



NATIONAL SENIOR CERTIFICATE EXAMINATION
MAY 2023

MATHEMATICAL LITERACY: PAPER I

MARKING GUIDELINES

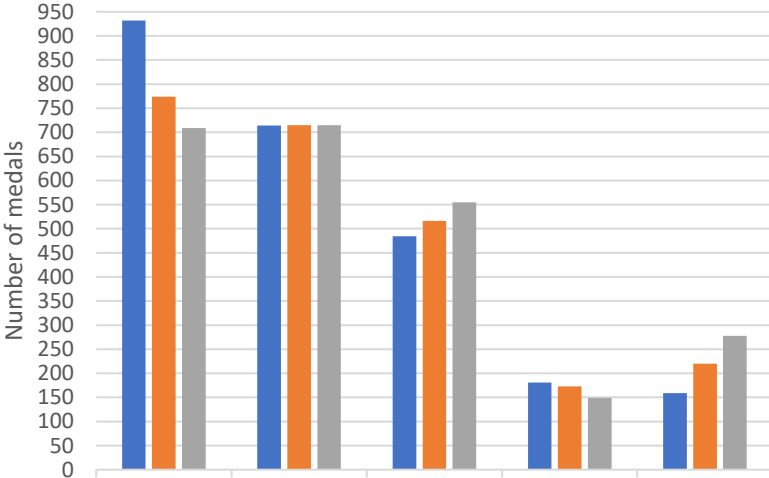
Time: 3 hours

150 marks

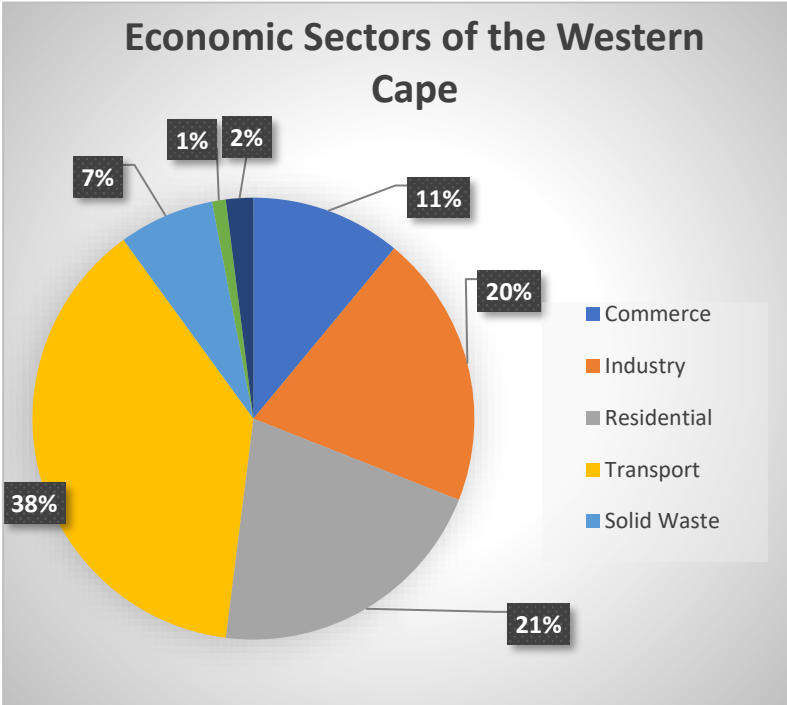
These marking guidelines are prepared for use by examiners and sub-examiners, all of whom are required to attend a standardisation meeting to ensure that the guidelines are consistently interpreted and applied in the marking of candidates' scripts.

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	Four months 1 January to 30 April		four months	F	1
1.1.2	eThekweni High School 23 Protea Road, Morningside, Durban, 4001		Ethekeweni High School address	F	1
1.1.3	Tax; UIF; SACE; Old Mutual RA – any two		tax UIF – any two	F	1
1.1.4	$R500 \times 12 = R6\ 000$		$R500 \times 12$ $R6\ 000$	F	1
1.1.5 (a)	Total income = $R22\ 100,56 + R1\ 500 + R800 + R500$ Total income = $R24\ 900,56$		adding all correct values correct answer	F	1
1.1.5 (b)	Tax = $R4\ 507,37 - R1\ 500 - R15 - R177,12$ Tax = $R2\ 815,25$		subtracting all values correct answer	F	1
1.1.5 (c)	Nett PAY = $R24\ 900,56 - R4\ 507,37$ Nett PAY = $R20\ 393,19$		subtracting values correct answer	F	1
1.1.6	RA percentage = $\frac{R1500}{R22100,56} \times 100$ RA percentage = 6,79%		R1500 dividing by $R22\ 100,56$ 6,79%	F	1
1.1.7 (a)	Unemployment Insurance Fund		UIF	D	1
1.1.7 (b)	retrenchment; unemployed; illness – any one		retrenchment illness	D	1
1.2.1	Questionnaire; interview; Online form – any one		questionnaire interview	D	1
1.2.2	32		32	D	1
1.2.3	20 years		20	D	1
1.2.4	Zulu language = $\frac{23}{32} \times 100 = 71,88\% \approx 72\%$		$\frac{23}{32}$ 71,88%	D	1
1.2.5	Afrikaans		Afrikaans	D	1
1.2.6	$P(\text{Study}) = \frac{21}{32}$		$\frac{21}{32}$	P	1

Q2	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																									
2.1.1 (a)	mean = $\frac{8\,893}{10} = 889,3$		divide 8 893 by 10 889,3	D	2																									
2.1.1 (b)	median = $\frac{159 + 130}{2} = 144,5$ Accept 144 or 145		$\frac{159 + 130}{2}$ 144,50	D	2																									
2.1.1 (c)	Range = 715 – 77 = 638		subtract 77 from 715 638	D	2																									
2.1.1 (d)	Kenya Nigeria		Kenya Nigeria	D	2																									
2.1.2	<div><p>All-time Commonwealth Games medal table</p><table><thead><tr><th>Country</th><th>Gold</th><th>Silver</th><th>Bronze</th></tr></thead><tbody><tr><td>Australia</td><td>920</td><td>760</td><td>710</td></tr><tr><td>England</td><td>710</td><td>710</td><td>710</td></tr><tr><td>Canada</td><td>480</td><td>510</td><td>550</td></tr><tr><td>India</td><td>180</td><td>170</td><td>150</td></tr><tr><td>New Zealand</td><td>150</td><td>220</td><td>280</td></tr></tbody></table><p>■ Gold ■ Silver ■ Bronze</p></div>		Country	Gold	Silver	Bronze	Australia	920	760	710	England	710	710	710	Canada	480	510	550	India	180	170	150	New Zealand	150	220	280	compound bar graph plotting legend/Key		D	2
Country	Gold	Silver	Bronze																											
Australia	920	760	710																											
England	710	710	710																											
Canada	480	510	550																											
India	180	170	150																											
New Zealand	150	220	280																											

Q2	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
2.2.1	$\frac{25}{100} = \frac{1}{4}$ Accept $\frac{3}{4}$ (1 mark only)		$\frac{25}{100}$ $\frac{1}{4}$ simplifying fraction	F	1
2.2.2 (a)	Birmingham city = $\frac{778\,000\,000}{75} \times 25$ Birmingham city = £259 333 333,33 Accept £259 333 333,30 OR Birmingham city = £259,3333333 million		£778 000 000 dividing by 75 multiplying by 25 £259 333 333,33	F	3
2.2.2 (b)	Total cost = £778 000 000 + £259 333 333,33 Total cost = £1 037 333 333,33 OR Total cost = £1 037,33333333 million		adding correct values £1 037 333 333,33	F	2
2.2.2 (c)	Euro = £1 037 333 333,33 × 1,18571 Euro = €1 229 976 506,66 Rand = €1 229 976 506,66 ÷ 0,058549 Rand = R21 007 643 280 Rand = R21 008 000 000 Dollars = £1 037 333 333,33 × 1,1725 Dollars = \$1 216 273 333 Rand = \$1 216 273 333 ÷ 0,059614 Rand = R20 402 478 170 Rand = R20 402 000 000		multiplying by 1,18571 €1 229 976 506,66 dividing by 0,058549 R21 007 643 280 correct rounding multiplying by 1,1725 \$1 216 273 333 dividing by 0,059614 R20 402 478 170 correct rounding	F	3
2.2.2 (d)	Twenty-one billion and eight million or Twenty billion four hundred and two million		correct words	F	1

Q3	Marking guideline			Topic	Level														
KEY	a accuracy m method mca method continued accuracy			F Finance D Data handling P Probability	1 KN 2 RP 3 MSP 4 R&R														
3.1.1	Industry = 1% × 20 Industry = 20% Transport = 21% + 18% Transport = 39%			D	2														
3.1.2	<div><p>Economic Sectors of the Western Cape</p><table><thead><tr><th>Sector</th><th>Percentage</th></tr></thead><tbody><tr><td>Commerce</td><td>11%</td></tr><tr><td>Industry</td><td>20%</td></tr><tr><td>Residential</td><td>21%</td></tr><tr><td>Transport</td><td>38%</td></tr><tr><td>Solid Waste</td><td>7%</td></tr><tr><td>Unlabeled</td><td>2%</td></tr></tbody></table></div>	Sector	Percentage	Commerce	11%	Industry	20%	Residential	21%	Transport	38%	Solid Waste	7%	Unlabeled	2%			D	3
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Q3	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
3.1.3	South Africa = $339\,117\,323 \div 13 \times 100$ South Africa = 2 608 594 792,31 GJ Barrels of oil = $2\,608\,594\,792,31 \times 0,17$ Barrels of oil = 443 461 115 Accept 443 461 115		dividing by 13 multiplying by 100 2 608 594 792,31 multiplying by 0,17 443 461 115	D	3
3.1.4	$\begin{array}{r} R2\,187 : \$130 \\ R2\,187 : R2\,187 \\ R1 : \$0,05944215 \\ R1 : \$0,0594 \end{array}$		correct Ratio R2 187 : \$130 dividing by R2 187 R1: \$0,05944215 R1: \$0,0594	F	2
3.2.1	Increase 2006–2017 = $R6,73 \times 2 = R13,46$ Price 2017 = R13,46 so has double Increase 2017–2022 = $R13,46 \times 2 = R26,92$ Price 2022 = R26,92 so has doubled TopAuto website is correct		multiplying R6,73 by 2 R13,46 comparing 2017 price R26,68 R26,74 website is correct Accept partial correct as it has only double not more than doubled	D	4
3.2.2	% increase = $\frac{R26,92 - R6,73}{R6,73} \times 100$ % increase = 300%		subtract R6,73 from R26,92 dividing by R6,73 300%	D	2
3.2.3	$VAT = \frac{R26,92}{115} \times 15$ VAT = R3,51 OR Price excluding VAT = $\frac{R26,92}{115} \times 100$ Price excluding VAT = R23,41 VAT = $R26,92 - R23,41 = R3,51$		divide R26,92 by 115 Multiply by 15 R3,51	D	2

Q4	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
4.1.1 (a)	VAT = R628 900 × 15% = R94 335		multiplying R628 900 by 15% R94 335	F	2
4.1.1 (b)	Total = R628 900 + R94 335 Total = R723 235		adding VAT to R628 900 R723 235	F	2
4.1.2 (a)	Deposit = R723 235 × 10% Deposit = R72 323,50 Total cost = R72 323,50 + R13 764 × 12 × 5 Total cost = R898 163,50		R72 323,50 R13 764 × 12 × 5 R898 163,50	F	3
4.1.2 (b)	Interest = R898 163,50 – R723 235 Interest = R174 928,50		subtracting R723 235 from (a) R174 928,50	F	2
4.1.3	Interest = R650 911,50 × 0,095 × 5 Interest = R309 182,96 So, interest rate is not correct Alternative solution $R174\,928,50 = R650\,911,50 \times \frac{\text{rate}}{100} \times 5$ $\frac{R174\,928,50}{R650\,911,50 \times 5} = \frac{\text{rate}}{100}$ $0,053748 = \frac{\text{rate}}{100}$ $5,37\% = \text{rate}$ So, interest rate is not correct		substitution correct R309 182,96 interest rate is not correct	F	4

Q4	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
4.1.4	Monthly repayment = $R68\,500 \times 20\%$ Monthly repayment = R13 700 This is not enough to cover the R13 764 Alternative solution Monthly required salary = $R13\,764 \div 20\%$ Monthly required salary = R68 820 Monthly salary of R68 500 will not cover bond repayment of the R13 764		multiply R68500 by 20% R13 700 this is lower than R13 764	F	4
4.2.1 (a)	rate = $7,3 \times 24,99 \div 100$ rate = 1,82427		using correct value of 7,3 multiplying by 24,99 dividing by 100	F	4
4.2.1 (b)	Fixed cost = $R744\,900 - R723\,400$ Fixed cost = R21 500		using correct value of R744 900 subtracting R723 400	F	2
4.2.2	a = $R21\,500 + 1,19952 \times 10\,000$ a = R33 495,20 b = $R1,82427 \times 20\,000$ b = R36 485,40 c = $R182\,427 \div 1,82427$ c = 100 000 or c = $R141\,452 - R21\,000 \div 1,19952$ c = 100 000		substitution R33 495,20 substitution R36 485,40 substitution 100 000	F	2

Q4	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															
4.2.3	<div><p>Fuel cost of Petrol RAV4 vs Hybrid RAV4</p><table><caption>Data points from the graph</caption><thead><tr><th>Number of Kilometres</th><th>Petrol Cost (Rands)</th><th>Hybrid Cost (Rands)</th></tr></thead><tbody><tr><td>0</td><td>R 0.00</td><td>R21 000.00</td></tr><tr><td>10 000</td><td>R18 000.00</td><td>R32 000.00</td></tr><tr><td>20 000</td><td>R36 000.00</td><td>R43 000.00</td></tr><tr><td>40 000</td><td>R72 970.80</td><td>R69 480.80</td></tr></tbody></table></div>	Number of Kilometres	Petrol Cost (Rands)	Hybrid Cost (Rands)	0	R 0.00	R21 000.00	10 000	R18 000.00	R32 000.00	20 000	R36 000.00	R43 000.00	40 000	R72 970.80	R69 480.80		heading & axes & graph labels or legend end value petrol (R72 970,80) end value hybrid (R69 480,80) y-intercept petrol + straight line y-intercept hybrid+ straight line	F	3
Number of Kilometres	Petrol Cost (Rands)	Hybrid Cost (Rands)																		
0	R 0.00	R21 000.00																		
10 000	R18 000.00	R32 000.00																		
20 000	R36 000.00	R43 000.00																		
40 000	R72 970.80	R69 480.80																		
4.2.4	(34 390; R62 73664) X range (33 000 – 34 500) Y range (R62 000 – R63 000)		≈ 34 000 ≈ R62 000	F	2															
4.3.1	$P(\text{one ticket}) = \frac{1}{360} \times 100 = 0,28\%$		$\frac{1}{360}$ 0,28%	P	2															
4.3.2			(a) correct interval (b) Position correct for 4.3.1 both labels correct	P	2															

Q5	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
5.1	They pay no transfer fees/tax as rate of tax is 0%		no transfer fees/tax rate of tax 0%	F	4
5.2	Tax = R88 250 + 11% × 2 500 000 – R2 475 000 Tax = R88 250 + 11% × R25 000 Tax = R88 250 + R2 750 Tax = R91 000		correct tax bracket 11% of R25 000 add R2 750 R91 000	F	3
5.3	New price = R2 500 000 × 95% New price = R2 375 000 Tax = R44 250 + 8% × (R2 375 000 – R1 925 000) Tax = R44 250 + R36 000 Tax = R80 250 Savings = R91 000 – R80 250 = R10 750 The statement is valid		R2 375 000 correct tax bracket 8% of R450 000 R80 250 R10 750 Valid/True	F	4
5.4	Transfer costs = R1 026 00 + 13% × R1 000 000 Transfer costs = R1 026 000 + R130 000 Transfer costs = R1 156 000 Percentage of property value = $\frac{R1\,156\,000}{R12\,000\,000} \times 100$ Percentage of property value = 9,63% Almost 10% is valid		correct tax bracket R1000 000 R1 156 000 percentage of house 9,63% Almost 10% is correct	F	4

Total: 150 marks