

MATHEMATICAL LITERACY P2

COMMON TEST

JUNE 2014

MEMORANDUM

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

SYMBOL	EXPLANATION
M	Method
MA	Method with accuracy
CA	Consistent accuracy
A	Accuracy
C	Conversion
S	Simplification
RT/RG	Reading from the table/ reading from the graph
SF	Substitution in the formula
O	Opinion
R	Rounding off
F	deriving a formula

MARKS: 100

TIME: 2 hours

This memorandum consists of 9 pages.

QUESTION 1

1.1.1	<p>(a) $BMI = \frac{72}{1.7 \times 1.7} \checkmark$ $= 24.9 \checkmark$</p> <p>(b) $BMI = \frac{65}{1.5 \times 1.5} \checkmark$ $= 28.9 \checkmark$</p>	<p>1A substitution 1CA simplification (2)</p> <p>1A substitution 1A simplification (2)</p>
1.1.2	<p>$BMI = \frac{W}{H^2}$</p> <p>$27 = \frac{69}{H^2} \checkmark$</p> <p>$\frac{27H^2}{27} = \frac{69}{27}$</p> <p>$H^2 = 2,56$</p> <p>$H^2 = \sqrt{2,56} \checkmark$</p> <p>$H = 1,6$</p>	<p>2 = method</p> <p>1 = CA</p> <p>(3)</p>
1.2.1	<p>Normal $\checkmark \checkmark$</p>	<p>2 A= RG (2)</p>
1.2.2	<p>BMI Range = $26 - 18 \checkmark$ $= 8 \checkmark$</p>	<p>1A concept of Range 1A Answer (2)</p>
1.2.3	<p>It means only 5% \checkmark of learners of the same age are having a weight more than him/her $\checkmark \checkmark$</p> <p>Or</p> <p>Out of 100 learners of the same age, this learner's weight is above the weight of 95 learners</p> <p>Or</p> <p>The learner is overweight because her BMI is above 95th percentile</p>	<p>2A concept of PERCENTILE</p> <p>(2)</p>

1.2.4	$27,1\checkmark - 23\checkmark$ $= 4,1\checkmark$	2A = Values 1CA = Simplification (3)
1.2.5	Start exercising $\checkmark\checkmark$ Start dieting $\checkmark\checkmark$ Participate in sporting activities to keep their bodies active. Any other valid advice / suggestion	2 x 2 = Opinion (4)
1.3.1	$40\text{km} - 26.9\text{ km}\checkmark = 13.1\text{km}\checkmark$	1M = Method 1CA = Answer (2)
1.3.2	(a) Time = $2 : 47 : 30\checkmark$ $06:00:00 + 2 : 47: 30\checkmark = 08:47:30$ $08:47:30\checkmark$	1A for calculating time 1M = adding correct time 1CA = Answer (3)
	(b) Athlete 2 finished the race at $11:31:29\checkmark$ Athlete 3 arrived at $11:37:00$ Therefore athlete 3 was wrong, athlete 2 arrived before $\checkmark\checkmark$ OR Athlete 2 finished earlier than athlete 3	2A = CORRECT TIME 1CA = CONCLUSION (3)
		[28]

Question 2

2.1.1	Coastline = 40% x 580km✓ = 232km✓	Alternative 0,4 x 580	1A= Concept of % 1A = simplification (2)
2.1.2	210mm = 580km✓ 210mm = 580 000 000mm✓ 1: 2761904,76✓ 1: 2800 000✓		1A = Ratio / equation 1A = conversion 1CA = Simplification 1A = Rounding off hundred thousands (4)
2.1.3	45mm = 125 000 000mm✓ 210mm = mm = $\frac{210 \times 125000000}{45}$ = 583 333 333,3✓ = $\frac{583333333,3}{1000000}$ = 583km✓ ∴ It is approximately 580km		1A = concept of scale 1A = simplification 1A = converting to km (3)
2.2	Any valid suggestion✓✓		2 O = opinion (2)
2.3.1	One line = 15km ÷ 20cm 15km = 1500 000 = 1 500 000cm ÷ 20cm✓✓ = 75 000 fish✓ OR 1 fish = 20 cm Straight line of fish = 1 500 000cm = 1 500 000cm ÷ 20cm = 75 000 fish		1A = conversion to cm 1A = dividing 1A = answer (3)

2.3.2	1 crate = 500 sardines Crates = 75 000 $= 75000 \div 500 \checkmark$ $= 150 \text{ crates} \checkmark$	1A = dividing by 500 1CA = answer (2)
2.4.1	$P(\text{below } 23) = \frac{2+1}{8} \checkmark \text{ or } \frac{3}{8}$ $= 0,375 \times 100\% \checkmark$ $= 37.5\% \checkmark$	1 = M 1 = Simplification 1A = percentage (3)
2.4.2	It is true that the weather of Durban \checkmark is more attractive than Cape Town. Durban temperature is high. \checkmark	2 O = Opinion (2)
2.4.3	60% $\checkmark \checkmark$	2 RG / RT (2)
2.4.4	Refer to "Annexure A"	2A for plotting all correct bars 1A for <u>correct</u> double bars 2A for labelling Y-axis, X-axis and the graph correctly (5)
2.4.5	Saturday, \checkmark because the minimum temperature is 23° OR any valid reason. $\checkmark \checkmark$	3 O = Opinion (3)

	QUESTION 3		
3.1.1	Perimeter = $2L + 2B$ $= 2(32m) + 2(24m) \checkmark$ $= 64m + 48m \checkmark$ $= 112m \checkmark$		1A= substituting correct values 1A= simplification 1CA = answer (3)
3.1.2	Volume of pool = Volume of pool – Volume of inner circle $= 193,91m^3 - \checkmark 3.142 \times 1.9m \times 1.9 \times 0.75m) \checkmark$ $= 193,91m^3 - 8,5069m^3$ $= 185.4m^3 \checkmark$		1A = subtracting 2A= Simplification 1A= correct unit (m^3) (4)
3.2.1	Total SA of pool = $27m^2 + \pi r \times h$ $= 27m^2 \checkmark + \checkmark 11,7825m^2 \checkmark$ $= 38,78m^2 \checkmark$		2A = Substituting correct values 1M = addition 1CA = Answer (4)
3.2.2	$1\text{litre} = 3m^2 \checkmark$ Liters = $38,78m^2 \checkmark$ OR $= 12,94\text{litres} \checkmark$ $= 13 \text{ litres } \checkmark$	$\frac{38,78m^2}{3m^2}$ $= 12,94\text{litres} \checkmark$ $= 13 \text{ litres} \checkmark$	1A = scale / equation 1CA= Simplification 1CA= Answer 1A = Rounding (4)
3.2.3	$5 \text{ liters} = R64 \text{ per liter} \checkmark$ $10 \text{ liters} = 58 \text{ per liter} \checkmark$ $20 \text{ liters} = 47.50 \text{ per liter}$ Therefore, 20 liter tin is cheaper \checkmark		3A= simplification 1A= conclusion (4)
3.2.4	They must buy 1 x 10 litres and 1 x 5 litres \checkmark $10 \text{ liter} \times 1 @ R580 = R580$ $1 \times 5 \text{ litres at } R320.00 \checkmark$ $= R900 \checkmark$		1CA = choice 1A= correct Amounts 1A = adding / multiplying amounts (3)
			[22]

4.1		
4.1.1	$30.6 : 22.8$ $15.3\checkmark : 11.4\checkmark$ Or $15 : 11$	2A = correct ratio (2)
4.1.2	The national bachelor increased by 10.5 % whereas Kwazulu- natal is 14.3%. This means bachelor pass increased more than the National pass rate. $\checkmark\checkmark$ OR any valid opinion	2A = opinion (2)
4.1.3	$\begin{aligned} \text{Passes} &= 77.4\% \times 145\,278\checkmark \\ &= 112445\checkmark \\ \text{Therefore Bachelor passes} &= 32,5\% \times 112445\checkmark \\ &= 36544.625\checkmark \\ &= 365445\checkmark \end{aligned}$	1M = for % 1A = Correct passes 1A = Concept of % 1CA = simplification 1CA = Rounding off (5)
4.1.4	Gauteng or Western Cape For consistency and higher percentage $\checkmark\checkmark$ OR Any correct justification No mark for National	1 A = for Province 2 O = Opinion (3)

4.2.1	$\% \text{ increase} = \frac{17050 - 7500}{7500} \times 100$ $= 127.33\% \checkmark$ $\text{Average \% inflation rate} = \frac{127.33\%}{11}$ $= 11.58\% \checkmark$	1A= simplification 1A = annual inflation (2)
4.2.2	Yes, \checkmark because the inflation reduces the value of R15 000. \checkmark Interest rate – inflation rate 10,8% – 7,7% = 3,1% \checkmark \therefore value of R15 000 = R15 000 + 3,1% x R15 000 \checkmark = R15465 \checkmark	1A= reason (yes) 1A = Concept of inflation 3CA = simplification (5)
		[19]

TOTAL MARKS: [100]

ANNEXURE A

QUESTION 2.4.4 NAME OF THE LEARNER:.....

Minimum afternoon Temperatures in Durban and Cape Town

