GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

PREPARATORY EXAMINATION

2015

MEMORANDUM

SUBJECT: MATHEMATICAL LITERACY P1 (10601)

Symbol	Explanation
M	Method
M/A	Method with accuracy
CA	Consistent accuracy
A	Accuracy
C	Conversion
S	Simplification
RT/RG	Reading from table/reading from a graph
SF	Correct substitution in formula
O	Opinion/Example
P	Penalty, e.g. for no units, incorrect rounding off etc.
R	Rounding off

GAUTENG DEPARTMENT OF EDUCATION

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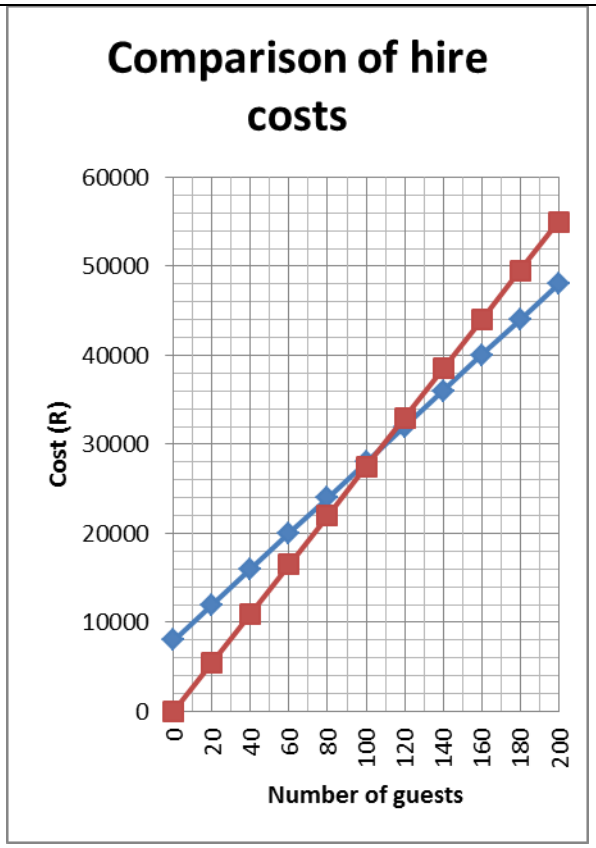
MATHEMATICAL LITERACY
(First Paper)

MEMORANDUM

QUESTION 1					**[51 MARKS]**
	Solution	**Explanation**	**L1**	**L2**	**L3**
1.1.1(a)	Year 1: R6 000 + (10% of R6 000) = R6 000 + R600 ✓ M/A = R6 600 ✓S Year 2: R6 600 + (10% of R6 600) = R6 600 + R660 ✓M/A = R7 260 Total cost after 2 years = R7 260 ✓A	✓ M/A Adding R600 ✓ S Simplify ✓M/A Adding R660 ✓A Answer		**4**	
1.1.1(b)	Total amount payable to dad = R230 × 36 months ✓M/A = R8280 ✓A	✓ M/A Multiplying correct values ✓ A Answer **Answer only full marks**	**2**		
1.1.1(c)	Amount saved = R8 280 – R7 260 ✓M/A = R1 020 ✓A	✓M/A Subtraction ✓A Answer **Answer only full marks**	**2**		
1.1.2	Percentage of Robert's salary ✓M/A $= \frac{R302,50}{R15\ 500} \times 100\%$ ✓M = 1,951… % ≈ 2% ✓A/R	✓M/A Correct values in fraction ✓M Multiply with 100% ✓A/R Answer and rounding	**3**		

1.1.3(a)	Profit on rings = Selling Price – Cost Price = R6 000 – R3 495 ✓M/A = R2 505 ✓A	✓M/A Subtraction correct values ✓A Answer **Answer only full marks**	**2**		
1.1.3(b)	Percentage profit = $\frac{SP - CP}{CP} \times 100\%$ ✓M/A = $\frac{R6\,000 - R3\,495}{R3\,495} \times 100\%$ ✓M = 71,673….% ≈ 71,67% ✓CA	✓M/A Correct values and method ✓M Multiply by 100% ✓CA Answer		**3**	
1.2.1	**A** = R15 500 × $\frac{7,5}{100}$ ✓M/A = R1 162,50 ✓A	✓M/A Multiplying correct values ✓A Answer	**2**		
1.2.2(a)	UIF contribution = 1% of R15 500 ✓M = $\frac{1}{100}$ × R15 500 ✓M/A = R155 ✓A	✓M UIF is 1% ✓M/A Multiplication ✓A Answer		**2**	
1.2.2(b)	Total UIF paid over by company = R155 × 2 ✓M/A = R310 ✓A	✓M/A Multiply by 2 ✓A Answer **CA from 1.2.2(a)** **Answer only full marks**	**2**		
1.2.3	**C** = R1 230 + R1 162,50 + R500 + R155 + R1 439,60 + R510 ✓M/A = R4 997,10 ✓A **D** = R18 900 – R4 997,10 ✓M = R13 902, 90 ✓CA	✓M/A Adding correct Values ✓A Answer of C ✓M Subtraction ✓CA Answer of B **Answers only full marks**	**4**		
1.2.4	Percentage tax on travel allowance ✓M/A = $\frac{R510}{R3\,400} \times 100\%$ ✓M =15% ✓A	✓M/A Correct values in fraction ✓M Multiply with 100% ✓A Answer	**3**		
1.3.1	Cost of one night's stay = R11,38 × $950 ✓M/A = R10 811 ✓A	✓M/A Multiplication ✓A Answer in rand **Answer only full marks**	**2**		

1.3.2	VAT included = R10 811 – (R10 811 × $\frac{100}{114}$) ✓M/A = R10 811 – R9 483,33 ✓S = R1 327,67 ✓A **OR** Cost excluding vat = R10 811 × $\frac{100}{114}$ ✓M/A = R9 483,33 Vat = R10 811 – R9 483,33 ✓S = R1 327,67 ✓A	✓M/A Multiply with $\frac{100}{114}$ ✓S Simplification ✓A Answer		**3**	
1.3.3	Total cost = R10 811 + City Tax ✓M/A = R10 811 + ($\frac{1}{100}$ × $R10\,811$) = R10 811 + R108,11 ✓S = R10 919,11 ✓A	✓M/A Adding and multiplying with correct values ✓S Simplification ✓A Answer		**3**	
1.4.1	Cost of hiring venue = Basic fee + (R200 × number of guests) ✓M ✓M **OR** R8 000 + R200 × number of guests ✓M ✓M	✓M Basic fee ✓M R200 × number of guests		**2**	

1.4.2	<table><tr><td>**Number of guests**</td><td>**100**</td><td>**120**</td><td>**140**</td><td>**160**</td><td>**180**</td><td>**200**</td></tr><tr><td>**Cost The Da Vinci Hotel (R)**</td><td>**28 000**</td><td>**32 000**</td><td>**36 000**</td><td>**40 000**</td><td>**44 000**</td><td>**48 000**</td></tr></table> ✓A ✓A ✓ A	✓✓✓A One mark for each two values correct	**3**		
1.4.3		✓A Starting point (0; 8000) ✓A Ending point (200; 48000) ✓A Break even point (100; 28000) ✓✓✓A Any 3 other points plotted correctly		**6**	
1.4.4(a)	Accept values between 106 to 110 guests ✓RG	✓RG Reading from Graph	**1**		
1.4.4(b)	Accept values between 170 to 175 guests ✓✓RG	✓✓RG Reading from Graph	**2**		
		Total	**28**	**23**	

QUESTION 2		[27 MARKS]			
	Solution	**Explanation**	**L1**	**L2**	**L3**
2.1	Time = $\frac{Distance}{Speed}$ = $\frac{5\ km}{15\ km/h}$ ✓SF = 0,333… h ✓S **OR** ⅓ Time in minutes = 0,333 … × 60 min **OR** ⅓ × 60 min = 20 min ✓A	✓SF Substitution ✓S Simplification ✓A Answer		**3**	
2.2.1	Circumference of table = 2 × π × r ✓M = 2 × 3.142 × 75 ✓SF = 471,3 m ✓A	✓M Value of r ✓SF Substitution ✓A Answer **Answer only full marks**	**3**		
2.2.2	Number of guests to be seated at table = $\frac{Circumference}{space+chair\ space}$ = $\frac{471}{15+40}$ ✓M/A = 8,56 … ✓A ≈ 8 guests ✓R	✓M/A Fraction with correct values ✓A Answer ✓R Rounding	**3**		
2.2.3	Number of tables needed = 120 ÷ 8 ✓M/A = 15 tables ✓A	✓M/A Division correct values ✓A Answer **Answer only full marks**	**2**		

2.2.4	Table cloth diameter = 150 + 30 = 180 cm Radius = 180 ÷ 100 ÷ 2 = 0,9 m ✓C Area of table cloth = $\pi \times r^2$ $= 3.142 \times (0,9)^2$ ✓SF = 2,545 … m^2 ≈ 2,55 m^2 ✓A✓U	✓C Conversion ✓SF Substitution ✓A Answer ✓U Unit		**4**	
2.3.1(a)	Volume of container = $\pi \times r^2 \times h$ ✓M $= 3.142 \times (15)^2 \times 50$ ✓SF = 35 347,5 cm^3 ✓CA Volume in litre = 35 347,5 ÷ 1 000 = 35,3475 ℓ ✓C	✓M Value of r ✓SF Substitution ✓CA Answer ✓C Concersion		**4**	
2.3.1(b)	Number of glasses to be filled = 35 347,5 mℓ ÷ 40 mℓ ✓ M/A = 883,6875 ✓A ≈ 883 glasses ✓R	✓M/A Division correct values ✓A Answer ✓R Rounding **Answer only full marks**	**3**		
2.4(a)	Amount of concentrate per child $= \frac{1}{6} \times 1\,320$ mℓ ✓M/A = 220 mℓ ✓A Water = 1 320 mℓ − 220 mℓ = 1 100 mℓ ✓CA	✓M/A Multiply with correct fraction ✓A Answer ✓CA Answer		**3**	
2.4(b)	Amount of concentrate per glass = 220 mℓ ÷ 4 ✓M/A = 55 mℓ ✓A	✓M/A Division with correct values ✓A Answer **Answer only full marks**	**2**		
		Total	**13**	**14**	

QUESTION 3		[27 MARKS]			
	Solution	**Explanation**	**L1**	**L2**	**L3**
3.1.1	Friday ✓A 18 December 2015 ✓A	✓A Answer ✓A Answer	**2**		
3.1.2	10:00 − 08:15 ✓M ✓M = 1 hour 45 minutes ✓A	✓M Subtraction ✓M Correct notation ✓A Answer **Answer only full marks**	**3**		
3.1.3(a)	Casino Lounge ✓✓RG	✓✓RG Reading from diagram	**2**		
3.1.3(b)	3 ✓✓ RG	✓✓RG Reading from diagram	**2**		
3.1.3(c)	Sun Deck ✓RG Mini Golf ✓RG	✓✓RG Reading from diagram	**2**		
3.2.1	1 Unit on the map is equal to 100 000 units in real life ✓✓E	✓✓E Explanation	**2**		
3.2.2	Distance Durban to Portuguese Islands = 2 150 km × 100 000 ✓M/A = 215 000 000 cm ✓A✓U	✓M/A Multiply correct values ✓A Answer ✓U Unit **Answer only full marks**	**3**		
3.2.3	3,7 cm on map = 370 000 000 cm in life ✓A Distance return trip = 370 000 000 cm ÷ 100 000 ✓M/A = 3 700 km ✓A	✓A Correct amount ✓M/A Division correct values ✓A Answer **Answer only full marks**	**3**		
3.2.4	South South West **OR** SSW **OR** South Westerly direction ✓✓A	✓✓A Answer	**2**		
3.3	Drive in a North Easterly direction on the N14. ✓A Turn right onto Hendrik Potgieter Drive ✓A Take the N1 and drive south. ✓A Take the M2 and drive east. ✓A Drive north on the N3. ✓A Take the R24 and drive North East to the O.R. Tambo International Airport. ✓A	✓✓✓✓✓✓A One mark for each part of route described		**6**	
		Total	**21**	**6**	

QUESTION 4		[24 marks]			
	Solution	**Explanation**	**L1**	**L2**	**L3**
4.1.1	Number of cabins accommodating four guests = 17 + 38 + 100 + 16 ✓M = 171 cabins ✓CA	✓M Addition ✓CA Answer **Answer only full marks**	**2**		
4.1.2	Number of cabins with only double bed ✓✓M/A = 867 – (28 + 56 + 48 + 177 + 18) = 867 – 327 ✓S = 540 cabins ✓A	✓✓M/A Subtraction with correct values ✓S Simplification ✓A Answer **Answer only full marks**	**3**		
4.1.3	Number of children = 2 199 – 1 921 = 278 ✓A ✓M/A Percentage children = $\frac{278}{2\,199} \times 100\%$ = 12,6421 …% ✓A ≈ 13% ✓R	✓A Number of children ✓M/A Multiply correct values ✓A Answer ✓R Rounding	**2**	**4**	
4.2.1	**A** = 11 839 – 4 338 ✓M = 7 501 ✓A **B** = 4 429 + 8 474 ✓M = 12 903 ✓A	✓M Subtraction ✓A Answer ✓M Addition ✓A Answer **Answers only full marks**	**4**		
4.2.2	2192; 4429; 5955; 6093; 7501; 8023; 8680 ✓✓A Median = 6093 ✓A	✓✓A Ascending Order ✓A Median **Wrong values used, penalty of 2 marks**	**3**		
4.2.3	✓M/A Mean = $\frac{3164 + 4190 + 6728 + 4338 + 4433 + 8474 + 4423}{7}$ ✓M/A = $\frac{35750}{7}$ = 5107,142 … ✓A ≈ 5107 South African Residents ✓R	✓M/A Addition of correct scores ✓M/A Division by 7 ✓A Answer ✓R Rounding down		**4**	
4.2.4	Foreign Travellers departing form Durban = 42 873 – 35 750 ✓M/A = 7 123 ✓A	✓M/A Subtraction with correct values ✓A Answer **Answer only full marks**	**2**		
		Totals	**16**	**8**	

QUESTION 5		[21 MARKS]			
5.1.1	P(female) = $\frac{52}{120}$ ✓RT = $\frac{13}{60}$ ✓A	✓RT Reading correct values ✓A Answer	**2**		
5.1.2	P(male or under 50) ✓RT = $\frac{68}{120} \times \frac{48}{68}$ ✓M/A = $\frac{45}{120}$ = $\frac{9}{24}$ ✓A Percentage = $\frac{9}{24} \times 100\%$ = 37,5% ✓A	✓RT Reading correct values ✓M/A Multiply ✓A Answer ✓A Answer		**4**	
5.2.1	110 km/h ✓✓RG	✓✓RG Reading from the graph	**2**		
5.2.1	Speed above speed limit = 110 km/h – 100 km/h ✓M = 10 km/h ✓CA	✓M Subtraction ✓CA Answer **Answer only full marks**	**2**		
5.2.3	89 km/h ✓✓RG	✓✓RG Reading from the graph **Accept 88 km/h**	**2**		
5.2.4	Quartile 1 = 85 km/h ✓RG Quartile 3 = 100 km/h ✓RG	✓✓RG Reading from the graph	**2**		
5.3.1	Length of suit case = 1,2 m × 100 = 120 cm ✓C Surface area of suit case = 2(*lb* + *bh* + *lh*) = 2[(120cm × 60cm) + (60cm × 30cm) + (120cm ×30cm)] ✓✓SF = 2(12 600 cm^2) ✓S = 25 200 cm^2 ✓A	✓C Conversion ✓✓SF Substitution ✓S Simplify ✓A Answer			**4**
5.3.2	Volume of suit case = length × breadth × height = 120cm × 60cm × 30cm ✓SF = 216 000 cm^3 ✓A✓U	✓SF Substitution ✓A Answer ✓U Unit	**3**		
		Totals	**13**	**4**	**4**