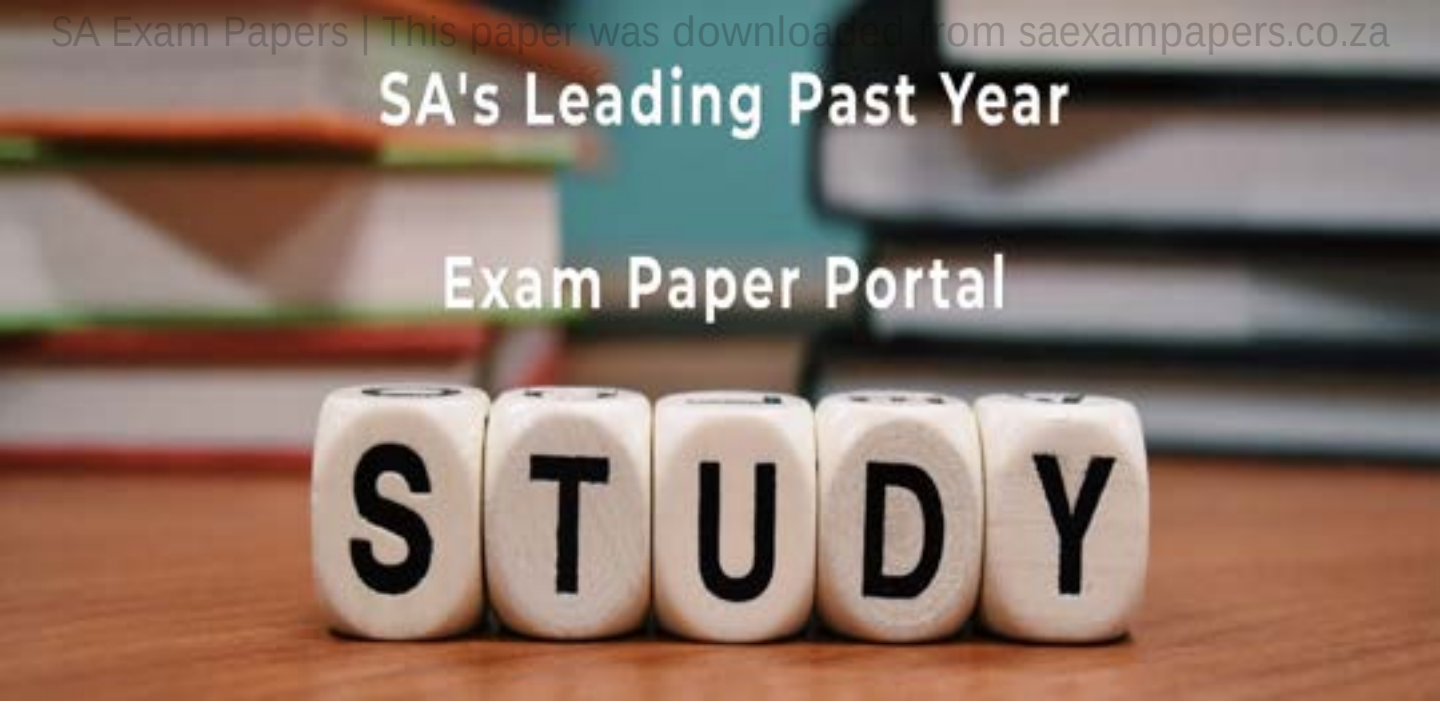

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GRADE 12

SEPTEMBER 2023

MATHEMATICAL LITERACY P1 MARKING GUIDELINE

MARKS: **150**

Symbol	Explanation
M	Method
MA	Method with accuracy
CA	Consistent accuracy
A	Accuracy
C	Conversion
S	Simplification
RT/RG/RM	Reading from a table/a graph/a map
F	Choosing the correct formula
SF	Substitution in a formula
J	Justification
P	Penalty, e.g., for no units, incorrect rounding off etc.
R	Rounding Off/Reason
AO	Answer only
NPR	No penalty for correct rounding

This marking guideline consists of 9 pages.

QUESTION 1 [30 MARKS]			
Ques.	**Solution**	**Explanation AO: FULL MARKS**	**T&L**
1.1.1	Bank D ✓✓RT	2RT identify correct bank (2)	F L1
1.1.2	ATM withdrawal ✓✓RT	2RT (2)	F L1
1.1.3	R1 600 – R1 250 = R350 ✓M ∴ R1,85 × $(\frac{350}{100})$ = R1,85 × 4 ✓MA = R7,40 ✓A	1M for subtracting 1MA multiplying correct value 1A answer (3)	F L1
1.1.4	50% or B ✓✓A	2A answer (2)	P L1
1.2.1	✓M Total = 30 980 110 – (25 085 330 + 2 737 987 + 2 396 679) = 760 114 ✓A	1M subtracting correct values 1A answer (2)	D L1
1.2.2	Two million, six hundred and one thousand, nine hundred and thirty-two ✓✓A	1A correct words (2)	D L1
1.2.3	% = $\frac{25\,085\,330}{30\,980\,110}$ × 100 ✓RT ✓M = 80,97% ✓A	1RT correct values 1M multiplying by 100 1A percentage (3)	D L1
1.2.4	Numerical ✓✓A	2A correct answer (2)	D L1
1.3.1	Total = R249,95 + (50% × R135,95) ✓MA = R249,95 + R67,98 ✓M = R317,93 ✓A	1 MA multiplying correct value by 50% 1M adding correct values 1A correct total (3)	F L1
1.4.1	Facebook ✓✓RT	2RT correct social media platform (2)	D L1
1.4.2	Bar graph ✓✓A	2A correct graph (2)	D L1
1.4.3	✓RT Difference = 1 309 million – 200 million ✓M = 1 109 million ✓CA	1RT correct values 1M subtraction 1CA difference (3)	D L1
1.4.4	Instagram ✓✓RT	2RT correct social media platform (2)	D L1
		[30]	

QUESTION 2: FINANCE [35 MARKS]			
Ques.	**Solution**	**Explanation/Marks AO: FULL MARKS**	**T&L**
2.1.1	✓RT % discount = $\frac{500}{13\ 999} \times 100$ ✓M = 3,57% ✓CA	1RT correct values 1M multiplying by 100 1CA simplification **Accept 3,6%** (3)	F L2
2.1.2	Deposit = $\frac{18}{100} \times 13\ 499$ = R2 429,82 ✓M Outstanding balance = R13 499 – R2 429,82 = R11 069,18 ✓M ✓MA Total due = $(\frac{16,25}{100} \times R11\ 069,18 \times 1\ yr) + R11\ 069,18$ = R1 798,74 + R11 069,18 = R12 867,92 ✓A Monthly payment = $\frac{R12\ 867,92}{12}$ ✓M = R1 072,32 ✓CA ∴ No, it will not be enough. ✓O	1M calculating deposit 1M outstanding balance 1MA multiplying correct value by percentage 1A total due 1M divide by 12 1CA final answer 1O reason (7)	F L4
2.1.3	✓MA Mrs Rudolph = $\frac{3}{8} \times$ R13 499 ✓M = R5 062,13 ✓CA	1MA correct ratio method 1M multiplying by cash price 1CA answer (3)	F L2

Ques.	Solution	Explanation	T&L
2.2.1	Difference = R21,40 – R20,75 ✓MA = R0,65 ✓A	1MA subtracting correct values 1A correct answer (2)	F L1
2.2.2	Cost = R21,40 + R2,06 ✓MA = R23,46 ✓A	1MA adding correct values 1A simplification (2)	F L2
2.2.3	Total fuel used: = (2,2ℓ × 2,5 hrs) × 2 ✓M = 11 ℓ per day ✓A 11ℓ × 31 = 341ℓ per month ✓CA Total cost = R20,45 × 341ℓ = R6 973,45 ✓CA	1M fuel per session 1A fuel per day 1CA amount of fuel per month 1CA cost for the month (4)	F L3
2.3.1	0,3 kℓ ✓✓RT	2RT correct value (2)	F L2
2.3.2	R28,96 ÷ 1,15 ✓MA = R25,18 VAT = R28,96 – R25,18 ✓M = R3,78 ✓A	1M dividing by 1,15 1M subtracting 1A total VAT (3)	F L2
2.3.3	Cost: ✓M Step 1: 0,3 kℓ × R20,81 = R6,24 ✓A Step 2: 0,2 kℓ × R31,80 = R6,36 ✓CA Step 3: 0,23 kℓ × R63,60 = R14,63 ✓CA Total = R27,23 × 1,15 ✓M = R31,31 ✓CA ∴ Incorrect/Invalid ✓O **OR** Cost: ✓M Step 1: 0,3 kℓ × R20,81 = R6,24 ✓A Step 2: 0,2 kℓ ×R31,80 = R6,36 ✓CA Step 3: 0,23 kℓ × R63,60 = R14,63 ✓CA VAT = R27,23 × 15% = R4,0845 ✓CA Total = R27,23 + R4,0845 = R31,31 ✓CA ∴ Incorrect/Invalid ✓O	1M step 1 1A step 1 1CA step 2 1CA step 3 1M adding VAT 1CA total including VAT 1O statement 1M step 1 1A step 1 1CA step 2 1CA step 3 1CA adding VAT 1CA cost 1O opinion (7)	F L4 F L4
2.3.4	Holidays, therefore home more often. Visitors during holidays. ✓✓O Any valid reason	2O reason (2)	F L4
		[35]	

QUESTION 3 [31 MARKS]			
Ques.	**Solution**	**Explanation**	**T&L**
3.1.1	Total: ✓M 101 447 – (48 319 + 8 542 + 7 987 + 14 135 + 4 374 + 9 114) = 101 447 – 92 471 = 8 976 million **OR** 8 976 000 000 ✓CA	1M subtracting correct values 1CA simplification (2)	D L2
3.1.2	General dealers ✓✓RT	2RT correct retailer (2)	D L1
3.1.3	$14\,275{,}86 = \frac{92\,747 + A}{7}$ ✓SF $14\,275{,}86 \times 7 = 92\,747 + A$ ✓M $99\,931{,}02 - 92\,747 = A$ ✓M $7\,184{,}02 = A$ ✓CA $\therefore A = 7$ billion ✓R	1SF substitution 1M multiplying 1M subtracting 1CA simplification 1R rounding off to the nearest billion (5)	D L3
3.1.4	Median: ✓M ✓RT 8 298 ; 8 462 ; **8 542 ; 8 607** ; 8 978 ; 9 050 $= \frac{8\,542 + 8\,607}{2}$ ✓M = 8 574,5 million **OR** 8 574 500 000 ✓CA	1M correct order 1RT correct values in order 1M median concept 1CA simplification (4)	D L2
3.1.5	42 716 : 7 987 ✓RT 1 : 0,19 ✓A OR 5,35 : 1	1RT correct values 1A simplification to unit ratio (2)	D L2
3.1.6	✓RT ✓RT % change $= \frac{101\,113 - 98\,502}{98\,502} \times 100\%$ ✓MA = 2,65% ✓CA	1RT correct value April 1RT correct value Sept 1MA correct % calculation 1CA simplification (4)	D L2

Ques.	Solution	Explanation	T&L
3.1.7	$\frac{5}{42}$ ✓RT ✓RT ✓M = 0,119 ✓R	1RT numerator 1RT denominator 1R rounding off to 3 decimal places (3)	P L2
3.2.1	50 + years ✓✓RT	2RT correct age group (2)	D L1
3.2.2	$\frac{785}{1\,000}$ ✓RT $= \frac{157}{200}$ ✓S	1RT correct percentage 1S simplification (2)	D L2
3.2.3	1; 3 ; 3,45 ; 4 ; **4,2** ; 6,55 ; 20 ; 23 ; 36 ✓M Q1 = $\frac{3 + 3,45}{2}$ = 3,225 ✓M Q3 = $\frac{20 + 23}{2}$ = 21,5 ✓M IQR = Q3 – Q1 = 21,5 – 3,225 ✓M = 18,28% ✓CA	1M values in correct order and finding median 1M for Q1 1M for Q3 1M subtracting 1CA answer (5)	D L3
		[31]	

QUESTION 4 [28 MARKS]			
Ques.	**Solution**	**Explanation**	**T&L**
4.1.1	B ✓✓RT	2RT correct answer (2)	F L1
4.1.2	✓A ✓A Cost = 8000 + 80 × number of people	2A correct answer (2)	F L2
4.1.3	✓A The point where both venues cost exactly the same for the same number of people. ✓A	1A cost the same 1A same amount of people (2)	F L1
4.1.4	Venue 2: R180 × 180 guests ✓M = R32 400 ✓A Venue 1: R8000 + R80 × 180 ✓M = R22 400 ✓A Difference = R32 400 – R22 400 = R10 000 ✓CA Valid ✓O	1M multiply rate by guests 1A simplification 1M correct multiplication 1A simplification 1CA difference 1O opinion (6)	F L4
4.2.1	Body Mass Index ✓✓A	2A correct answer (2)	D L1
4.2.2	Outlier ✓✓A	2A correct answer (2)	D L1
4.2.3	Scatterplot ✓✓A	2A correct graph (2)	D L1
4.2.4	50 kg ✓✓RT	2RT weight (2)	D L2
4.2.5	$\text{BMI} = \frac{\text{weight in kg}}{\text{height in m}^2}$ $= \frac{60\text{ kg}}{(148\text{ cm})^2}$ ✓RT ✓RT $= \frac{60\text{ kg}}{(1{,}48\text{ m})^2}$ ✓C = 27,39 kg/m^2 ✓CA ∴ Overweight ✓O	1RT weight 1RT height in cm 1C height in m 1CA correct BMI 1O weight status (5)	D L3
4.2.6	$\frac{5}{12}$ ✓RT ✓RT = 41,7% ✓R	1RT numerator 1RT denominator 1R correct percentage rounded to 1 dec. place (3)	P L2
		[28]	

QUESTION 5: FINANCE, DATA HANDLING [26 MARKS]			
Ques.	**Solution**	**Explanation**	**T&L**
5.1.1	South African Revenue Services ✓✓A	2A correct name (2)	F L1
5.1.2	Minimum amount that an individual must earn in order to pay tax ✓✓O **OR** up to that amount you do not pay tax **OR** if you earn less than that amount you do not pay tax	2O correct explanation (2)	F L1
5.1.3	Annual Taxable Income = Gross – Pension – Charity Pension = 7,5% × R46 523,16 = R3 489,24 ✓M Tax Income = R46 523,16 – R3 489,24 – R1 600 ✓M = R41 433,92 Annual Tax Income = R41 433,92 × 12 ✓M = R497 207,04 ✓CA	 1M calculating pension 1M subtracting values from gross 1M multiplying by 12 1CA simplification (4)	F L3
5.1.4	Annual Tax ✓RT ✓SF = 115 762 + 36% (502 185,60 – 488 700) = 115 762 + 36% (13 485,60) = 115 762 + 4 854,82 = 120 616,82 – 16 425 ✓M = R104 191,82 ✓CA Quarter of taxable income = R502 185,60 × ¼ ✓M = R125 546,40 ✓A ∴ **Invalid** ✓O **OR** $\frac{104\ 191,82}{502\ 185,60} \times 100$ ✓M = 20,74% ✓A	 1RT correct tax bracket 1SF subtracting correct values 1M subtracting rebate 1CA simplification 1M multiplying by quarter 1A answer 1O invalid (7)	F L4

Ques	Solution	Explanation	T&L
5.2.1	NZ$: R 0,088205 : 1 ✓M $\therefore \frac{1}{0,088205}$ ✓MA = NZ$ 1: R11,337 ✓A	1M correct values 1MA dividing correct values 1A simplification (3)	F L3
5.2.2	Total cost: = 4 880 + 6 860 ✓MA = NZ$11 740 ✓A 11 740 × 11,337 ✓M = R133 096,38 ≈ R133 100 ✓R **OR** Total cost: = 4 880 + 6 860 ✓MA = NZ$11 740 ✓A 11 740 ÷ 0,088205 ✓M = R133 099,03 ≈ R133 100 ✓R	1MA adding correct values 1A correct answer 1M multiplying by rate 1R rounding to nearest 100 **OR** 1MA adding correct values 1A correct answer 1M dividing by rate 1R rounding to nearest 100 (4)	F L2
5.2.3	✓M ✓MA 500 000 × 1,0875 = NZ$ 543 750 ✓A 543 750 × 1,0875 = NZ$ 591 328,13 ✓CA **OR** ✓MA Interest = 500 000 × 8,75% = 43 750 ✓M Balance after 1st year = 500 000 + 43 750 = 543 750 ✓A 2nd year interest = 543 750 × 8,75% = 47 578,13 Total =543750 + 47 578,13 = NZ$ 591 328,13 ✓CA	1M correct method 1MA multiplying by correct rate 1A amount after 1 year 1CA final amount after 2 years (4)	F L3
		[26]	
		TOTAL: 150	