GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

PREPARATORY EXAMINATION

2023

MARKING GUIDELINES

MATHEMATICAL LITERACY (PAPER 1) (10601)

13 pages

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/graph/diagram/map/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 SYMBOL:

F = Finance; DH = Data Handling; P = Probability

QUESTION 1

Q	ANSWER	EXPLANATION	LEVEL
1.1			
1.1.1	✓RT ✓RT 1C$: R13,48 **OR** 0,07148:1✓RT ✓RT	1RT 1C$ 1RT R13,45 **NPU – no penalty if units are omitted** (2)	F1
	✓RT		
1.1.2	Cost = C$12 000 × R13,48 ✓MA Cost = R161 760 **OR** R161 760 ÷ R13,48✓MA = C$12 000✓A	1RT Canadian dollar 1MA multiplying with currency. 1MA dividing with R13,48 1A answer **AO doesn't apply.** **NPU – no penalty if units are omitted** (2)	F1
1.1.3	Total cost = Spending money + Return flight ✓MA = R24 500 + R16 879 = R41 379 ✓A ≈ R41 400 ✓R	1MA adding correct values 1A for R41 379 1R correct rounding (3)	F1
1.1.4	R16 879 Sixteen thousand, eight hundred and seventy-nine rand. ✓✓A	2A correct answer (2)	F1
1.1.5	✓RT Spending = R24 500 × $\frac{85}{100}$ ✓MCA Spending = R20 825 ✓CA **OR** ✓RT R24 500 x $\frac{15}{100}$ = R 3 675 R24 500 – R3 675 ✓ M = R20 825 ✓ CA	1RT R24 500 1MCA multiplying with 85% or 0,85 1CA R20 825 (3) 1RT R24 500 1M Subtracting 15% 1CA R20 825	F1

Q	ANSWER	EXPLANATION	LEVEL
1.1.6	✓RT ✓M R24 500 – R20 825 = R3 675,00 **OR** ✓RT R24 500 x $\frac{15}{100}$ ✓ M = R 3 675	**CA from Q 1.1.5** 1RT R24 500 1M subtract R20 825 **AO doesn't apply.** (2) 1RT R24 500 1M Calculate 15%	F1
1.1.7	Probability (event) = $\frac{\textit{number of favourable outcomes/cases}\checkmark A}{\textit{total number of possible outcomes/cases}\checkmark A}$ **OR** Probability (event) = $\frac{\textit{number of outcomes}\checkmark A}{\textit{total number of outcomes}\checkmark A}$ **OR** Probability (event) = $\frac{\textit{number of events}\checkmark A}{\textit{total number of events}\checkmark A}$	2A correct formula (2)	P1
1.1.8	= 6 + 9 + 2 ✓MA = 17 ✓A	1MA adding all correct values 1A possible outcomes (2)	P1
1.1.9	Interest: Money earned on an investment. ✓✓D	2D define interest **Accept any valid/ reasonable answer** (2)	F1

Q	ANSWER	EXPLANATION	LEVEL
1.2			
1.2.1	25% ✓✓ A	2A for answer with % sign(2)	D1
1.2.2	Quartile 1 = 15,8% ✓A Quartile 3 = 25% ✓A	1A for 15,8% 1A for 25% (2)	D1
1.2.3	(a) Quartile 2 ✓A (b) 50% ✓A	1A for quartile 2 1A for 50% (2)	D1
1.2.4	Canada or 15,0%✓A Ireland or 12,5% ✓A	1A for Canada/15,0% 1A for Ireland/12,5% (2)	D1
1.2.5	Selecting a country in Quartile 3 means that you select 75% of the countries that are presented. ✓✓ D **OR** Quartile 3 represents 75% of the data presented. **OR** Quartile 3 means that it is 25% less than the data presented. **OR** A number halfway between the median (middle number) and the maximum (highest number) of the data set.	2D definition of meaning **Accept any valid or reasonable answer** (2)	P1
		[30]	

QUESTION 2

Q	ANSWER	EXPLANATION	LEVEL
2.1			
2.1.1	✓RT ✓M Income = 1 755 ÷ 13 Income = R135	1RT reading values from table 1M division **Any values in table can be used to determine R135** **No mark for answer** (2)	F1
2.1.2	A = 14 040 ÷ 135 ✓MA A = 104 ✓A B = 39 × 135 ✓MA B = R5 265 ✓A **OR** ✓MA A: 13 × 8 = 104✓A ✓MA B: 1755 × 3 = 5265✓A	1MA income divided by 135 1A 104 1MA number of masseuses times 135 1A R5 265 (4)	F2
2.1.3	✓A ✓A Income = R135 × number of masseuses **Also accept:** Income = cost per massage × number of masseuses	1A for R135 1A for number of masseuses (2)	F2
2.1.4	13 ✓RT × 15 ✓M = 195 ✓CA 195 × 135 ✓M = 26 325 ✓MCA 26 325 × 3 ✓M = R**78 975** **OR** 3 days × 15 sessions p/d = 45 sessions total 45 sessions × R135 = R6 075 R6 075 × 13 masseuses = R78 975	1RT 13 masseuses used 1M multiplying by 15 1CA 1M multiplying by 135 1MCA 1M multiplying by 3 **CA using the formula in 2.1.3 – Max of 4 marks.**	F3

	OR 3 days × 15 sessions p/d = 45 sessions total 45 sessions × R1755 = R78 975 **OR** 15 sessions × R1 755 = R26 325 R26 325 × 3 = R78975 **NO MARK FOR ANSWER**	(6)	

Q	ANSWER	EXPLANATION	LEVEL
2.1.5	Expenses = (number of masseuses × cost for the weekend) + (number of masseuses × number of sessions × number of days × cost per session) + (cost for room at Cape Town × number of days) Expenses = (13 × 1 000) + (13 × 15 × 3 × 50) + (4 800 × 3) ✓M Expenses = 13 000 + 29 250 + 14 400 ✓M Expenses = R56 650 ✓CA Income: Expenses 78 975 ✓A : 56 650 ✓A 1,3940865 : 1 ✓S	1M multiplying of values 1M addition of expenses 1CA total expenses 1A ratio (income) 1A ratio (expenses) 1S at least income must be correct to follow up simplification **NPR** (6)	F3
2.2			
2.2.1	R1 043,55 ÷ 45 ✓MA = R23,19 ✓A **OR** R4 522,05 ÷ 195 = R23,19	1MA dividing totals by hours worked 1A final answer (2)	F2

2.2.2	% Incr. = $\frac{\text{New income} - \text{Old income}}{\text{Old income}} \times 100$ ✓SF % Incr. = $\frac{4\,522{,}05 - 3\,722{,}55}{3\,722{,}55} \times 100$ ✓SF % Incr. = $\frac{799{,}50}{3\,722{,}55} \times 100$ % Incr. = 21,4772132 % Incr. = 21,5% ✓CA	1SF substitution or difference in numerator 1SF denominator 1CA rounded-off percentage **Penalise if not rounded-off to one decimal place** (3)	F2
2.2.3	200 ÷ 5 ✓MA = R40/h ✓A She was paid more than the minimum wage for Saturdays in 2022. ✓J	1MA dividing correctly 1A answer of R40 J Justification (3)	F4

Q	ANSWER	EXPLANATION	LEVEL
2.3			
2.3.1	76 033 ✓RT ÷ 12 ✓MA = R6 336,08 ✓A	1RT for 76 033 1MA dividing by 12 1A for R6 336,08 (3)	F2
2.3.2	1 329 × 100 = 132 900 ✓MA 132 900 ÷ 1 500 ✓M = 88,6 c/km ✓CA	1MA multiplying by 100 1M dividing by 1 500 1CA final answer **NPU** (3)	F3
2.3.3	Claim = Monthly fixed travelling claim + (km driven × fuel claim) + (km driven × maintenance claim) Claim = 6 336,08 + 1 500 × (159,7 + 56,3) Claim = R6 336,08 + 324 000 c Claim = R6 336,08 + R3 240 ✓M Claim = R9 576,08 ✓CA 25% = 9 576,08 × 0,25 ✓MA 25% = R2 394,02 Claim = R9 576,08 – R2 394,02 ✓M Claim = R7 182,06 ✓CA His statement is incorrect. ✓J **OR** He will be able to claim less back than he states. His claim is less than R8 825.	1M addition of all costs 1CA answer 1MA calculating 25% 1M subtracting 25% 1CA answer 1J Reasoning (6)	F4
		[40]	

QUESTION 3

Q	ANSWER	EXPLANATION	LEVEL
3.1			
3.1.1	63,4 million – 3,8 million ✓M = 59,6 million bags ✓CA **OR** 63 400 000 – 3 800 000 = 59 600 000	1M for concept of range 1CA for answer **Penalise if the word "million" is omitted for Option 1** (2)	D2
3.1.2	✓MA 3,8; 4; 5,6; 5,7; 6.1; 7,3; 12; 14,3; 29; 63,4 Median = $\frac{6,1+7,3}{2}$ ✓M = 6,7 ✓CA	1MA arrange values 1M concept of median 1CA answer (3)	D2
3.1.3	3,8; 4; 5,6; 5,7; 6,1; **7,3**; 12; 14,3; 18,4; 29; 63,4 IQR = 18,4 – 5,6 ✓M ✓RT ✓RT = 12,8 ✓CA	1M subtracting 1RT for Q1 1RT for Q3 1CA for answer (4)	D3
3.1.4	Mexico ✓A Peru. ✓A It means that they are the lowest quarter of the top coffee producing countries in the world.✓✓J OR They produce the least amount of coffee from the top producing countries around the world.	1A for Mexico 1A for Peru 2J of a valid reason (4)	D4
3.1.5	Pie chart✓✓A	2A for identification of graph (2)	D1
3.1.6	$\frac{63,4+29+14,3+12,0+7,3\ ✓A}{169,6\ ✓CA} \times 100$ ✓M = $\frac{126}{169,6} \times 100$ = 74,29245 ... % ≈ 74% ✓CA	1A for adding top 5 1CA for total value 1M multiply with 100 1CA rounded to whole % (4)	D3
3.1.7	✓A P = $\frac{2}{10} \times 100$ ✓MA = 20% ✓CA	1A correct numerator and denominator 1MA percentage calculation 1CA answer as a % (3)	P2

Q	ANSWER	EXPLANATION	LEVEL
3.2			
3.2.1	X **OR** Z ✓✓A	2A correct answer (2)	D1
3.2.2	Categorical ✓✓A	2A correct answer (2)	D1
3.2.3	Are you a male or female? What time of the day do you drink coffee? Are you a coffee drinker? ✓✓✓O *(Accept: Any reasonable appropriate questions)*	3O marks (3)	D2
3.2.4	Males drink more coffee early in the morning until 6 a.m. than females ✓✓J From 6 a.m. to 6 p.m. females drink more coffee than men. **OR** After 6 p.m. males drink more coffee again. ✓J	2J comparing males and females 1J justifying female coffee drinkers 6 a.m. – 6 p.m. **OR** justifying male coffee drinkers after 6 p.m. **Accept any valid or reasonable answer** (3)	D4
3.2.5	The data is discrete ✓A The data does not consist of fractions or decimals. ✓✓ J People are always whole numbers.	1A discrete 2J justification (3)	D4
3.2.6	The data would be biased.✓A It only looks at the American consumer which would be a brand specific data. ✓✓J They only took into consideration America and not the rest of the world. They only focussed on one brand. It is only a sample at one shop.	1A biased 2J explaining biased in context (3)	D4

<table>
<tr><th>Q</th><th>ANSWER</th><th>EXPLANATION</th><th>LEVEL</th></tr>
<tr><td>3.3</td><td></td><td></td><td></td></tr>
<tr><td></td><td>
<table>
<tr><td>High protein</td><td>Soya, Hemp</td></tr>
<tr><td></td><td></td></tr>
<tr><td>High calcium</td><td>Hemp, Almond, Coconut</td></tr>
<tr><td></td><td></td></tr>
<tr><td>High vitamin D</td><td>Soya, Hemp, Almond, Coconut, Rice</td></tr>
<tr><td></td><td></td></tr>
<tr><td>High vitamin A</td><td>Soya, Hemp, Almond, Coconut</td></tr>
<tr><td></td><td></td></tr>
<tr><td>High fibre</td><td>Soya, Hemp, Almond</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Low sugar</td><td>Soya, Hemp</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Low calories</td><td>Hemp, Almond</td></tr>
</table>
✓ ✓✓M
✓A
Hemp milk qualifies in all the categories providing the highest source of protein, calcium, vitamin D, vitamin A and fibre, as well as the lowest source in sugar and calories.</td><td>3M method of comparison
1A Hemp

(4)</td><td>D4</td></tr>
<tr><td></td><td></td><td>[42]</td><td></td></tr>
</table>

QUESTION 4

Q	ANSWER	EXPLANATION	LEVEL
4.1.1	R37 480 ✓RT × 12 ✓MA = R449 760	1RT correct values 1MA Multiplying by 12 **(NO MARK FOR R449 760)** (2)	F1
4.1.2	Taxable income = annual gross income – annual pension fund contribution 449 760 – (12 × 2 614,88 ✓MA = 449 760 – 31 378,56 ✓M = R418 381,44 ✓CA **OR** R37 480 – R2 614,88 ✓MA = R34 865,12 R34 865,12 x 12 ✓M = R418 381,44 ✓CA	 MA calculate annual pension M subtracting pension CA taxable income MA subtracting the pension M multiplying by 12 CA taxable income (3)	F2
4.1.3	Bracket 3 ✓F Tax = R70 532 + 31% × (418 381,44 – 337 800) ✓SF Tax = R70 532 + 0,31 × (80 581,44) Tax = R70 532 + R24 980,25 Tax = R95 512,25 ✓CA Tax = R95 512,25 – R15 714 ✓RT – R8 613 ✓M Tax = R71 185,25 ✓CA Monthly = R71 185,25 ÷ 12 ✓MA Monthly = R5 932,10 ✓CA	**CA from 4.1.2** 1F correct bracket 1SF substitution 1CA answer 1RT using both rebates 1M subtracting rebate 1CA answer 1MA divide annual tax by 12 1CA monthly tax (8)	F3
4.1.4	R13 123,28 × 12✓M = R157 479,36 ✓CA Tax threshold: 2022 → R151 100 2023 → R157 900 In 2022 his income is more than the threshold, but in **2023 his income is below** ✓J the threshold, thus he **does not have to pay income tax and her statement is correct**.✓J	1M calculating annual taxable income 1CA answer 1J 2023 income below 1J Statement is correct (4)	F4

Q	ANSWER	EXPLANATION	LEVEL
4.1.5	The fixed amount is derived from the maximum amount that can be claimed from the previous tax bracket, in this case, bracket 2 Tax = 40 680 + 26% (353 100 ✓RT – 226 000) ✓SF Tax = 40 680 + 0,26 × 127 100 ✓S Tax = 40 680 + 33 046 ✓S Tax = 76 726	1RT using correct tax bracket for calculation 1SF correct substitution 2S simplification of values (4)	F2
4.2			
4.2.1	✓RT Payment = 10 000 + (1 985 × 60) Payment = 10 000 + 119 100 ✓M Payment = R129 100 ✓CA	1RT use deposit 1M adding deposit and instalment 1CA answer (3)	F2
4.2.2	R129 100 – R79 000✓M = R50 100 ✓CA His statement is correct. ✓J	**CA from 4.2.1** 1M subtraction 1CA difference 1J reasoning (3)	F2
4.2.3 (a)	✓MA Interest $= \frac{10\,\%}{4}$ = 2,5% per quarter ✓A Interest 1st quarter: R90 000 × 1,025 ✓MA = R92 250 ✓A Interest 2nd quarter: = R92 250 × 1,025 = R94 556,25 ✓CA Interest 3rd quarter = R94 556,25 × 1,025 = R96 920,16 ✓CA	1MA concept of quarterly (divide by 4) 1A for interest rate of 2,5% 1MA multiply with 2,5%, 102,5% or 1,025 1A correct answer 1CA answer 1CA answer (6)	F3

Q	ANSWER	EXPLANATION	LEVEL
4.2.3 (b)	Price for 2024: ✓MA R139 800 × $\frac{1,25}{100}$ = R1 747,50 Price for 2024: R139 800 + R1 747,50 = R141 547,50 ✓A Price for 2025: R141 547,50 × $\frac{0,5}{100}$ = R707,7375 ✓M Cost for 2024: R141 547,50 + R707,7375 = R142 255,24 ✓CA It would not be wise for him to wait because the cost of the vehicle will increase meaning that interest will also increase. ✓J **OR** It will be wise to wait so that he could save more money to afford the vehicle.	1MA multiplying with 1,25% or 101,25% or 1,0125 1A answer 1M multiply with 0,5% or 100,5% or 1,005 1CA answer 1J reasoning (5)	F4
		[38]	
		TOTAL: 150	