort that is leaving the bus station at 11:00. It takes 5 minutes to walk from the train station to the bus station.
Determine whether or not James will be in time to board the bus.
Show ALL the necessary calculations. (4)

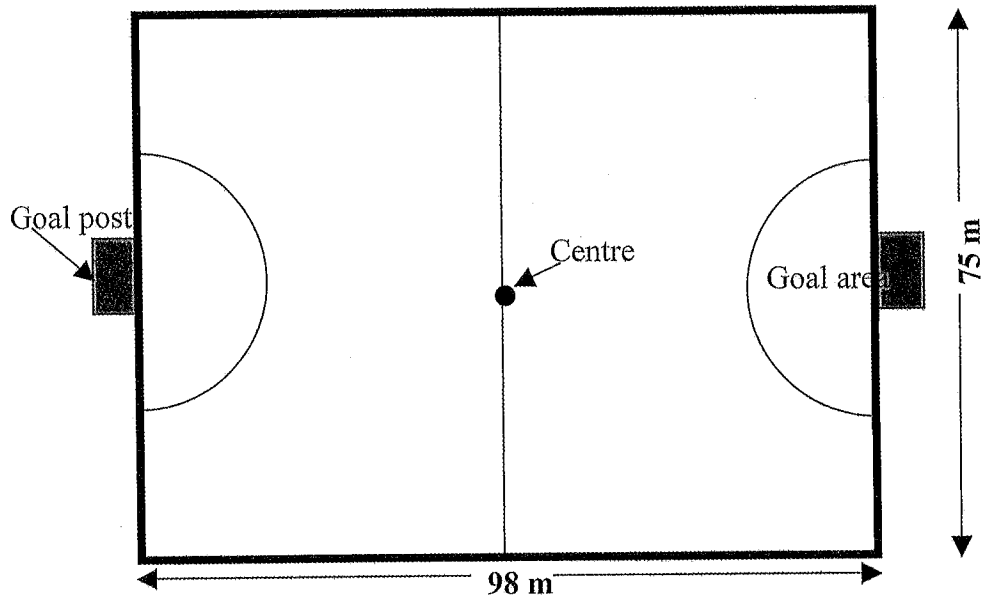
[14]

QUESTION 2

2.1

Jabulani Xhosa is the hockey coach at school. The school needs to re-mark the outside boundary lines of the hockey field and re-grass one of the semi-circular goal areas of the hockey field.

The dimensions of the hockey field are: length = 98 m and breadth = 75 m



The following formulae may be used:

Perimeter of a rectangle = $2(l + b)$, where l = length and b = breadth

Area of a circle = $\pi \times (\text{radius})^2$, using $\pi = 3,142$

2.1.1 Calculate:

- (a) the total length of the boundary lines of the hockey field that need to be re-marked. (3)
- (b) the area of the ONE of the goal areas of the hockey field, if the radius is 16 m. (4)

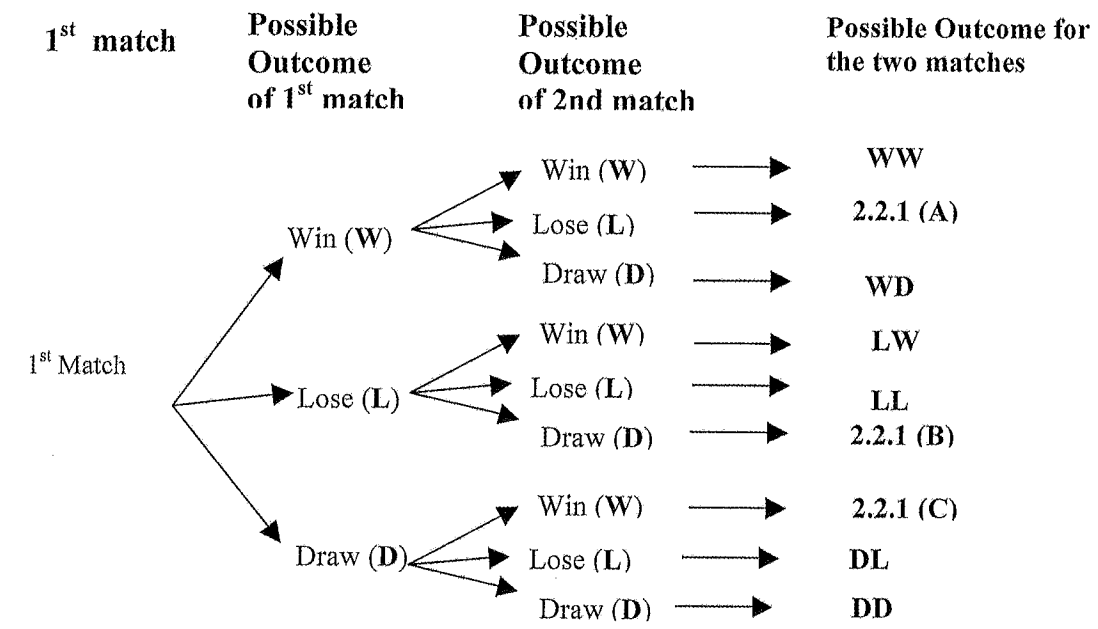
2.1.2 If it takes 30 minutes to re-mark 8,5 m of boundary lines, calculate how long, in hours, it would take to re-mark 100 m of boundary lines. (3)

2.1.3 The paint to re-mark the grounds cost R75,00 per litre excluding VAT. Calculate the cost including VAT for 5 ℓ of this paint. (4)

2.2

The hockey team has TWO matches left for the season.

TREE DIAGRAM: POSSIBLE RESULTS FOR THE LAST TWO MATCHES



Study the tree diagram and answer the questions that follow:

- 2.2.1 Write down the possible outcome A, B and C. (3)
- 2.2.2 Determine the probability of the team losing both matches. (2)
- [19]

QUESTION 3

3.1

Mrs Hadebe’s runs a small tuck shop from her house. She sells sweets, chips, cans of cool drinks and vet koek. Once a week she buys 6 cases of cooldrink for R162,95 a case. Each case consist of 4 six-packs of cool drink. Each can has 330 ml of cooldrink in it. At the end of the week all her cooldrinks are sold. She sells the cans at R9,00 each.



www.pricecheck.co.za

3.1.1 Determine the cost price per can of cool drink. (5)

3.1.2 Calculate Mrs Hadebe’s percentage mark-up on cool drinks.

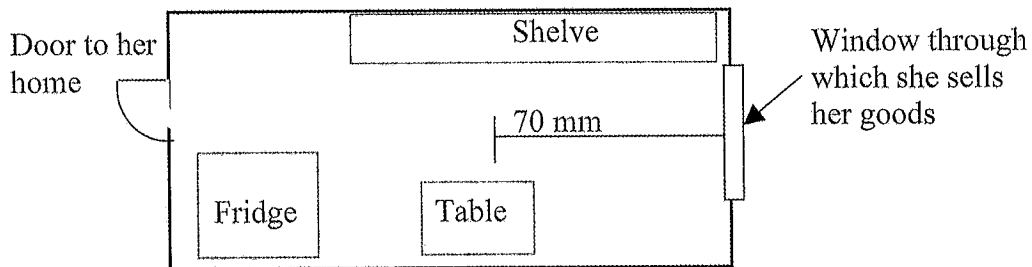
You may use the formula:

$$\text{Percentage mark-up} = \frac{\text{Selling Price} - \text{Cost Price}}{\text{Cost Price}} \times 100\% \quad (3)$$

3.1.3 Calculate the total weekly profit Mrs Hadebe makes from the buying and selling of the cool drinks. (5)

3.2 In Mrs Hadebe’s tuckshop she has a fridge to keep the cooldrinks in, shelves to place the sweets and chips on and a table for the vet koek.

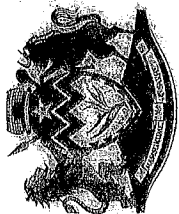
Layout A



The measured distance on the Layout A from the table to the window is given in the layout above.

Is the unit of measurement used in layout A appropriate and why? (4)
[17]

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 5 pages.

QUESTION 1 [14 marks]	Topic/L		
Ques	Solution	Explanation	Topic/L
1.1	Thursday ✓✓A	2A solution	F
1.2	<p>18:30 to 06:30 = 12 hours ✓M</p> <p>06:30 to 14:50 = 8 hours 20 min ✓M</p> <p>Total time = 12 hours + 8 hours 20 minutes ✓M</p> <p>= 20 hours 20 min ✓CA</p> <p>= 20,33 hours ✓C</p> <p>OR</p> <p>Time from 14:50 to 18:30 = 3 hours 40 min ✓M</p> <p>Total time = 24 hours – 3 hours 40 min ✓M</p> <p>= 20 hours 20 min ✓CA</p> <p>= 20,33 hours ✓C</p>	<p>1M for trip duration (2) L2</p> <p>1M adding L3</p> <p>ICA</p> <p>IC conversion</p> <p>1M subtracting</p> <p>1M subtracting</p> <p>ICA solution</p> <p>IC conversion (4)</p>	F
1.3	<p>Distance = speed × time</p> <p>842 km = speed × 17 hours 36 minutes ✓SF</p> <p>842 km = speed × 17,6 hours ✓C</p> <p>Speed = $\frac{842 \text{ km}}{17,6 \text{ hours}}$ ✓M</p> <p>Speed = 47,84 km per h ✓CA</p>	<p>1SF substitution M</p> <p>IC conversion to hours L2</p> <p>1M dividing</p> <p>ICA solution(4)</p>	M
1.4	<p>Train arrives at Bradford at 10:25 ✓RG</p> <p>Time = 10:25 + 5 minutes ✓M</p> <p>= 10:30 ✓A ✓C</p> <p>James will arrive on time.</p>	<p>1RG reading from table F</p> <p>1M adding L4</p> <p>1A correct time</p> <p>IC conclusion (4) [14]</p>	F

QUESTION 2 [19 marks]			
Ques	Solution	Explanation	Topic/L
2.1.1 (a)	Perimeter of a rectangle = $2(l + b)$ $= 2(98 \text{ m} + 75 \text{ m})$ $= 2 \times 173 \text{ m}$ $= 346 \text{ m}$ OR Perimeter of a rectangle = $98 \text{ m} + 75 \text{ m} + 98 \text{ m} + 75 \text{ m}$ $= 346 \text{ m}$	ISF substitution IS simplification ICA solution IA for 1 st length and breadth IA for 2 nd length and breadth ICA solution	M L2
2.1.1 (b)	Area of goal area = $0,5 \times \pi \times (\text{radius})^2$ $= 0,5 \times 3,142 \times (16 \text{ m})^2$ $= 402,176 \text{ m}^2$ OR Area of goal area = $\frac{\pi \times (\text{radius})^2}{2}$ $= \frac{3,142 \times 16^2}{2}$ $= 402,176 \text{ m}^2$	IM dividing by 2 ISF substitution ICA solution IA unit IM dividing by 2 ISF substitution ICA solution IA unit	M L2
2.1.2	30 min = 0,5 hour Time to paint 100 m = $\frac{100}{8,5} \times 0,5$ $= 5,88 \text{ hours}$	IC conversion IM dividing ICA time	F L4 (3)

Ques	Solution	Explanation	Topic/L
2.1.3	Cost of paint = $5 \times R75,00$ $= R375,00$ Cost including VAT = $R375,00 \times 1,14$ $= R427,50$ OR Cost including VAT = $R375,00 \times \frac{114}{100}$ $= R427,50$ OR Cost including VAT = $R375,00 + R52,50$ $= R427,50$	IMA multiplying IA simplification IM calculating VAT ICA solution IM calculating VAT ICA solution IM calculating VAT ICA solution	M L3
2.2.1	A = WL B = LD C = DW	IA solution IA solution IA solution	P L4 (3)
2.2.2	$P = \frac{1}{9}$	IA numerator IA denominator	P L2 (2) [19]

QUESTION 3 [17 marks]			Explanation	Topic/L
Ques	Solution			
3.1.1	Number of cans = 4×6 ✓M = 24 ✓CA Cost per can = $\frac{R162,95}{24}$ ✓M = R6,7895... ✓CA = R6,79 ✓R		1M multiplying 1CA simplification 1M dividing 1CA simplification 1R correct rounding of money (5)	F L3
3.1.2	Percentage mark-up = $\frac{R9,00 - R6,79}{R6,79} \times 100\%$ ✓SF = $\frac{R2,21}{R6,79} \times 100\%$ ✓CA = 32,55% ✓CA		ISF substitution 1CA simplification 1CA % profit NPR (3)	F L3
3.1.3	Income from 1 case = $24 \times R9,00$ ✓M = R216,00 ✓CA Profit from 1 case = $R216,00 - R162,95$ = R53,05 ✓CA Total profit = $6 \times R53,05$ ✓M = R318,30 ✓CA		1M multiplying 1CA simplification 1CA profit for 1 case 1M multiplying 1CA solution (5)	F L4
3.2	No ✓✓O Actual measurement must be written in the plan ✓✓R		2O correct choice 2R reason (4) [17]	MP L4

TOTAL MARKS:50

