GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

GAUTENG DEPARTMENT OF EDUCATION

PREPARATORY EXAMINATION

2018

MARKING GUIDELINES

MATHEMATICAL LITERACY P1 (10601)

Codes	Explanation
M	Method
MA	Method with Accuracy
CA	Consistent Accuracy
A	Accuracy
C	Conversion
D	Define
J	Justification / Reason / Explain
S	Simplification
RT / RD / RG	Reading from a table OR a graph OR a diagram OR a map OR a plan
F	Choosing the correct formula
SF	Substitution in a formula
O	Opinion
P	Penalty, e.g. for no units, incorrect rounding-off, etc.
R	Rounding-off
NP	No penalty for rounding-off OR omitting units

KEY TO TOPIC SYMBOLS:

F = Finance; M = Measurement; MP = Maps; Plans and other representations; DH = Data Handling; P = Probability

13 pages

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PREPARATORY EXAMINATION – 2018

MATHEMATICAL LITERACY
(Paper 1)

MARKING GUIDELINES

QUESTION 1

Q	ANSWER	EXPLANATION	LEVEL
1.1			
1.1.1	**VAT:** value added tax✓✓*A*	2 A correct answer (2)	F1
1.1.2	R80,00 ✓*A*	1 A Answer (1)	F1
1.1.3	R149,99 – R120,00✓*MA* = R29,99✓*A*	1 MA Subtraction 1A Answer (2)	F1
1.1.4	✓*MA* (25 × R120, 00 = R3000) + (25 × R40,00 = R1 000,00) + *MA* (3 × R60,00 = R180,00) = R4 180 ✓*A* **OR** 25 × (R120,00 + R40) = R4 000 3 × R60 = R180 R4 000 + R180 = R4 180	1 MA multiplying 1 MA adding 1 A correct answer (3)	F1
1.1.5	$R4\ 180{,}00 \times \frac{15}{100} = R627{,}00$ ✓*A* ✓*MA*	1 MA multiply by 15% 1 A correct answer (2)	F1
1.1.6	✓*MA* R40,00 × 100 = 4000 cents ✓*A*	1 MA multiply by 100 1 A correct answer **Answer only: full marks** (2)	F1
1.1.7	✓*RT* R120,00 : R60,00 2: 1✓*A*	1 RT reading from table 1 A answer in simplest form **Answer only: full marks** (2)	F1

Q	ANSWER	EXPLANATION	LEVEL
1.2			
1.2.1	126 cm ÷ 100✓*MA* $= 1{,}26\ m$✓*A*	1 MA dividing by 100 1 A correct answer **Answer only: full marks** (2)	M1
1.2.2	✓*MA* 111,6 cm + 69,1 cm + 111,6 cm + 69,1 cm = 361,4 cm✓*A* **OR** (2 × 111,6 cm) + (2 × 69,1 cm)✓*MA* = 361,4 cm✓*A*	1 MA adding correct values 1 A correct answer **Answer only: full marks** (2)	M1
1.3			
1.3.1	Discreet✓✓*A*	2 A for correct answer (2)	DH1
1.3.2	New Zealand ✓*RT* South Africa ✓*RT*	2 RT reading from table (2)	DH1
1.3.3	✓*MA* 1645 – 1 250 = 395 ✓*A*	1 MA subtracting 1 A correct answer **Answer only: full marks** (2)	DH1
1.3.4	Australia ✓✓*RT*	2 RT reading from table (2)	DH1
1.3.5	✓*MA* 2303 + 1645 + 1250 + 1379 + 1487 = 8064✓*A*	1 MA adding all values 1 A correct answer **Answer only: full marks** (2)	DH1
1.3.6	England✓✓*RT*	2 RT reading from table (2)	DH1
			[30]

QUESTION 2

Q	ANSWER	EXPLANATION	LEVEL
2.1			
2.1.1	1¥ = $\frac{1}{8,02}$ = R0,124 ✓✓*A* **OR** 12^{c} ✓✓*A*	2A correct answer (2)	F1
2.1.2	R800,00 × 8,02 = ¥6 416,00 ✓✓*A*	2A correct answer (2)	F1
2.1.3	✓*MA*✓*MA* (R8 750,00 + R3 771 + (3 × R800,00) = R14 921,00 ✓*A*	1MA adding 1MA multiplying by 3 1A answer (3)	F1
2.1.4	✓*MA* $R10\ 000 \times \frac{6}{100} = R600$ R10 000 + R600 = R10 600 ✓*A* $R10\ 600 \times \frac{6}{100} = R636$ R10 600 + R636 = R11 236 ✓*CA* **OR** $R10\ 000 \times \frac{106}{100} = R10\ 600$ $R10\ 600 \times \frac{106}{100} = R11\ 236$ **OR** R10 000 x 1,06 = R10 600 R10 600 x 1,06 = R11 236 **OR** Year 1: R10 000 $(1 + \frac{6}{100})$ = R10 600 Year : R10 600 $(1 + \frac{6}{100})$ = R11 236	1 MA multiply by 6%, 106% or 1,06 1 A R10 600 1 CA final answer (3)	F2

Q	ANSWER	EXPLANATION	LEVEL
2.2			
2.2.1	**Hire-purchase**: a system by which one pays for item(s) in regular instalments while having the use of it. ✓✓*A*	2 J correct explanation (2)	F1
2.2.2	R6 999,00 ✓✓*RT*	2 RT correct answer (2)	F1
2.2.3	$\frac{R10\,499 - R8\,999}{R10\,499} \times 100$✓*SF* = 14, 287… ≈ 14, 29% **or** 14% ✓*A* **OR** $\frac{R1\,500}{R10\,499} \times 100$ = 14, 287… ≈ 14, 29% **or** 14%	1 MA Method 1A Answer (2)	F2
2.2.4	✓*MA* $\frac{10}{100}$ × R8 999,00 = R899,90 ✓*A*	1 MA calculating 10% 1 A correct answer (2)	F1
2.2.5	20,75% ✓✓*RT*	2 RT correct answer (2)	F1
2.2.6	✓*MA* $R8\,099{,}10 \times \frac{20{,}75}{100} = R1\,680{,}56$✓*A* R1 680,56 x 3 = R5 041,69✓*A* R8 099,10 + R5 041,69 ✓*M* = R13 140,79✓C*A* **OR** ✓*MA* $R8\,099{,}10 \times \frac{20{,}75}{100} = R1\,680{,}56$✓*A* R8 099,10 + R1 680,56 = R9 779,66✓*A* R9 779,66 + R1 680,56 = R11 460,22✓*A* R11 460,22 + R1 680,56 = R13 140,78✓C*A* **OR**	1 MA Multiply by 20,75% or 0,2075 1 A R1 680,56 1 A R5 041,69 1 M Addition 1 CA Answer 1 MA Multiply by 20,75% or 0,2075 1 A R1 680,56 1 A R9 779,66 1 A R11 460,22 1 CA Answer	F2

<table>
<tr><th>Q</th><th>ANSWER</th><th>EXPLANATION</th><th>LEVEL</th></tr>
<tr><td></td><td>Simple interest = $\frac{P \times r \times t}{100}$ ✓F
= $\frac{R8\,099{,}10 \times 20{,}75 \times 3}{100}$ ✓SF
= R5 041,69✓A

Final Amount = R8 099,10 + R5 041,69✓M
= R13 140,79✓CA</td><td>1 F correct formula
1 SF substitution
1 A correct interest amount
1 M addition
1 CA final answer

(5)</td><td></td></tr>
<tr><td>2.2.7</td><td>✓MA

36 – 6 = 30 months✓A</td><td>1 MA subtraction
1 A final answer

Answer only: full marks
(2)</td><td>F1</td></tr>
<tr><td>2.3</td><td></td><td></td><td></td></tr>
<tr><td>2.3.1</td><td>
<table>
<tr><th>TRANSACTION</th><th>FEE
(in Rand)</th></tr>
<tr><td>Monthly account fee</td><td>R51,00 ✓A</td></tr>
<tr><td>ATM cash withdrawals :</td><td></td></tr>
<tr><td>• Commercial Bank ATM (5,70 x 2)</td><td>R11,40 ✓A</td></tr>
<tr><td>• Other bank (6,50 + 5,70 x 2)</td><td>R17,90 ✓A</td></tr>
<tr><td>External debit order</td><td>R8,80 ✓A</td></tr>
<tr><td>Internal debit order</td><td>R3,30 ✓A</td></tr>
<tr><td>External stop order (2 x R 8,80)</td><td>R 17,60 ✓A</td></tr>
<tr><td>Online cheque deposit: (0,65 x R 23 5500 ÷100)</td><td>R153,08 ✓A</td></tr>
<tr><td>Cash deposit: (1,2% x R 2 425 ÷ 100)</td><td>R29,40 ✓A</td></tr>
<tr><td>Total for bank fees:</td><td>R292,48
✓✓CA</td></tr>
<tr><td></td><td></td></tr>
</table>
</td><td>1 A for R51,00
1 A for R11,40
1 A for R17,90
1 A for R8,80
1 A for R3,30
1 A for R17,60
1 A for R153,08
1 A for R29,40
2 CA for final answer

(10)</td><td>F2</td></tr>
<tr><td></td><td></td><td></td><td>[37]</td></tr>
</table>

QUESTION 3

Q	ANSWER	EXPLANATION	LEVEL
3.1.1	Perimeter: the distance around a two-dimensional shape.✓✓ *A*	2 J correct explanation (2)	M1
3.1.2	70 m + (22 m + 100 m + 22 m) + 70 m + (22 m + 100 m + 22 m) ✓ *M* = 428 m ✓ *A*	1M Addition 1A answer of 428 m (2)	M2
3.1.3	✓*A* ✓*M* 22 m + 100 m + 22 m = 144 m ✓*CA* **OR** 100 m + (2 × 22 m) = 144 m	1 A correct values 1 M addition 1 CA final answer 1 A correct values 1 M addition and times 1 CA final answer (3)	M2
3.1.4	Area of rugby field: A = length × width = 144 m × 70 m ✓✓*SF* = 10 080 m^2✓ *CA*✓*U*	1 SF substitution of length 1 SF substitution of width 1 CA answer 1 U correct unit (4)	M2
3.1.5	Lenght of sod of grass: 500 mm = 0,5 m Width of sod of grass: 700 mm = 0,7 m✓*C* Area of one sod of grass = length × width = 0,5 × 0,7 m ✓*SF* = 0,35 m^2✓*CA* **OR** Area of 1 sod of grass = length × width = 500 mm × 700 mm✓*SF* = 350 000 mm^2 = $\frac{350\ 000}{1\,000\ 000}$✓*C* = 0,35 m^2✓*CA*	1 C conversion 1 SF substitution 1 CA answer **OR** 1 SF substitution 1 C conversion 1 CA answer (3)	M2

Q	ANSWER	EXPLANATION	LEVEL
3.1.6	Number of sods of grass needed to cover the rugby field: $= \frac{Area\ of\ filled\ surface}{Area\ of\ 1\ sod\ of\ grass}$ $= \frac{10\ 080}{0{,}35}$✓*M* = 28 800 sods of grass✓*CA* **OR** $\frac{500}{1\ 000} = 0{,}5\ m$ and $\frac{700}{1\ 000} = 0{,}7\ m$ Width : $\frac{70\ m}{0{,}5\ m} = 140$ Length : $\frac{144\ m}{0{,}7\ m} = 205{,}714\ldots$ ≈ 206 Total: 206 × 140 = 28 840 sods of grass **OR** $\frac{500}{1\ 000} = 0{,}5\ m$ and $\frac{700}{1\ 000} = 0{,}7\ m$ Width : $\frac{70\ m}{0{,}7\ m} = 100$ Length : $\frac{144\ m}{0{,}5\ m} = 288$ Total: 100x 288 = 28 800 sods of grass	1 M division / multiplication 1 CA answer (2)	M2
3.2			
3.2.1	Radius of water tank = $\frac{200\ cm}{2}$✓*M*A = 100 cm ✓*A*	1 MA division by 2 1 A correct answer **Answer only: full marks** (2)	M1

Q	ANSWER	EXPLANATION	LEVEL
3.2.2	Volume $= \pi \times r^2 \times h$ $= 3{,}142 \times (100\ cm)^2 \times 350\ cm$ ✓*SF*✓*C* $= 10\ 997\ 000\ cm^3$ ✓C*A* Note that: $1\ 000\ cm^3 = 1$ litre $\frac{10\ 997\ 000}{1\ 000}$ ✓M = 10 997 litres✓*A*✓*U* **OR** $\frac{100\ cm}{100} = 1m\ (Radius)$✓*C* Volume $= \pi \times r^2 \times h$ $= 3{,}142 \times (1\ m)^2 \times 3{,}5m$ ✓*SF* $= 10{,}997\ m^3$ ✓C*A* Note that: $1\ m^3 = 1\ 000$ litres $10{,}997\ m^3$ x 1 000✓*M* = 10 997 litres✓*A*✓*U*	1C Conversion of height 1 SF substitution 1 CA answer 1 Mdivide / multiply by 1 000 1 CA answer 1 U litres as unit (6)	M3
3.2.3	Radius: 100 cm = 1 m ✓*C* Height: 3,5 m Surface area = $2\ \pi r\ (r + h)$ ✓*SF* ✓*SF* $= 2 \times 3{,}142 \times 1\ m\ (1\ m + 3{,}5\ m)$ $= 28{,}278$ $\approx 28{,}28\ m^2$ ✓C*A*	1C conversion 1 SF radius 1 SF height 1 CA final answer **NP No penalty for rounding** (4)	M2
			[28]

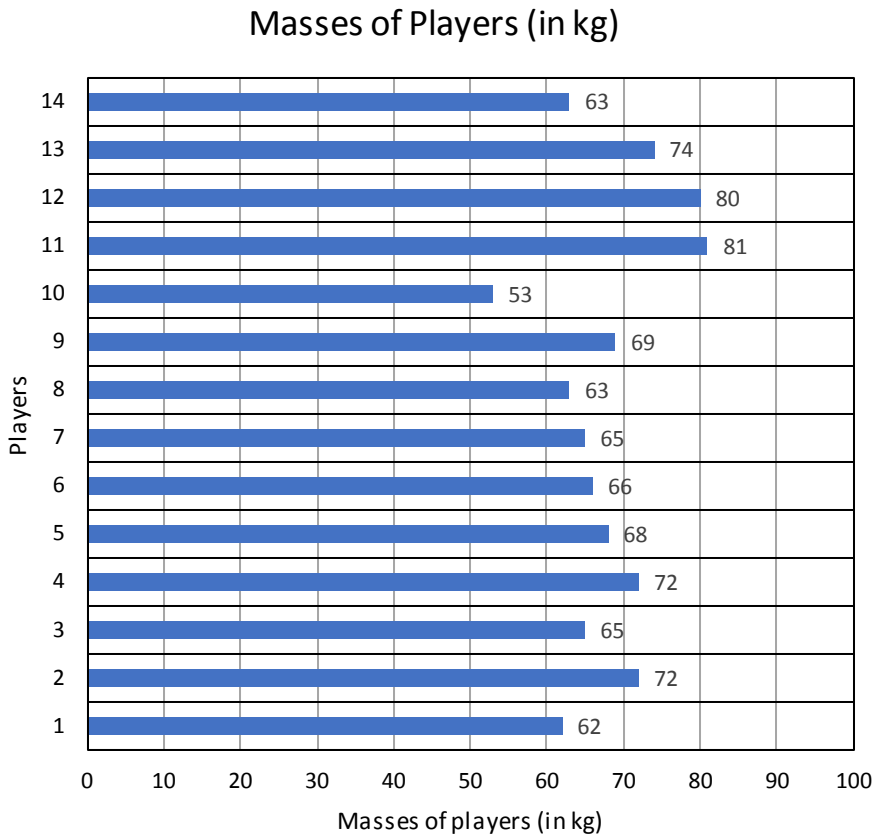
QUESTION 4

Q	ANSWER	EXPLANATION	LEVEL
4.1			
4.1.1	N1✓✓*RT*	2 RT reading from map (2)	MP1
4.1.2	Bloemfontein✓✓*RT*	2 RT reading from map (2)	MP1
4.1.3	3 national roads ✓✓*RT*	2 RT reading from map (2)	MP1
4.1.4	Bar scale✓✓*RT*	2 RT reading from map (2)	MP1
4.1.5	N2 ✓✓*RT*	2 RT reading from map (2)	MP1
4.1.6	Every **1 unit** on the map represents 10 000 000 **units** in reality. ✓✓*A*	2 A correct answer (2)	MP1
4.1.7	1 : 10 000 000 13 cm : 130 000 000 cm ✓MA $\frac{130\ 000\ 000\ cm}{100\ 000}$ ✓C = 1 300 km ✓A	1 MA multiply by scale 1 C conversion to km 1 A correct answer (3)	MP2
4.1.8	Speed = $\frac{Distance}{Time}$ = $\frac{1415\ km}{12\ hours}$✓*SF* = 117, 916 ✓*A* = 118 km / h ✓*R*	1 SF substitution 1 A answer 1 R correct rounding (3)	MP2

Q	ANSWER	EXPLANATION	LEVEL
4.1.9	✓*M* ✓*M*✓*M* 1 415 km × $\frac{7,8}{100}$ × R14,70 = R1 622,44✓*CA*	1 M multiply by consumption rate 1 M divide by 100 1 M times by fuel price / litre 1 CA answer (4)	F3
4.2.1	✓*A* $\frac{652}{1000} = \frac{163}{250}$ ✓*S*	1 A correct fraction 1 S simplification (2)	P1
4.2.2	0,65 x 100 = 65 %✓✓*A* **OR** 0,652 x 100 = 65,2 % ✓✓*A*	2 A correct answer (2)	P1
4.2.3	No ✓*A* There is still a 35% chance that it might not rain; it is not 100% certain. ✓*A*	1 A correct answer 1 J correct explanation (2)	P1
			[28]

QUESTION 5

<table>
<tr><th>Q</th><th>ANSWER</th><th>EXPLANATION</th><th>LEVEL</th></tr>
<tr><td>5.1</td><td></td><td></td><td></td></tr>
<tr><td>5.1.1</td><td>53; 62; 63; 63; 65; 65; 66; 68; 69; 72; 72; 74; 80; 81✓✓MA</td><td>2 MA arranging
Penalise with 1 mark if the values of the two teams are correct but separately done.
(2)</td><td>DH1</td></tr>
<tr><td>5.1.2</td><td>Player 5 of team B✓RT
1,96 m✓RT</td><td>1 RT correct player
1 RT correct height
(2)</td><td>DH1</td></tr>
<tr><td>5.1.3</td><td>63 kg✓✓RT</td><td>2 RT reading off correct answer
(2)</td><td>DH1</td></tr>
<tr><td>5.1.4</td><td>15 years✓✓RT</td><td>2 RT reading from table
(2)</td><td>DH1</td></tr>
<tr><td>5.1.5</td><td>24,9✓✓RT</td><td>2 RT reading from table
(2)</td><td>DH1</td></tr>
<tr><td>5.1.6</td><td>Mean height =
$\frac{1,85+1,75+1,65+1,7+1,62+1,56+1,5}{7}$✓MA
= $\frac{11,63}{7}$✓MA
= 1,66 m✓A</td><td>1 MA addition
1 MA division by 7
1 A final answer
(3)</td><td>DH2</td></tr>
<tr><td>5.1.7</td><td>BMI = $\frac{Mass\ (in\ kg)}{(Height\ in\ m)^2}$
= $\frac{81\ kg}{(1,66\ m)^2}$✓SF
= 29,39 kg / m^2✓A(P)</td><td>1SF correct substitution
1 A correct answer
P Penalty for not writing unit (kg / m^2)
(2)</td><td>DH2</td></tr>
<tr><td>5.1.8</td><td>Continuous data – because of the decimal numbers ✓✓A</td><td>2 J correct explanation
(2)</td><td>DH1</td></tr>
<tr><td>5.2</td><td>
<table>
<tr><th>Height (in m)</th><th>Tally</th><th>Frequency</th></tr>
<tr><td>1,5 – 1,62</td><td><s>1111</s></td><td>5 ✓</td></tr>
<tr><td>1,63 – 1,75</td><td>1111</td><td>4✓</td></tr>
<tr><td>1,76 – 1,85</td><td>11</td><td>2✓</td></tr>
<tr><td>1,86 and taller</td><td>111</td><td>3✓</td></tr>
<tr><td></td><td></td><td>14✓</td></tr>
</table>
1 Mark for each correct row (tally and frequency) x 4
1 Mark for total of 14
(5)
</td><td>DH2</td></tr>
</table>

Q	ANSWER	EXPLANATION	LEVEL
5.3	 • 2 marks for correct bars for players 1 – 6 • 2 marks for correct bars for players 7 – 14 • 1 mark for correct bars with spaces. **P : Penalise 1 mark if there are no spaces** **No marks if line graph is drawn** (5)		DH2
			(27)

TOTAL: 150