NATIONAL SENIOR CERTIFICATE EXAMINATION
NOVEMBER 2023

MATHEMATICAL LITERACY: PAPER I

MARKING GUIDELINES

Time: 3 hours 150 marks

These marking guidelines are prepared for use by examiners and sub-examiners, all of whom are required to attend a standardisation meeting to ensure that the guidelines are consistently interpreted and applied in the marking of candidates' scripts.

The IEB will not enter into any discussions or correspondence about any marking guidelines. It is acknowledged that there may be different views about some matters of emphasis or detail in the guidelines. It is also recognised that, without the benefit of attendance at a standardisation meeting, there may be different interpretations of the application of the marking guidelines.

Q1	Marking guideline		Skills assessed	Topic	Level
KEY	**a** accuracy **m** method **mca** method continued accuracy		**ca** continued accuracy **ma** method accuracy **r** rounding	**F** Finance **D** Data handling **P** Probability	**1** KN **2** RP **3** MSP **4** R&R
1.1.1	A budget is used to plan future income and expenditure. While an income and expenditure statement contains the actual amounts for the year/month.		Budget used for planning. Statement actual values	F	1
1.1.2	Main budget revenue Alternative 24,7%		Main budget revenue Alternative 24,7%	F	1
1.1.3	Any two of the following: Personal income tax Corporate income tax Value-added tax Tax on international trade and transactions		Personal income tax Corporate income tax Value-added tax Tax on international trade and transactions	F	1
1.1.4	$Total = R687{,}90 + R308{,}3 + R539{,}7 + R62{,}50$ $Total = R1598{,}40$		Adding up values All values listed correctly	F	1
1.1.5	The minus sign is showing that the amount R43,70 is not an income but rather a payment.		Showing that it is a payment/ deduction/subtraction	F	1
1.1.6	R1 588 000 000 000		R1 588 billion identified. R1 588 000 000 000	F	1
1.1.7	Thirty-three billion three hundred million rand		thirty three billion three hundred million rand	F	1
1.1.8 (a)	0,248		Dividing by 100 0,248 No percentage symbol	F	1
1.1.8 (b)	VAT		VAT	F	1
1.2.1	Technical & vocational education and training		Technical & vocational education and training	D	1

1.2.2	R21,70Billion or R21 700 000 000		R21,70 identified Billion	D	1
1.2.3	Pie chart OR Vertical bar graph OR Dot Plot OR Line graph OR Pictograph		Pie chart OR Vertical bar graph OR Dot Plot OR Line graph OR Pictograph	D	1
1.2.4	$Basic\ Education\ \% = \frac{R282{,}80}{R430{,}90} \times 100$ $Basic\ Education\ \% = 65{,}63\%$		Correct values & × 100 65,63%	D	1
1.2.5	University Transfers		University Transfers	D	1
1.2.6	R19 OR R19 000 000 000 Or $EducAdmin = R430{,}9 - R21{,}70 - R12{,}60 - R48{,}70 - R46{,}10$ $EducAdmin = R19\ Bilion$		R19	P	1
1.2.7	R282,80 billion R48,70 billion R46,10 billion R21,70 billion R19 billion R12,60 billion		values in descending order word billion/1000 000 000		

Q2	Marking guideline		Skills assessed	Topic	Level
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2.1.1 (a)	$Number\ of\ Years = 2023 - 1964 = 59 + 1 = 60\ years$ Alternative 59 years (1 mark only)		Subtracting 2023 – 1964 60 years	F	2
2.1.1 (b)	$Number\ of\ days = 9 + 6 = 15$ Alternative 14 days (1 mark only)		9 days December 15 total	F	2
2.1.2	$Discount = R2299 - R1499$ $Discount = R800$		Subtracting R2299 – R1499 R800	F	2
2.1.3	$Discount = \frac{R800}{R2299} \times 100$ $Discount = 34{,}80\%$		Using answer from 2.1.2 Dividing by R2299 Rounding off to 34,8%	F	2

2.1.4	$VAT = R1499 - \frac{R1499}{1,15}$ $VAT = R1499 - R1303,48$ $VAT = R195,52$ Alternative $VAT = R1499 - \frac{R15}{115}$ $VAT = R1499 - R1303,48$ $VAT = R195,52$ Alternative $VAT = \frac{R1499}{115\%} \times 15\%$ $VAT = R195,52$ (Using 14% no marks)		Dividing R1499 by 1,15 Subtracting R1499 – R1303,48 R195,52 Alternative Dividing R1499 by 115% Multiplying by 15% R195,52 Alternative Dividing R1499 by 115% Multiplying by 15% R195,52	F	3
2.1.5 (a)	$Price\ US\ Dollars = R1499 \div R17,006289$ $Price\ US\ Dollars = \$88,14386$ $Price\ US\ Dollars = \$88,14$		Dividing R1499 by R17,006289 $88,14386 Rounding off correctly	F	4
2.1.5 (b)	When converting larger amounts of foreign currency the number of decimal places affects your answer.		Large values Large values are affected by the number of decimal places.	F	4

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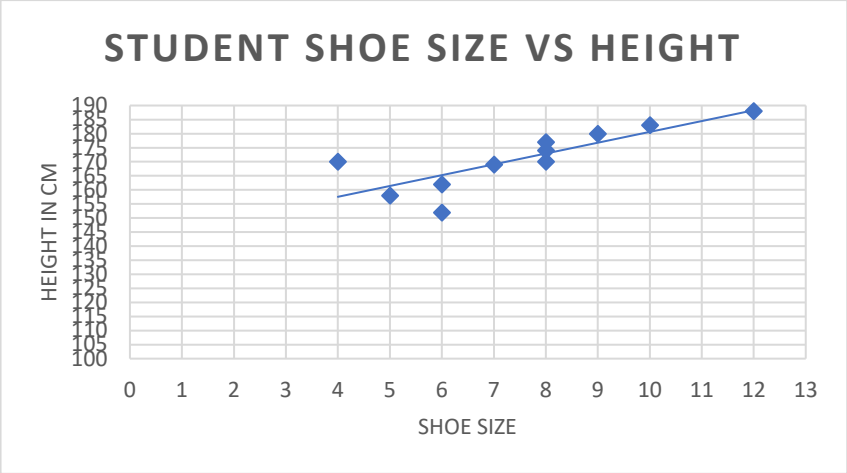
2.2.1	$4; 5; 6; 6; 7; 8; 8; 8; 9; 10; 12$ $Median = 8$		Ordering data correctly Median = 8	D	2
2.2.2	$Modal\ shoe\ size = 8$		Correct data Modal shoe = 8	D	2
2.2.3	$Range = 188\ cm - 152\ cm$ $Range = 36\ \ cm$		Subtracting 1,88 cm – 1,52 cm 36 cm	D	2
2.2.4			Heading Scatter plot Plotting 1st two points correct Plotting 2nd two points correct Plotting 3rd two points correct Plotting three points correct Plotting outlier correct Plotting outlier correct	D	3
2.2.5	Positive trend, as shoes sizes get bigger, height increases		Positive trend Increase in shoe size = increase in height	D	4
2.2.6 (a)	An outlier is a data point that differs significantly (bigger or smaller) from other observations.		data that differs significantly from observations.	D	1
2.2.6 (b)	Shoe size 4; height 170 or Shoe size 6; height 152		Shoes size 4 Height 170	D	4

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3.1.1	$Stage\ 2015 = 800 - 400$ $Stage\ 2015 = 400$		Subtracting 800 – 400 400 hours	D	2
3.1.2	$Days = 1153 \div 24$ $Days = 48{,}04 \approx 48$ Alternative: $Hours = 48 \times 24$ $Hours = 1152$		Dividing 1153 by 24 48,04 Alternative Multiplying by 24 1152	D	2
3.1.3	$Percentage\ increase = \frac{1637 - 124}{124} \times 100\%$ $Percentage\ increase = 1220{,}16\%$ Alternative $Percentage\ increase = \frac{1513}{124} \times 100\%$ $Percentage\ increase = 1220{,}16\%$ Alternative $Percentage\ increase = \frac{1637}{124} \times 100\% - 100$ $Percentage\ increase = 1320{,}16\% - 100 = 1220{,}16\%$		Substitution correct. 1637 124 124 1220,16%	D	3
3.1.4	No loadshedding during 2016 & 2017 Alternative Data was not recorded during 2016 & 2017 Alternative There was loadshedding but not significant enough to plot on the axes with the given scale.		No loadshedding. Alternative No Data Alternative Not significant	D	4
3.2.1	$Cash\ Price = R44956{,}52 \times 1{,}15$ $Cash\ Price = R51\ 700{,}00$		Multiple R44956,52 by 115%	F	1

	Alternative $Cash\ Price = R44\ 956{,}52 \times 1{,}15$ $Cash\ Price = R6743{,}478 + R44\ 956{,}52$ $Cash\ Price = R51\ 700{,}00$		R51 700 Alternative R6743,478 Adding to R44956,52		
3.2.2	$Deposit = R51\ 700 \times 10\%$ $Deposit = R5170$ $Loan\ Amount = R51\ 700 - R5\ 170$ $Loan\ Amount = R46\ 530$ Alternative $Deposit = R51\ 700 \times 90\%$ $Deposit = R46\ 530$		R5170 Subtract deposit from Cash price R46 530 Alternative R51 700 multiplying by 90% R46 530	F	1

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3.2.3 (a)	$SI = R46\,530 \times 8\% \times 3$ mca $SI = R3720 \times 3$ $SI = R11\,167{,}20$ ca $Total\ Cost = R46\,530 + R11\,167{,}20$ mca $= R57\,697{,}20$ mca		Simple interest 8%. SI calculated correctly. add loan amount. Total cost	F	3
3.2.3 (b)	$Monthly\ instalments = R57\,697{,}20 \div 36$ $Monthly\ instalments = R1602{,}70$		36 months Dividing R57697,20 by months R1602,70	F	3
3.2.4	$Difference = R57\,697{,}20 - R46\,530$ $Difference = R11\,167{,}20$ Alternative: $Difference = R57\,697{,}20 + R5170 - R51\,700$ $Difference = R11\,167{,}20$		Subtracting R46 530 R11 167,20 Subtracting R51 700 R11 167,20	F	2
3.2.5	Any one of the following: Take a personal loan from the bank. Borrow money from his home loan. Borrow money from a family member Credit card Lay-by		Any type of loan	F	4

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4.1.1	Inflation is the monthly/yearly increase in costs of goods and services. alternative Can also be seen as the decrease in the purchasing power of money.		Increase in cost over time Alternative a decrease in purchasing power of money over time.	D	1
4.1.2 (a)	$Mean = \frac{92{,}75}{11} = 8{,}43\%$		Sum of all the value 11 8,43%	D	2
4.1.2 (b)	$R100\,000 \times 7{,}75\% = R7750$ $R100\,000 \times 10{,}75\% = R10750$ It will cause the monthly repayments/interest to increase		Using 7,75% to show interest p.a. Using any other value to show increase/decrease in interest. Loan repayments/interest to increase	D	4
4.1.3	Yes, it does. This increase in the interest rate from July 2022 slowly caused the inflation rate to start decreasing after 7,8% down to 6,9%		yes Inflation rate decreased from 7,8% down to 6,9% interest rate was increased in July 2022	D	4
4.1.4	$P(interest\ is\ 9\%) = \frac{1}{11} \times 100 = 9{,}09\%$		1 11 multiply by 100 rounded correctly 9,09%	P	3

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4.2.1	$Cost\ of\ house = \frac{R1\ 000\ 000}{85\%}$ $Cost\ of\ house = R1\ 176\ 470{,}59$ Alternative $Cost\ of\ house = R1000\ 000 \times \frac{R100}{85\%}$ $Cost\ of\ house = R1\ 176\ 470{,}59$		58% Dividing by percentage R1 176 470,59 Alternative 85% Dividing by 85% R1 176 470,59	F	3
4.2.2 (a)	Total cost = R8364,40 × 240 = R2 007 456		Reading R8364,40 Multiplying by 240 R2 007 456 (Cannot have both wrong)	F	2
4.2.2 (b)	$Interest\ 20\ years = R2\ 007\ 456 - R1\ 000\ 000$ $Interest\ 20\ years = R1\ 007\ 456$		Subtracting R1 000 000 from (a) R1 007 456	F	2
4.2.2 (c)	Interest 30 years = R2 641 554 – R1 000 000 Interest 30 years = R1 641 554 Amount = R1 641 554 – R1 007 456 Amount = R634 098 Alternative Amount = R2 641 554 – R2 007 456 Amount = R634 098 Alternative using cash price Amount = R2 641 554 – R1 176 470,59 Amount = R1 465 083,41		R1 641 554 Subtracting interest R634 098 Alternative R2 641 554 Subtracting R2 007 456 R634 098 Alternative using cash price R2 641 554 Subtracting cash price R1 465 083,41	F	4

4.2.3	Monthly affordability. Alternative Can he afford the repayments for a 20-year bond? Alternative Age will affect if 20 or 30 year bond is taken. Alternative Health will affect if 20 or 30 year bond is taken.		Monthly affordability Alternative Can he pay the higher repayments/comparing the two instalments?	F	4

Q5	Marking guideline		Skills assessed	Topic	Level
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5.1.1	(i) Error R237 100. He needs to subtract this amount of R237 100 from his annual salary. (ii) Error: R142 260 Incorrect tax calculation should be R104 324 (iii) Added the primary rebate. Should have subtracted rebate.		Error R237 100. subtract this from his annual salary. Error: R142 260 Incorrect calculation Error: add R17 235 subtract the rebate	F	4
5.1.2 (a)	$Annual\ Salary = R21\,500 \times 12 = R258\,000$ $Tax = R42\,678 + 26\%(R258\,00 - R237\,100) - Rebate$ $Tax = R48\,112 - R17\,235 = R30\,877$		Annual Salary R258 000 Correct bracket Subject R237100 R48 112 Subtract correct rebate. R30 877	F	3
5.1.2 (b)	Monthly Tax = R30 877 ÷ 12 = R2 573,08 Yes he has been paying the correct amount of tax ✓ca Alternative R2 573,08 × 12 = R30 877 Yes, he has been paying the correct amount of tax		Divide annual tax by 12 R2573,08 Yes, correct tax Alternative Multiply monthly tax by 12 R30 877 Yes, paying correct	F	4
5.2.1	R6000		rand unit R6000	D	2
5.2.2 (a)	$P(> R3700) = \frac{75}{100} = \frac{3}{4}$		Numerator 75 Denominator 100 Simplifying fraction $\frac{3}{4}$	D	2

5.2.2 (b)	$Number\ of\ Cars = 50 \times 75\% = 37{,}5\ cars \approx 38$		Multiply 50 by 75% 37,5 cars 38 whole cars	D	2
5.2.3	IQR = R7950 – R3700 = R4250		R7950 Subtract R3700 R4250	D	3
5.2.4	R7950		R7950	D	4

Total: 150 marks